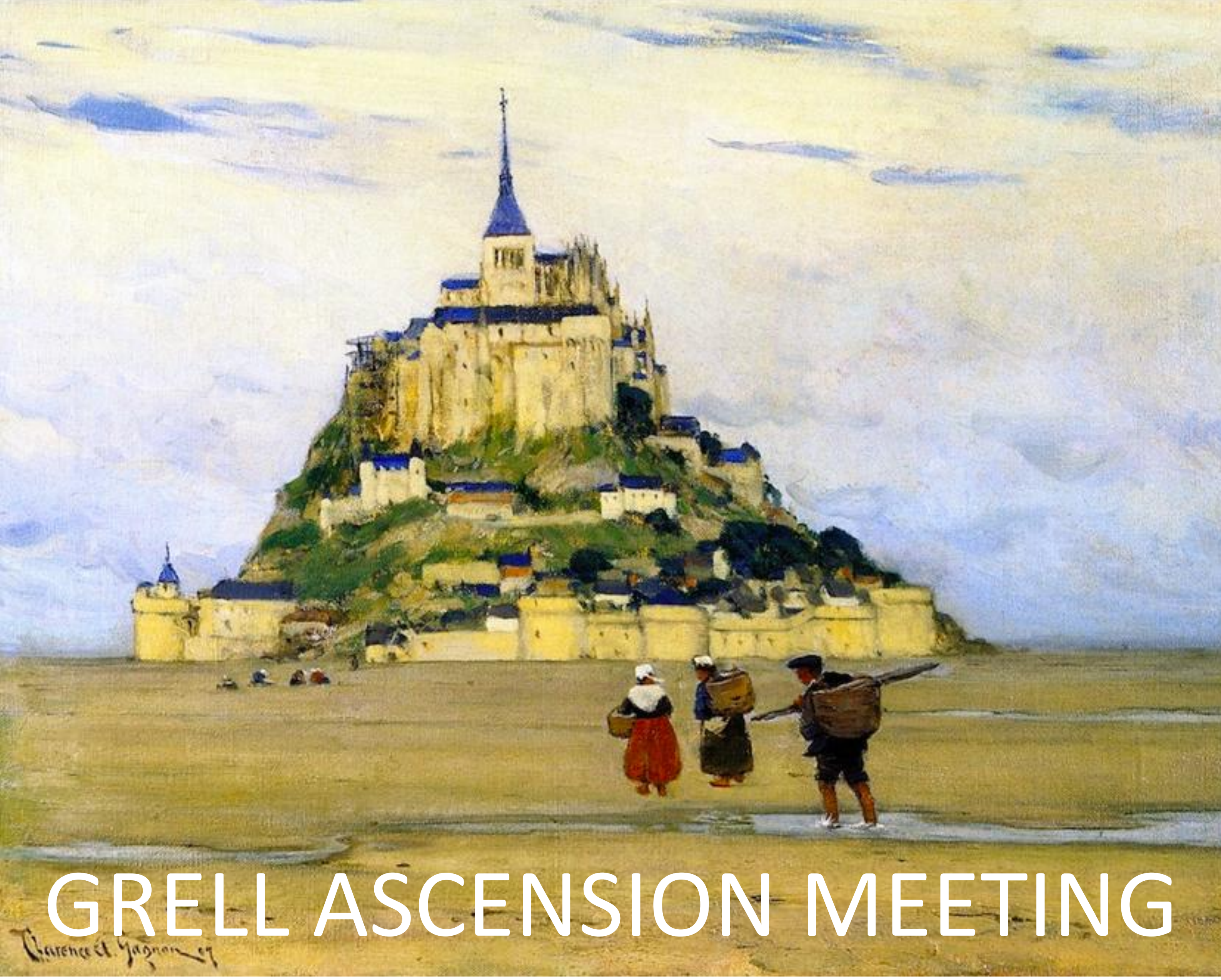

GRELL ASCENSION MEETING

47th meeting of the GROUP FOR CANCER EPIDEMIOLOGY AND REGISTRATION IN LATIN LANGUAGE COUNTRIES

31 May & 1-2 June 2023

Aux portes du MONT SAINT-MICHEL
La Caserne, Normandy, France

BOOKS OF ABSTRACTS

1. Care and cure

CANCER AND PREGNANCY: ESTIMATES IN ITALY BASED ON CANCER REGISTRIES AND HOSPITAL DISCHARGE DATABASES

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INTRODUCTION

In advanced economic development countries, about 1 out of 1000 pregnancies is in concomitance of a cancer diagnosis. The frequency of this event is low but growing, due to the increasing age of women at childbirth. Interest about this topic is epidemiological and clinical: improvement of diagnostic and therapeutic techniques makes management of cancer increasingly compatible with pregnancy. Aim of the study is to describe the phenomenon in Italy, thus providing useful evidence for clinical management of women with pregnancy-associated cancer (PAC).

OBJECTIVE

Estimate current incidence rates and time trends of PAC, stratified by pregnancy outcome in Italy.

METHODS

Retrospective longitudinal study on cohorts of women aged 15-49 years diagnosed with cancer. Data are from population-based Cancer Registries (CRs) linked at individual level with the Hospital Discharge Records (HDRs). CRs provided data for the most updated year available and for a period of at least 5 years in 2003-2015.

RESULTS

19 CRs distributed between North (8), Centre (2) and South (9) are in the study and cover about 22% of Italy. 3559 PAC are identified from the 74,165 women aged 15-49 diagnosed with cancer: the most frequent cancer site is breast (24.3%), followed by thyroid (23.9%) and melanoma (14.3%), the mean age at diagnosis is 34 years. The most frequent outcome of PACs is delivery (53.1%) followed by voluntary termination of pregnancy (VTP) and spontaneous abortion (in both cases 12%). The trend 2003-2015 of PACs is increasing when outcome is delivery and decreasing otherwise.

CONCLUSIONS

PAC has a significant impact on the life of women and increasing relevance from the clinical point of view: trend of PAC by pregnancy outcome confirms the tendency to guarantee appropriate cancer treatment throughout pregnancy.

Results are obtained by using, for the first time in Italy, a study design based on CRs data, thus allowing a correct and complete identification of cancers in women.

LIVING CONDITIONS, SEXUAL AND FERTILITY PROFILES IN YOUNG WOMEN AFTER BREAST CANCER IN FRANCE: A NATIONAL FRANCIM NETWORK STUDY

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INTRODUCTION: In recent decades, the living conditions of breast cancer (BC) survivors have received particular attention, especially among the youngest who face fertility and sexuality issues. This study mainly aims to identify determinants of sexuality and fertility, and describe other living conditions of young BC survivors in France.

METHODS: Non-metastatic invasive BC women diagnosed from 2009 to 2016, aged ≤ 40 years at diagnosis were identified through the FRANCIM Network. Participants completed self-reported questionnaires including standardized measures (sexuality, Health Related Quality of Life (HRQoL),

social deprivation), and fertility from June 2021 to December 2022. Sexuality profiles were identified by ascending hierarchical classification.

RESULTS: In total, 561 BC survivors from 14 French cancers Registries participated in the survey (response rate of 29%). The mean age at diagnosis was 35.9 (SD=3.8). Main tumors characteristics were AJCC stage 2-3 (61%) and Tumor grade ≥2 (91%). Patients underwent lumpectomy (72%), chemotherapy (60%), radiotherapy (85%), endocrine therapy (71%) and targeted therapies (23%). More than 5 years after diagnosis, 48% reported sexual dysfunction. Among 18% of women who had a pregnancy project at diagnosis, 35% became pregnant after treatment.

Ascending hierarchical clustering allowed to identify 3 distinct sexuality profiles in the patients from worse sexual function to better respectively: profile 1 (20%), profile 2 (30%) and profile 3 (50%). Deprivation and treatment by tamoxifen were associated with an increased risk of sexual dysfunction.

CONCLUSIONS:

This study showed that more than five years after BC diagnosis, almost one in two young BC survivors, experienced sexual issues. Specific interventions in the field of supportive care (specialists and psychological support and improvement of communication by caregivers and within the couple) for this population should focus in managing sexual dysfunction and fertility issues.

DETERMINANTS OF ACCESS TO CARE AND PROGNOSIS IN OLDER ADULTS WITH CANCER: EXAMPLE OF STUDY MERGING CANCER REGISTRIES AND COHORTS

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BACKGROUND: The growing incidence of cancer associated to an aging population represents an epidemiologic issue that requires questioning access to care and prognosis in older adults with cancer. Although several studies focused on the determinants of access to care and prognosis in this population, they mainly disregarded geriatric-specific factors (e.g. cognition, functional limitations) and prognosis remained mostly studied through overall survival.

AIM: To identify the determinants of access to care and prognosis in older adults with cancer.

METHODS: Using cancer registries, we identified older subjects (≥65 years) with cancer in three French prospective cohort studies on aging from the Gironde department. Outcomes were receiving cancer-related treatment, functional decline, and overall survival (OS). Demographic and socioeconomic characteristics, smoking status, self-rated health, cancer-related, and geriatric-specific factors were studied. Non-parametric multi-state models were performed to study determinants of cancer-related treatment; logistic regression models for functional decline; and Cox models for OS.

RESULTS: A total of 607 subjects were included in the study, with a median age at cancer diagnosis of 84 years. Dementia was associated with a lower likelihood of receiving cancer treatment. Age (≥85 years), cognitive impairment or dementia, and advanced stage of cancer were associated with a higher risk of Activities of Daily Living (ADL) limitations, whether considering death or not. Age (≥85 years), education and polypharmacy were associated with a higher risk of ADL and/or Instrumental ADL limitations. Smoking habits, activity limitations, cognitive impairment or dementia, advanced cancer stage and absence of treatment were associated with lower OS. Women presented higher OS.

CONCLUSION: This study highlights the interest of considering geriatric-specific factors when studying determinants of access to care and prognosis in older adults with cancer.

LONG-TERM EVALUATION OF PATTERNS OF CARE IN MULTIPLE MYELOMA: A PARTNERSHIP BETWEEN CANCER REGISTRIES AND A PHARMACEUTICAL COMPANY

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BACKGROUND: The treatment of multiple myeloma (MM) changed considerably over the last two decades. The results of clinical trials alone are not sufficient to assess the efficacy of these treatments in the long term in real-life settings. The question of transposability of the results to current practice needs to be answered to document the impact of innovation at the population level. Population-based cancer registries (PBCRs) represent a great tool to evaluate the spread of state-of-the-art cancer therapies into community practice.

OBJECTIVE: Our aim is to provide an example of a partnership with 2 French PBCRs and a pharmaceutical company in the long-term evaluation of incident MM treatments over the period 2008-2015 with a follow-up to 2020.

METHODS: A retrospective observational study (High Resolution Study) was conducted using PBCRs which provided all the necessary information to document patterns of care. The following five analytical steps were defined by PBCR: 1- Definition of the objectives expressed by the pharmaceutical industry and the means to be implemented to meet them; 2- Technical implementation and creation of the cohort; 3- Quality control of the data; 4- Data analysis and response to the objectives; 5- Valorization of results (congress, articles).

RESULTS: Based on 2 PBCRs, a MM cohort of 1166 incident patients was identified and provided comprehensive information about the patient characteristics, treatment patterns (i.e., treatments and number of lines of therapy received), as well as survival outcomes. For example, over the period 2015-2018, there was a +9% increase in the use of bortezomib, thalidomide and lenalidomide as first-line therapy resulting in a +13% gain in 5-year net survival.

CONCLUSION : This partnership between PBCRs and a pharmaceutical company allowed to generate real-life data on the effectiveness and usage of MM treatments available in France between 2008 and 2020, and illustrates the potential of such partnerships.

ANALYSIS OF SECOND NEOPLASMS ON PATIENTS WITH CHILDHOOD CANCER IN THE NORTH OF PORTUGAL FROM 1995 TO 2004

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OBJECTIVES: The refinement of therapies has incremented the overall survival for childhood cancer to approximately 80%, as well as the risk for second neoplasms (SNs). The aim of this analysis was to describe the incidence and characteristics of SNs among childhood cancer survivors in the North of Portugal.

METHODS: This study is based on a cohort of the Portuguese Northern Region Cancer Registry (RORENO). Patients, who were no more than 20 years old, diagnosed with a first malignancy between 1995 and 2004 and that survived at least 6 months were included and followed-up for vital status up to 11 Jan 2023. Cases were classified according to ICCC-3. For statistics, categorical variables were summarized as frequencies and percentages and the continuous were presented as median, minimum and maximum.

RESULTS: There were 1103 patients included, mostly diagnosed with leukemia's or lymphomas (n=475), followed by solid (n=262) and nervous system (n=225) tumors. In total 54.7% were male patients and the age at diagnostic was significantly lower for patients with nervous system tumors with a median of 4 (range 0-19) years. Up until the end of 2018, 26 of the survivors (2.4%) developed SNs, notably solid tumors (n=18) followed by leukemia's or lymphomas (n=5). Solid SNs, which were the most prominent first neoplasm with SNs, appeared especially faster, median of 5.2 (range 0.1-15.4) years after the first malignancy, and were mostly located in the thyroid (n=4) after a primary diagnostic of leukemia, lymphoma or sarcoma. In addition, patients with a leukemia or lymphoma as SNs had a median survival time of 3 (range 0.5-26.9) months.

CONCLUSION: Childhood cancer survivors must be under closed surveillance since the incidence of SNs and late sequelae are set to rise as the survival time increases. However, the sparse of data about, for example, treatments hinders these studies. Therefore cancer data registries should upgrade data acquisition to allow an effective patient follow-up.

THE NATIONAL BREAST CANCER COHORT 2013-2018 OF LUXEMBOURG'S NATIONAL CANCER REGISTRY: QUALITY OF CARE IN LUXEMBOURG

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OBJECTIVES: In Luxembourg, breast cancer is the most common and the most lethal type of cancer in women. This study aims to investigate into the quality of care (QOC) of breast cancers diagnosed or treated in Luxembourg between 2013-2018 by using data from the national cancer registry (Registre National du Cancer, RNC) and providing a particular focus in waiting times and breast cancer treatments.

METHODS: Data concerned all newly breast cancer diagnosed in 2013-2018. Vital status was determined according to the death certificates. The following eligibility criteria were applied: 1. Women ≥15 years at diagnosis. 2. First primary invasive breast carcinoma (BC) or ductal carcinoma in situ (DCIS) 4. Non-metastatic tumours (M0).

RESULTS: 2 805 breast cancer cases were eligible for this study. Some results for initial treatments are reported below:

- Surgery: 93.0% of women with DCIS and 86.3% of women with invasive M0 BC, with a tumour size ≤ 2 cm (multifocal tumours excluded), underwent breast-conserving surgery; 77.9% of women with DCIS and 85.7% of women with invasive BC (T1, T2) underwent a single breast operation for the primary tumour.

- Radiotherapy: 68.5% of women with DCIS and 87.7% of women with invasive M0 BC, treated by breast-conserving surgery, underwent adjuvant radiotherapy.

- Endocrine Therapy: 55.8% of surgically treated women with hormone sensitive (ER+ and/or PR+) invasive M0 BC received endocrine therapy.

- Waiting time: for 53.7% of women with DCIS or invasive M0 BC, the time interval from the date of biopsy to the date of start of treatment is no longer than 4 weeks.

CONCLUSION: The present results represent the first quality of care data for breast cancer cases treated or diagnosed in Luxembourg, based on the national cancer registry (2013-2018). These quality indicators estimate the level of adherence to clinical practice guidelines and care pathways developed to best support breast cancer patients in Luxembourg.

THE DURATION OF INTERVALS ON THE ORAL CANCER CARE PATHWAY AND IMPLICATIONS FOR SURVIVAL: A META-ANALYSIS

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BACKGROUND: Previous studies measuring intervals on the oral cancer care pathway have been heterogenous, showing mixed results with regard to patient outcomes.

AIM: The aims of this research were 1) to calculate pooled meta-analytic estimates for the duration of the patient, diagnostic and treatment intervals in oral cancer, considering the income level of the country, and 2) to review the evidence on the relationship of these three intervals with tumor stage at diagnosis and survival.

METHODS: We conducted a systematic review with meta-analysis following PRISMA 2020 guidelines and a pre-registered protocol. Following the Aarhus statement, studies were eligible if they reported data on the length of the patient (first symptom to first presentation to a healthcare professional), diagnostic (first presentation to diagnosis) or treatment (diagnosis to start of treatment) intervals in adult patients diagnosed with primary oral cancer. Risk of bias was assessed with the Aarhus checklist. Twenty-eight studies reporting on 30 845 patients met the inclusion criteria.

RESULTS: The pooled median duration of the patient interval was 47 days (95% CI=31-73), k=18, of the diagnosis interval 35 days (95% CI=21-38), k=11, and of the treatment interval 30 days (95% CI=23-53), k=19.

CONCLUSIONS: In lower-income countries, the patient and treatment intervals were significantly longer and longer patient intervals were related to later stage at diagnosis. In studies with lower risk of bias from high-income countries, longer treatment intervals were associated with lower survival rates. Interval duration on the oral cancer care pathway is influenced by the socio-economic context and may have implications for patient outcomes.

ECONOMIC IMPACT OF GYNECOLOGICAL AND BREAST CANCER AMONG WORKING-AGE WOMEN: REGIONAL DIFFERENCES AND PRODUCTIVITY LOST

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BACKGROUND: Approximately 70% of gynecological cancer (ovary, cervix, and uterine body) and female breast cancer deaths occur in economically productive women (up to 69 years of age), resulting in a significant economic and social impact. Despite the relevance of women's role in the Brazilian economy, the economic impacts of gynecological and breast cancer deaths are unknown.

AIM: To measure the economic impact of gynecological and breast cancer deaths in economically active Brazilian women between 2001 and 2030.

METHODS: Mortality data were obtained from the Mortality Information System. Economic and population data were obtained from the Brazilian Institute of Geography and Statistics. Years of potential productive life lost (YPLL) and productivity loss were calculated for women aged 15 years and older at the time of death for the period from 2001 to 2015, and projected until 2030, according to the five macro-regions of Brazil. The Human Capital Approach method was used for estimating productivity loss. The estimated values in local currency (Brazilian Reais) were converted to international dollars (Int$).

RESULTS: Were estimated 25.3 million YPLL and Int$26.8 billion in productivity lost were attributed to 969.2 thousand deaths from gynecological and breast cancer in Brazilian women between 2001 and 2030. Approximately half of the deaths were attributable to breast cancer, which was the leading cause of death among the studied neoplasms in four of the five macro-regions of the country (Northeast, Southeast, South, and Midwest). Cervical cancer was the main cause of death in the North region, where the highest relative increase (234%) in productivity loss was observed between 2001-2015 and 2016-2030, compared to other regions.

QUALITY OF LIFE OF WOMEN OVER 50 YEARS WHO UNDERWENT BREAST CANCER TREATMENT IN BRAZIL

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INTRODUCTION: Considering the increase in survival among women diagnosed with breast cancer, it is important to assess the quality of life to measure the impact of cancer treatment on the health status of patients.

OBJECTIVE: to analyze factors related to quality of life in women diagnosed with breast cancer after the end of treatment. Methods: Cross-sectional study with 71 women aged ≥50 years, diagnosed with breast cancer between 2014 and 2016, assisted at an oncology service in Brazil and selected from the hospital cancer registry. Quality of life was assessed using the EORTC QLQ-C30 and BR-23 questionnaires. Analyzes were performed using the Student's T Test and the Mann-Whitney Test.

RESULTS: in the QLQ – C30, there was a median score of 83.3 on the global health scale (IQ= 25.0) and mean scores on the functional scale of 77.81 (SD=18.2) and on the symptoms scale of 18.78 (SD=15.4). In the QLQ – BR23, mean scores of 63.06 (SD=15.6) were found on the functional scale and 17.66 (SD=14.0) on the symptoms scale. Better quality of life scores were identified among women with more than 8 years of schooling, who lived with a partner, with higher per capita income and economic class, who did some type of physical activity, with higher scores on the scale of religiosity, and who did not have comorbidities.

CONCLUSIONS: there was a significant influence of sociodemographic, behavioral and clinical factors on the quality of life of women diagnosed with breast cancer. Interventions to promote health and reduce inequalities in access to health services can contribute to improving quality of life.

KEYWORDS: Breast cancer, quality of life, Sociodemographic Factors, Life Style, Health Care Quality, Access, and Evaluation.

INTERNATIONAL VARIATION IN CHILD HEALTH SURVEILLANCE AND ACUTE CARE PRACTICES: A MIXED METHODS ANALYSIS

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INTRODUCTION

Variation in childhood cancer (CC) survival rates observed across countries might be partly explained by differences in pathways to medical attention and timely diagnosis for symptomatic children. This study aims to assess current evidence in child health surveillance and acute care practices and to perform a descriptive comparative analysis of child health practices in countries participating in the International Benchmarking of Childhood Cancer Survival by Stage (BENCHISTA) Project.

METHODS

A mixed methods approach comprising 1.Literature review of articles published in the last decade using five databases, conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses; 2.Semi-structured questionnaire, addressed to one general practitioner and one general paediatrician per country to collect standardised data on child health practices, national programmes and current practices.

RESULTS

2,788 articles were screened; 30 articles met eligibility criteria for inclusion. Three main topics were identified: pathway to diagnosis, awareness of alarm signs/symptoms of CC (parents and professionals) and factors affecting the opportune diagnosis of serious illnesses including cancer. The questionnaire was piloted, and vocabulary refined. Out of the 25 countries included, GRELL countries (n=6) showed higher intensity regarding the number of universally offered check-ups with physical examination for children <5yrs (median: 11.5, range: 9-15) in comparison to non-GRELL countries (median: 8, range 2-24). Validation against national published guidance was performed.

CONCLUSIONS

Overall variation in child health surveillance and acute care practices was found across countries. However, the GRELL countries showed consistency in terms of surveillance intensity and available programmes/training focused on child healthcare. The results will help to categorise countries for interpretation of variation in stage at diagnosis in the BENCHISTA Project.

CERVICAL CANCER: FROM EPIDEMIOLOGY TO TREATMENT OUTCOMES

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BACKGROUND: Worldwide, cervical cancer (CC) was the 4th most common gynecological malignancy and remains one of the leading causes of cancer death among women, in 2020. Cancer screening programs allows its early detection, more effective treatments and better overall survival (OS). Presently, CC screening in the Autonomous Region of Madeira (RAM) is opportunistic. Recommended treatment includes exclusive chemoradiotherapy (CRT), CRT and brachytherapy (BT), or radiotherapy-alone (RT), and surgery followed by adjuvancy.

AIM: The aim was a demographic and clinical characterization of the population diagnosed with CC recorded on the Portuguese Oncological Registry Platform, between 2009 and 2020, and the outcomes of the treatments in locally advanced disease (LAD), according to the FIGO classification by the National Consensus 2020. Kaplan-Meier method was used for OS and disease free-survival (DFS; log-rank test for groups comparison).

RESULTS: CC was the 3rd most incident gynecological cancer in RAM, preceded by corpus uteri and ovarian cancers. 148 new cases of CC were diagnosed with a median age of 54 years (IQR=68-45). 45 cases were diagnosed as local disease, 82 as LAD and 17 cases as metastatic disease. Regarding LAD, 39% underwent CRT and BT, and 36.6% CRT alone. 70.7% had complete response and 28% had tumor persistence. At 60 months of followup 52.4% still had no evidence of disease and 17.4% had local or/and distant recurrence. In patients with LAD, 5-year OS was 56.3% (67.3% for CRT and BT, and 54.5% for CRT, $p>.05$) and DFS was 51.9% (64.4% for CRT and BT and 36.8% for CRT, $p=.014$).

CONCLUSIONS: Incidence had variations over the last decade in the RAM. Although, in 2020, the world standardized incidence rate of CC in RAM was lower compared to the incidence rate verified in Southern Europe and worldwide, the number of metastatic and LAD is still high. We found that DFS and OS are higher in patients with CC undergoing multimodal treatment with CRT and BT compared to patients who only underwent CRT.

2. Data Quality

A SCOPING REVIEW EXPLORING DATA LINKAGE NEEDS TO MAXIMIZE THE POTENTIAL OF LUXEMBOURG'S NATIONAL CANCER REGISTRY

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INTRODUCTION:
Population-based cancer registries (PBCR) provide international standardized indicators (e.g.: prevalence, incidence, and survival) and evaluate public health actions including prevention, screening, and quality of care. Further significant benefits are obtained by linking PBCR data with appropriate secondary sources such as biobanks, socioeconomic or genomic data. This study aims to outline the current situation of Luxembourg's National Cancer Registry (RNC) and to evaluate RNC's potential linkages with data coming from the Integrated BioBank of Luxembourg (IBBL) and from sociodemographic data sources.

METHOD:
A scoping review using PubMed and Embase databases was performed, followed by applying a backward snowballing literature search approach in Google Scholar. English guidelines, reports, and qualitative and quantitative studies on hospital-based cancer registries, PBCR, and site-specific registries were included. For population-based studies involving registries, data linkage methodologies used were also analyzed. No limitations were applied to geolocations or year of publication.

RESULTS:
One thousand five articles were identified. After scanning titles and abstracts, 36 articles were examined for full-text reading. Eight articles met the inclusion criteria. Moreover, 13 articles were included following the snowball search approach (N=21).

Significant differences were observed between countries in all avenues, including data availability and harmonization, confidentiality, access to data, exchange, and linkage methods. Results underline that PBCR's potential, efficiency, and cost-effectiveness are maximized thanks to linkage activities with secondary data sources such as biobanks or sociodemographic databases.

CONCLUSION:
This scoping review enabled to identify key questions to be analyzed prior to establishing data linkage being: (i) legal permission, (ii) data availability assessment, (iii) data flow protocol, (iv) linkage key and (v) linkage method.

THE PARTNERSHIP FOR CANCER SURVEILLANCE IN FRANCE: RESULTS OF THE 2014-2019 PROGRAM AND PERSPECTIVES

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BACKGROUND: In France, cancer is the first cause of death, an estimated 433,000 new cases of cancer occurred in 2023. Since 2007, the French network of cancer registries Francim, the Biostatistics-Bioinformatics department of Hospices Civils de Lyon (HCL), the French national public health agency (Santé publique France) and the French National Cancer Institute (INCa) have set up a partnership to provide information to support public health policies. The main results of the 2014-2019 program are presented. This joint working program leaned on 56 actions and grants partly funded by Santé publique France and INCa, dedicated to cancer registries and HCL.

RESULTS: Thanks to a new statistical method, epidemiological indicators related to more than 70 types and sub-types of cancer were published. Routine registration of an ecological deprivation index for all cancers, and of stage at diagnosis for the most frequent ones, were implemented. Hence, comprehensive studies related to incidence and survival contributed to the evaluation of the national cancer screening programs. Using both registries and health administrative databases, an innovative statistical approach allowed estimating cancer incidence at infra-national levels. Other studies addressed care pathways and quality of care for some cancers, and paediatric, adolescent and young adult's cancers. Moreover, probability of death was shown to return to low values after critical periods in disease history, which allowed improving access to insurance coverage to people having a prior history of cancer. Overall, a high level of performance and efficiency of the surveillance system was maintained over the period. Finally, issues in access to some local medical sources and combining cancer registries databases with national health databases should be improved.

CONCLUSION: The 2014-2019 program fulfilled most of its objectives. The partnership is now facing new challenges, mainly relying on data protection and data sharing.

INTERNATIONAL BENCHMARKING OF CHILDHOOD CANCER SURVIVAL BY TUMOUR STAGE. THE PROGRESS OF THE BENCHISTA PROJECT.

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BACKGROUND:
The BENCHISTA project aims to understand geographical survival differences and to encourage the Toronto Staging Guidelines (TG) application by population-based cancer registries (CRs) to the most common solid childhood cancers (CC): Neuroblastoma, Wilms Tumour, Medulloblastoma, Ewing Sarcoma (ES), Rhabdomyosarcoma (RMS) and Osteosarcoma.

METHODS:
Seventy CRs worldwide agreed to take part in the project. On-line training sessions were held to standardise TG application. A questionnaire, focused on data collection processes, and a quality assurance tool (QAT), including 12 fictitious cases to be staged, were performed. Each CR was asked to collect and send all cases of six solid childhood cancer (CC) diagnosed in 2014-2017.

RESULTS:
Out of the 63 CRs who replied to the data collection questionnaire, 52 (81%) attended the training sessions. The access to imaging results was available for 87% CRs. The access to extra-CRs data to be used for staging was possible for 81% CR, lower for the GRELL CRs (72%). One third of GRELL CRs (vs 11% in non-GRELL CRs) were unable to re-consult clinician when facing difficult cases.

Out of the participating CRs, 79% replied to the QAT. The proportion of correctness was 88%, ranging from 69% to 99%. Rhabdomyosarcoma and Medulloblastoma were the critical CCs.

More than 10,000 cases have been collected. The completeness of variables was higher in the GRELL CRs for treatments, NSPs and stage (e.g. stage: 95% vs. 89%) and lower for relapse (85% vs. 89%).

CONCLUSION:
Considering the data collection questionnaire and the QAT, there was a certain variability among the GRELL CRs. Key elements including training and quality assurance should improve standardisation and enhance understanding of TG demonstrating the feasibility of routinely collection of clinical variables by CRs. The BENCHISTA Project emerged as a large collaboration between CRs and clinicians to interpret geographical survival variations and stimulate outcome researches.

RELIANCE - BREAST CANCER: REAL-LIFE CANCER EPIDEMIOLOGY RESEARCH - FIRST STUDY USING POPULATION-BASED CANCER REGISTRY DATA OF BREAST

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The RELIANCE project aims to use Population-based Cancer Registries (PBCRs) data from Luxembourg's National Cancer Registry (Registre National du Cancer du Luxembourg - RNC) for cancer epidemiology, prevention, and care research in the Grand Duchy of Luxembourg. To date, no research studies have been conducted using RNC data and limited information from the RNC has been published. The RELIANCE - Breast Cancer pilot study is the first to evaluate breast cancer epidemiology in Luxembourg using RNC data, exploring potential methods and international comparisons as well as investigating which health outcomes can be studied with additional primary and secondary datasets.

This pilot study uses a two-step approach. Step ONE is a retrospective analysis using the RNC female breast cancer cohort from 2013-2018 that aims to describe the characteristics of the population, evaluate waiting times for diagnosis and treatment, and estimate trends in incidence, mortality and survival rates. Step TWO is a cross-sectional prospective study based on an online self-administered questionnaire to collect additional data from breast cancer survivors who visited the public occupational health service (Service de santé au travail multisectoriel - STM). Step TWO aims to evaluate the return to work after a diagnosis and treatment of breast cancer. Following patients' consent, collected data will be linked to STM breast cancer patient records and the RNC dataset of the 2013-2018 cohort.

This study will generate the first set of indicators on breast cancer in Luxembourg, while simultaneously enhancing data quality and usability. In addition, the study will yield international insights into the applications of population-based cancer registries for small developed countries.

DATA QUALITY FOR ESOPHAGEAL, STOMACH, COLORECTAL, LIVER AND PANCREAS CANCER IN BRAZILIAN POPULATION-BASED CANCER REGISTRIES

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INTRODUCTION: Population-Based Cancer Registries (PBCR) are important sources of information in cancer surveillance. The aim of this study was to analyze the data quality of five gastrointestinal cancers according to the criteria of comparability, validity, completeness and timeliness in Brazilian cancer registries.

METHODS: Cross-sectional study in which data from Brazilian PBCR with more than ten years of historical series from the year 2000 were included, regardless of the type of geographic coverage defined state, metropolitan region or capital. Brazilian PBCR were evaluated according to: comparability, validity (accuracy), completeness and timeliness. We analyzed all cases of cancer, except cases of non-melanoma skin cancer, and five gastrointestinal tumors (cancer of the esophagus, stomach, colon and rectum, liver and pancreas) by cancer registries and sex, according to with the available period.

RESULTS: The 16 Brazilian PBCRs represent a population coverage of 17% of the national population (36 million inhabitants in 2021) with data between 2000 and 2018. There was variation in the historical series between 12 and 19 years in incidence. The proportion of morphologically verified (MV%) ranged from 74.3% (Manaus) to 94.8% (Aracaju), incident cases by death certificate only (DCO%) ranged from 3.0% (São Paulo) to 23.9% (Espirito Santo). Malignant neoplasms with high lethality, such as the liver and pancreas, presented DCO% above 30% in most PBCRs. The sixteen registries present more than 48 months of delay in disclosure of data in relation to the calendar year of 2023.

CONCLUSION: The Brazilian cancer registries studied meet the international comparability criteria, but half presented indexes below the expected for the criteria of validity and completeness for highly lethal tumors such as the liver and pancreas, in addition to the long delay in the timely dissemination of incidence data. It's important to ensure the activity and stability of PBCRs in Brazil, which continue to be a tool to monitor the incidence and cancer control policies in a country.

LESSONS LEARNED FROM 4 POPULATION-BASED CANCER REGISTRIES: MAPPING OF ICD-O-3 CODES TO OMOP-COMMON DATA MODEL CONCEPTS

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OBJECTIVES

To best map population-based cancer registry (PBCR) data to the Observational Medical Outcomes Partnership-Common Data Model (OMOP-CDM), PBCRs from Geneva, Luxembourg, The Netherlands and Norway joined forces while working under the umbrella of the European Health Data & Evidence Network (EHDEN)[1]. All 4 PBCRs represent rich population-based cancer data that are collected and coded according to international standards such as ICD-O-3. Here, we investigated how many ICD-O-3 codes in the PBCR data could not be mapped to the OMOP ICDO3 vocabulary (OMOP-ICDO3), and propose improvements of OMOP-ICDO3 to increase coverage.

METHODS

We compared the ICD-O-3 codes for invasive cancers in the 4 PBCRs, OMOP-ICDO3, and a list of all possible ICD-O-3 codes. We used the IARC/IACR Cancer Registry Tool v3.1 to check for incorrect and unlikely ICD-O-3 codes based on the combination of morphology, behavior and topography.

RESULTS

Of all possible ICD-O-3 codes, 82% was absent in OMOP-ICDO3. Within the PBCRs, 5-14% of the ICDO3 codes could not be mapped to OMOP-ICDO3, corresponding to ~1% of diagnoses. Instead of adding all missing ICD-O-3 concepts, we recommend adding a set of ICD-O-3 codes to OMOP-ICDO3 that were deemed likely by the IARC tool, and unlikely codes that were present in at least one PBCR. The likely codes were augmented with ICD-O v3.2 codes, since the IARC tool only covers ICD-O v3.1.

CONCLUSIONS

Less common cancer types are underrepresented in OMOP-ICDO3. Although, the number of diagnoses that cannot be mapped is small, this will have a disproportionally large impact on studies on rare cancers. Thus, there is a clear need to expand OMOP-ICDO3 with the recommended set of ICD-O-3 codes to allow for studies on specific patient subpopulations.

[1] The European Health Data & Evidence Network (EHDEN), having received funding from the Innovative Medicines Initiative 2 (IMI2) Joint Undertaking (JU) under grant agreement No 806968, supports the data conversion process.

LINKING A PATIENT'S ADDRESS TO HIS IRIS: EXPERIENCE OF GENERAL CANCER GIRONDE REGISTRY

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INTRODUCTION: In France, cancer registries are authorized to collect personal data such as patients' addresses. The IRIS is a geographical division of the French population, usually between 1,800 and 5,000 inhabitants, including the standard of living of their occupants.

OBJECTIVE: To link a patient's address to his IRIS and access information about the patient's standard of living and his EDI score (European Deprivation Index) with an open source software.

MATERIALS AND METHODS: First, patient's addresses need to be geolocate with native software or website like data.gouv.fr. All the addresses of a department may also be used. Then, addresses have to be associated with their IRIS code. The link between one address and the corresponding IRIS code can be done with a Free and Open Source Geographic Information System like Qgis, by overlaying and merging the datasets.

RESULTS: Using this process, it is possible to associate all the addresses of a department with the corresponding IRIS code, or a set of patient addresses. For the Gironde French department, only 47 addresses out of more than 750,000 could not be associated with the corresponding IRIS. Thus, more than 99.99% of the addresses could be linked to their IRIS code.

DISCUSSION AND CONCLUSIONS: To study populations, statistical data linked to IRIS are highly relevant. In France, the National Geographic Institute (IGN) will soon propose this relationship between addresses on the data.gouv.fr website. In the meantime, with the present method, everyone can simply link an address to its IRIS code.

COMPLETENESS OF THE HEAD AND NECK SQUAMOUS CELL CARCINOMA STAGING INFORMATION AT DIAGNOSIS IN BRAZIL

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BACKGROUND: The information in the Hospital Cancer Registry (HCR) is essential for assessing the quality of care in institutions.

OBJECTIVE: This study aims to analyze the incomplete staging of the Head and Neck Squamous Cell Carcinoma (HNSCC) at the Brazilian HCR and the individual and contextual factors associated.

METHODS: A Cross-sectional study with cases registred from 2000 to 2017. Cases under 18 and over 100 years old, with previous diagnosis and treatment were excluded. The outcome was the absence or incomplete clinical stage. The HCR, the Atlas of Human Development in Brazil, the National Register of Health Establishments were the data sources. A spatial analysis using geoprocessing was performed to assess the distribution of the outcome. A Multilevel Poisson Regression with random intercept was performed to get the factors associated with outcome, considering a significance level of 5%. For all analysis, STATA version 16.0 was used.

RESULTS: 99,773 cases were selected. The absence/incomplete of stage information was about 20%. States from North, Northeast and Midwest regions had a prevalence of the outcome above 40%. The female gender (PR 1.07; CI95% 1.04-1.10); the oldest (PR 1.09; CI95% 1.03-1.15); absence of information in education level (PR 1.30; IC95% 1.27-1.34); with laryngeal cancer (RP 1.26; IC95% 1.20-1.32) and oral cavity cancer (PR 1.15; IC95% 1.10-1.21). Cases Diagnoses made in the last period of the study (2012-2017) were more likely not to be staged (PR=1.61; 95%CI 1.49-1.73). Failing to stage the diagnosis of HNSCC was also associated with high rates of local social inequality (PR 1.57; 95%CI 1.43-1.73) and low density of otorhinolaryngologists (PR 1.58; 95% CI 1.42-1.74).

CONCLUSION: The lack of information about the stage of the disease affects some population groups, mainly in more vulnerable places, with a lower density of specialized professionals, demonstrating limitations in access to adequate assistance.

3. Etiology

BREAST CANCER INCIDENCE ATTRIBUTABLE TO ALCOHOL CONSUMPTION IN NORTHERN ITALY.

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AIM:

A causal role of alcohol in the etiology of 7 cancer types, including female breast cancer (BC) is well established. The aim of this study was to assess the proportion of BC cases attributable to alcohol consumption in northeastern Italy.

METHODS:

BC 2015-2019 incidence data were from the Friuli Venezia Giulia cancer registry (FVG-CR). A latency period of ten years between alcohol exposure and BC diagnosis was assumed and two categories of exposure were considered: moderate drinking (11-20 g/day, i.e., up to 2 drinks per day) and heavy drinking (>20 g/day, i.e., >6 drinks per day). Data on alcohol exposure were retrieved from a nationwide survey from the National Institute of Statistics (ISTAT) in 2005-2009. The alcohol Population Attributable Fraction (PAF) was calculated using Levin's formula incorporating the prevalence of alcohol consumption and relative risks associated with consumption and BC. The number of BC cases attributable to alcohol was calculated by multiplying the % PAF by the number of BC cases.

RESULTS:

The PAF was 3.6% for moderate and 5.7% for heavy alcohol consumption. Of the 6,591 recorded BC cases, 609 (9.2%) could be attributed to alcohol consumption: 234 to moderate and 375 to heavy consumption

CONCLUSIONS:

About 600 BC cases among the 6,591 registered by the FVG_CR from 2015 to 2019 were attributable to alcohol consumption. These data point to strengthening programs aimed at reducing alcohol consumption, including moderate alcohol intake, and improving ways to effectively communicate alcohol health-related risks to the general public

INCIDENCE TRENDS OF BRAIN CANCERS IN SPAIN BETWEEN 1985 AND 2015 AND THEIR RELATIONSHIP WITH THE USE OF MOBILE PHONES

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Cancer registries of Tarragona, Granada, La Rioja, Mallorca, Murcia, Navarra, Asturias, Canarias, Castellón, Castilla y León and Euskadi, Girona, and Spanish Childhood Cancer Registry on behalf of the Spanish Network of Cancer registries (REDECAN) Working Group

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OBJECTIVES: There is a growing interest in analysing possible relationships between exposure to radiofrequency electromagnetic fields and the incidence of brain tumours. In agreement with the Spanish Ministry of Health, the Spanish Network of Cancer Registries analysed the trend in the incidence of malignant brain tumours (MBTs) covering the different stages of use of mobile devices.

METHODS: Population-based study of MBTs from 1985 to 2015 in Spain. Adult incidence data from 12 global cancer registries covering 12 provinces and 3 islands were used. For childhood, data from two childhood registries were also used, providing data from eight additional provinces. The study included only malignant tumours and analyses were performed globally and by sex, age (15+ years, 0-14 years), topography and morphology. Trend changes in age- and registry-adjusted incidence rates were assessed using Poisson change-point models. Annual percentage changes (APCs) were estimated for the period 1985-2015 and for periods before and after the estimated change points.

RESULTS: 20,325 and 2,372 MTBs were included in adults and children, respectively. In adult males, incidence rates of MBT remained stable (APC: 0.0 95%CI: -0.3;0.2), while in females they increased by about 2% per year (95%CI: 1.4;3.1) until 1999 and remained stable thereafter until 2015 (APC:-0.2, 95%CI: -07;0.3). Increases were observed in the incidence of frontal and temporal lobes tumours, and in some specific histological types, and decreases in non-specific types. Over the study period, childhood MBTs do not show a significant trend either overall or in any of the tumour types. By tumour type, only rates of glioma increased between 1985 and 1991 (APC: 6.0, 95%CI: 1.2;11.0).

CONCLUSIONS: The upward trend in the incidence of MBTs in the 1980s, probably due to diagnostic improvements in those years, and the subsequent stabilization do not support the hypothesis of a possible correlation between mobile phone use and MBTs.

THE RELATIVE RISK OF SECOND PRIMARY CANCERS FOLLOWING SPECIFIC CANCER THERAPIES – A SWISS CANCER REGISTRY DATA ANALYSIS

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Certain types of cancer treatment, such as chemotherapy and radiation therapy may increase the risk of a second primary cancer (SPC). SPCs are new primary cancers of different location, histology, and morphology than the first primary cancer. In Switzerland, the new Cancer Registry Act of 2020 introduced the publication of a health report about cancer every three years starting in 2024. One of the aims of the first report is to better understand the risks of SPC stratified by cancer therapy categories and tumor type, particularly in young patients, since they are more vulnerable to cancer therapy.

The upcoming health report about cancer will include cancer registry data from the years 1990 to 2019 from all the 13 Swiss cantonal cancer registries and from the Swiss childhood cancer registry. The outcome will be defined as metachronous SPCs, occurring four months after the first primary cancer. The cumulative risk of SPC and the relative risk of SPC using standardized incidence rations (SIRs) and excess absolute risks will be calculated, with the Swiss population as the reference population. Results will be presented by cancer type, cancer therapy category and age group. Cancer therapies will be categorized as radiotherapy, chemotherapy, hormone therapy, immunotherapy, stem cell transplantation, surgery, and targeted therapy.

The study first provides an outline of the use and limitations of Swiss cancer registry data for the analysis of the long-term risk of cancer therapies on SPC. Overall, this study will contribute to a better understanding of the risk of developing SPC after different cancer therapies, particularly in patients who were exposed to treatment at a young age. The findings will be important for improving personalized treatment plans for cancer survivors and reducing the risk of SPCs.

EPIDEMIOLOGY OF HUMAN PAPILLOMAVIRUS-ASSOCIATED ANOGENITAL CANCERS: A THREE-DECADE POPULATION-BASED STUDY

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HPV infection is a common risk factor for all anogenital cancers. However, there are important differences in the epidemiology of anogenital cancers and these have not been compared considering diverse epidemiological indicators over a long period of time. To fill this gap, we investigated incidence, mortality, and survival trends of anogenital cancers over a period of three decades.

We conducted an observational registry-based study using data from the population-based cancer registry of Granada in southern Spain. We collected data on all incident cases of anogenital cancer (cervical, anal, penile, vulvar, and vaginal cancer) diagnosed between 1985 and 2017. We calculated crude and age-standardized incidence and mortality rates, and 1, 3, and 5-year overall and net survival. We further conducted time-trend analysis calculating annual percent changes (APC) for each cancer site.

The incidence of anogenital cancers decreased slightly during the past 30 years, with the exception of vulvar cancer, where a slight increase was observed. Mortality decreased significantly for cervical cancer over the study period but increased non-significantly for the remaining cancer sites.

Survival rates were similar to those reported in comparable countries and increased for cervical and vulvar cancer. Cervical cancer was the greatest contributor to the burden of anogenital cancers and showed a marked improvement in all indicators in comparison to the remaining cancer sites.

DIFFERENTIATED THYROID CARCINOMAS IN FRENCH POLYNESIA AFTER ATMOSPHERIC NUCLEAR TESTS PERFORMED BY FRANCE

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Between 1966 and 1974, France conducted 41 atmospheric nuclear tests in French Polynesia (FP). In 2013, the French military declassified the original internal radiation protection reports, which included measurements in soil, air, water, milk and foodstuffs in all the archipelagos of French Polynesia. These original reports led to an upward reassessment of the nuclear fallout from the tests and a doubling of the estimates of the average thyroid radiation dose received by the inhabitants to nearly 5 mGy, instead of 2 mGy.

To assess their role in the risk of differentiated thyroid cancer (DTC), we extended a case-control study published in 2010, which included DTCs diagnosed between 1984 and 2003, by adding DTCs diagnosed between 2004 and 2016, and by thoroughly improving its dose assessment methodology. The radiation dose to the thyroid gland was estimated using recently declassified original radiation protection service reports, meteorological reports, self-reported lifestyle information, and group interviews of women who had children at the time of these tests and key informants. We also estimated the lifetime risk to DTC based on BEIR VII models.

A total of 395 DTC cases and 555 controls were included. No significant relation (p=0.3) was evidenced between thyroid radiation dose received before age 15 and the risk of DTC, the excess relative risk per Gy (ERR/mGy) being 0.040 (95%CI: -0.086-0.17). When excluding the unifocal non-invasive microcarcinomas, the dose response was just significant (p=0.02), but several incoherencies with the results of the initial study reduce the credibility of this result. The lifetime risk for the whole FP population was 29 cases of DTC (95%CI:8-97), i.e., 2.3% (95%CI:0.6%-7.7%) of the 1524 sporadic DTC expected in this population

WHAT'S NEW ABOUT THE ETIOSARC STUDY: A FRENCH MULTICENTRE CASE-CONTROL STUDY ON ENVIRONMENTAL ETIOLOGY OF SARCOMAS

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INTRODUCTION. Sarcomas are rare tumours of connective tissues represented by more than 80 histological subtypes. According to some studies, the incidence of sarcoma seems to be increasing in recent years suggesting a possible environmental cause such as the use of pesticides. Most of the current studies have very heterogeneous results due to important methodological biases mainly in the diagnosis of sarcomas which requires anatomopathological review. In France, we have developed an etiology study (ETIOSARC) based on the French cancer registry network (FRANCIM) and the national sarcoma expert network (Netsarc+). The ETIOSARC study will investigate the role of lifestyle, environmental and occupational factors in the occurrence of sarcomas among adults.

METHODS. Cases are all incident sarcoma patients identified in six French geographical areas (Gironde, Lille, Haut-Rhin, Isère, Poitou-Charentes, Rhône) aged 18 to 79 years and histologically confirmed by a review. They are identified by cancer registries and/or Netsarc +. Inclusions started in 2019 and will stop in 2024. Two controls per cases and randomly selected from electoral rolls are individually matched by sex, age and districts of residence. Cases and controls are interviewed by a trained CRA with a standardised questionnaire in order to collect information about occupational and residential history, demographic and socioeconomic characteristics, lifestyle factors and personal and family medical history. A saliva sample is also collected for cases and controls.

RESULTS AND PERSPECTIVES. Over the inclusion period, 1483 cases of sarcoma were identified. Of these identified cases, 55% of cases agreed to participate in the study. Reasons for non-participation were varied and included mainly. To date, more than 1000 controls have been included. We estimate a recruitment of about 750 cases and 1500 controls by the end of 2024 which allow etiological analysis for the major histological types of sarcoma.

OCCUPATIONS AND INDUSTRIES AT RISK FOR SARCOMAS: PRELIMINARY ANALYSES IN THE ETIOSARC STUDY

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INTRODUCTION. Sarcomas are rare tumours of connective tissues whose aetiology is very poorly understood. However, environmental or occupational factor such as phenoxyherbicides, chlorophenols or dioxins are suspected and some studies suggested increases in risk in some occupations mainly in the agricultural population. The main objective of this study is to estimate the associations between occupations and industries and the occurrence of sarcomas.

METHODS. ETIOSARC is a French multicentric general population case-control study always in progress. Cases and controls are interviewed with a self-administrated questionnaire and a face-to-face interview. Odds ratio and 95% confidence intervals adjusted for level of education were estimated using a conditional logistic regression for each occupation and industry coded according to ISCO 2008 and NAF 2000 respectively. The reference class is composed of subjects who had never work in the occupation or industry.

RESULTS. To date, 367 cases and 691 controls has been investigated and entered in the database. Men and women are equally represented and the mean age at diagnosis of the cases was 58. In occupational analyses, the risk of sarcoma is significant for painters, building structure cleaners and related trades workers (OR=3.38; 95%CI=1.03-11.11), medical doctors (OR=3.06; 95% CI=1.19-7.86), agricultural, forestry and fishery labourers (OR=2.71; 95% CI=1.10-6.65) and administrative and specialized secretaries (OR=2.48; 95% CI=1.28-4.82). Activities associated with a higher risk of sarcoma are publicity (OR=3.11; 95% CI=1.00-9.7) and finishing work in construction (OR=1.95; 95% CI=0.92-4.12).

PERSPECTIVES. These preliminary results suggest that some occupations and activities may be associated with sarcoma risk. Analyses must be continued with the full size of the study population, taking into account the duration of employment and histological type of sarcomas.

4. Even registries use AI and big data

WORLD-WIDE COMPARISON OF AGE-SPECIFIC NET SURVIVAL FROM NON-EPITHELIAL OVARIAN TUMOURS

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BACKGROUND

Age-standardised survival estimates are useful for international comparisons of trends in cancer survival. With rare tumour sub-types, such as ovarian germ cell and sex cord-stromal tumours, comparison of age-standardised estimates is often impossible. Comparing age-specific estimates can allow for more informative international comparisons.

METHODS

The CONCORD programme is the largest population-based study of global trends in cancer survival. CONCORD-3 included data on 53,970 women (aged 15-99 years) from 57 countries who were diagnosed with non-epithelial ovarian cancer during 2000-2014. We examined whether differences exist between GRELL countries in age-specific survival for germ cell, sex-cord stromal and other non-epithelial ovarian cancers.

Germ cell and sex-cord stromal tumours were defined with morphology codes from the International Classification of Diseases for Oncology 3rd edition (ICD-O-3). We categorised age into 5-year age groups (15-19, 20-24 years, etc.). We estimated one- and five-year net survival by age, country and sub-type for women diagnosed during 2000-2014.

RESULTS

Age-specific one-year net survival from germ cell tumours ranged from 83% for women in Ecuador to 100% in several GRELL countries. Age-specific five-year survival was lower, but still reached 100% in several countries. Survival from germ cell tumours generally decreased with increasing age, with the highest survival in women aged 15-29 years.

One-year survival from sex cord-stromal tumours ranged from 80% in Cuba to 100% in Belgium, France and Italy. Five-year survival among women aged 45-49 years ranged from 63% in Cuba to 100% in Belgium and France.

CONCLUSIONS

Net survival from germ cell and sex cord-stromal tumours is generally higher for most age groups than survival from the more common epithelial ovarian tumours, but international variation is also wide.

DEVELOPMENT OF MACHINE LEARNING MODELS FOR BREAST CANCER PROGNOSIS USING CANCER REGISTRY DATA

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BACKGROUND

Breast cancer prognostic models are limited due to restrictive assumptions, censored and missing data, and large number of predictors. Effective predictive models can classify patients into risk groups, estimate overall survival, and provide personalized information for better treatment.

AIM

To develop and validate machine learning-based predictive models for breast cancer prognosis and to compare their performance to Cox regression and competing risk models.

METHODS

We used data of breast cancer cases recorded in the population-based Geneva cancer registry between 1970 to 2017, including patient, tumor and treatment characteristics.

We compared the performance of Cox regression, Competitive risks, XGBoost, and Neural Network approaches in predicting 10-year overall survival for the full cohort, by stage and by period (diagnosed before or after 1995). Harrel's C index evaluated the discriminative ability of each model.

RESULTS

The dataset included 12,688 breast cancer patients and 2,557 deaths after 10 years. The accuracy (Harrell's C) of Cox regression and competing risk models in predicting 10-year survival was 0.713 and 0.729, respectively. Machine learning with XGBoost and neural network achieved accuracy of 0.745 and 0.764, respectively. Results of sub-cohorts models showed that machine learning outperformed classical approaches for stages 1, 2, and 3 breast cancer and for patients diagnosed after 1995.

CONCLUSION

Machine learning-based models outperform classical approaches for breast cancer prognosis using cancer registry data. These models can be integrated into clinical practice to provide personalized treatment options and improve disease management strategies. Harmonization of cancer registry data enhances a valuable resource for machine learning model development and validation.

ARTIFICIAL INTELLIGENCE AND CANCER REGISTRY DATA TO INCREASE THE ACCURACY OF RARE EVENTS PREDICTION IN CANCER SURVIVORS

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INTRODUCTION: Accurate prediction of cancer survivors at higher risk of late effects is essential for tailoring follow-up plans. This prediction is very complex if the outcome is rare and predictor variables are scarce. We used Bayesian Network (BN) models and data piercing techniques to address these complexities; hence, we present a use-case focused on predicting cardiovascular diseases (CVDs) in young female breast cancer (BC) survivors.

METHODS: We used the Italian population-based cancer registries (CRs) cohort of young (15-39 years) cancer patients, where we selected 1-year BC survivors. We retrieved CVDs from administrative databases linked to each BC survivors by CRs. In this cohort, we trained and validated a BN model to predict CVDs. We collected detailed clinical data of a similar patients from an hospital registry, to integrate the treatment and risk factors details (i.e. data piercing). We used the synthetic minority over-sampling technique to overcome imbalance classification due to the events' rarity. We compared the classification performance of the BN model to that of other machine learning (ML) models using standard metrics.

RESULTS: We selected a cohort of 1557 BC survivors diagnosed in 2009-2015 (mean follow-up = 5 years). Sixty survivors developed CVDs. Compared to logistic regression, random forest and decision tree models, the BN model showed the highest sensitivity performance (58%, i.e. the ability to correctly detect those who will develop the event). The enrichment of the model with data collected on 340 clinical cases is ongoing.

CONCLUSIONS: We showed that BN models can predict survivors at highest risk of developing late, albeit rare, effects better than other ML models. Moreover, BN models have the advantage of supporting a causal interpretation of the results through their graphical structure. With this easily generalizable use-case, we highlighted the relevance of CRs' data for studying and preventing late effects in cancer survivors.

ACCESS TO OPTIMAL TREATMENT AMONG AML PATIENTS IS AFFECTED BY NON-BIOLOGICAL FACTORS: ANALYSIS USING MACHINE LEARNING ALGORITHM

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AML patients not admitted to Specialised Haematology Units(SHU) are less curatively treated. We aim to determine if access to optimal curative treatment is affected by non-biological factors.
We included 1,033 patients from 3French departments.We assumed that patients managed in academic hospitals SHU within 5 days of their diagnosis(297) received the best treatment(gold-standard patient).Patients were categorised by their treatment modality("curative treatment" if intensive chemotherapy & "non-curative treatment" if other).Firstly, we used 80%(238) of gold-standard patients to train a Gradian Boosting Machine(GBM) algorithm in order to learn how clinical and biological characteristics are associated with receiving each treatment modality.The model was validated on the remaining 20%(59).Next, GBM was used to predict treatment modality for all patients given their characteristics and contrasted it with the actual treatment. By multivariable logistic regression, we examined how non-optimal treatment (discrepancy between predicted curative & observed non-curative treatment) was associated with any non-biological factors(sex, diagnostic department, EDI quintile, distance/travel time to academic hospital).We repeated analyses for 1,000bootstrap samples to account for uncertainty. We excluded 471 non-informative patients, predicted for non-curative treatment.
Access to "curative treatment" was 84.8%(252/297) for gold-standard patients vs33.5%(247/736) for others.The 3most influential factors related to treatment modality among gold-standard patients were age(68.3%influence), t-AML/MDS(15.8%), &AML-others subtypes(5.4%).In total, 460(44.5%) and 102(9.9%)patients were respectively in optimal/non-optimal treatment.Living in Basse-Normandie(0.65times;95%CI[0.5,0.8]) and over 10km from an academic hospital were associated with non-optimal treatment.
There are geographical disparities in access to optimal treatment, potentially due to medical deserts or disparities in medical organisation

WHAT CHATGPT KNOWS ABOUT GRELL?

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INTRODUCTION. On December 2022, a new artificial intelligence (AI) chatbot – ChatGPT (Chat Generative Pre-trained Transformer) has been launched by OpenAI. It is an AI language model trained on a large corpus of text data. ChatGPT is able, for example, to answer questions or generate texts. ChatGPT has immediately gained widespread popularity for its capability to act in a human-like way. The aim of this exercise was to test if and how ChatGPT 'knows' Grell.

MATERIAL AND METHODS. We tested the free version ChatGPT Mar 14 Version (https://chat.openai.com/chat) asking the following questions: 1. What is Grell? 2. What are the aims of Grell? 3. Which Countries belong to Grell? 4. How to contact Grell? 5. How to become a Grell member? The questions were asked the 28th-29th March 2023. In Italy, access to the ChatGpt service was suspended after the stop by the Privacy Guarantor on 31 March 2023.

RESULTS 1. ChatGPT didn't recognise the acronym. When the acronym was spelt out the answer and the following ones – in the same conversation - were pertinent. However, the adjective Latin was referred to Latin America. Moreover, ChatGPT never mentioned cancer registration. 2. Aims were satisfactory reported but always referred to Latin America. No mention to cancer registration 3. The belonging was restricted to Latin American Countries, Spain and Portugal. European Countries, such as France, Italy and Romania were explicitly not belonging. 4-5. ChatGPT provided several generic tips on the points but did not mention the Grell website address.

CONCLUSIONS. The information on Grell accessible by ChatGPT does not seem sufficient for providing correct and complete information on our Association. Grell should improve its visibility extending the availability of information in the Grell website, and of studies and document Grell-based. Moreover, also the Grell website indexing should be enhanced to improve the probability of being correctly identified by ChatGPT and other search engines.

5. Incidence

OVERVIEW OF THE CANCER BURDEN IN THE HISPANIC POPULATION OF CALIFORNIA

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CONTEXT: Cancer surveillance in California relies on three regional population-based cancer registries merging their data in the California Cancer Registry (CCR). All new cancer diagnosed are collected (40M. inh.). With a population size of 15.6 million, Hispanics individual accounted for 39.4% of the total CA population in 2020, one of the highest in US and the most important community in the state. This community is diverse, the majority of them identify as Mexican (80%), and 30+% are foreign-born. Objective: To describe the cancer burden in Hispanic population in California (incidence, mortality and survival) for Major cancer sites.

METHODS: Registry data from the CCR, SEER Stat and CAL*explorer were used to describe major recent trends in cancer sites (2010-2019). Data from 2020, will be available in May 2023.

RESULTS: Overall, Cancer incidence and mortality are lower in Hispanics compared to non-Hispanic white for the four most frequent cancer sites (female Breast, colorectal, lung and prostate). However, Incidence rates are higher for infection-related cancer such as Stomach, cervical and liver cancer reflecting cancer risk in Latin America (except for liver). The overall cancer survival rates for Hispanics in California are generally similar to those of non-Hispanic whites for breast, Prostate and colorectal cancers. For lung cancer, Hispanic men and women in California have slightly lower survival rates for lung cancer compared to non-Hispanic whites, possibly due to later diagnosis and lower rates of early detection.

DISCUSSION: The impact of Covid, access to screening and innovative care and the so-called "Hispanic paradox" will be discussed as well as the epidemiological transition regarding the risk factors. Conclusion: Because of demographics trends and difference between US-born and foreign born, Hispanic subpopulations should be further studied to better take into account this diverse cultural and genetic backgrounds, which can impact their cancer risk.

TRENDS IN INVASIVE AND IN SITU BREAST CANCER INCIDENCE IN A MEDITERRANEAN REGION DURING THE OPERATION OF THE SCREENING

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INTRODUCTION

Breast cancer, the most frequent cancer in women worldwide, could change its behaviour in the population influenced by screening. Aim: to study the trends in incidence of invasive and in situ breast cancer in the region of Murcia in the period of active breast cancer screening

METHODS

Source of data: the population-based Cancer Registry of the Region of Murcia. The incidence of breast cancer in women from 2000 to 2018 is studied according to behaviour (invasive and in situ), period with whole activity of the screening. The analysis includes incident number of cases, crude incidence rates, age-standardized incidence rates (ASIR) using the 2013 European population, and age-specific incidence rates (15-44, 45-54, 55-64, 65-74 and ≥75 years), by 100,000. Trends have been calculated using the average annual percentage change (AAPC) with Jointpoint regression model and its 95% confidence interval (CI). Software Stata v14

RESULTS

13,607 incident cases of breast cancer have been diagnosed in women living in Region of Murcia, 12,853 invasive and 754 in situ. The ASIR of invasive increased from 103.0 in 2000 to 121.2 in 2018, with an AAPC of 1.2% (CI 0.7; 1.8) and the in situ of 3.7 to 7.7, with an AAPC of 2.8% (CI 1.3; 4.3). Invasive breast cancer showed an increasing trend in the age groups 15-44 years, with an AAPC of 2.6%, 45-54 with 1.5%, 65-74 with 1.2% and ≥75 with 1, 4%. For in situ malignant breast tumours, the incidence showed a significantly increasing trend in those under 54, with an AAPC 5.8% in 15-44 and 2.9% in 45-54, and in >74

CONCLUSION

The increasing trend of breast cancer has been higher in in situ than in invasive in the last two decades, although in a different way by age group, highlighting the increased for women under 45 years old (not included in the screening). Thus, breast cancer is increasing in young women and the improvement in diagnostic techniques and prevalent risk factor for breast cancer, probably explain partly the trend observed

SOCIO-DEMOGRAPHIC INEQUALITIES IN STAGE AT DIAGNOSIS OF LUNG CANCER: A FRENCH POPULATION-BASED STUDY

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INTRODUCTION. Diagnosing patients at non-advanced stage become a mainstay of lung cancer prevention and control strategies. Understanding socio-demographic inequalities in stage at diagnosis may support targeting interventions on patients at higher risk. This study aimed to identify these socio-demographic determinants from a large French population-based cancer registry.

METHODS. Incident lung cancers diagnosed between 2008 and 2019 identified from the Poitou-Charentes Cancer Registry (south-west France) were included. Stage at diagnosis was categorised as advanced/non-advanced stage (TNM III/IV vs. I/II) according to the 8th TNM edition to ensure consistent level of prognosis over time. Socio-demographic variables included age, sex, the French European Deprivation Index (EDI) and patient's place of residence. Their impact on stage at diagnosis was quantified by multivariate logistic regression models with subgroup analyses by histological subtype. Sensitivity analyses were conducted using multiple imputation on missing stage data.

RESULTS. Of the 15,487 included patients, 75% were diagnosed at advanced stage (66% to 95% depending on the histological subtype), 17% at non-advanced stage and 10% had a missing stage. Multivariate analysis showed a higher risk of advanced stage for men, older and younger patients, most deprived patients and those living in non-urban areas. Small cell lung cancer was strongly associated with risk of advanced stage, overriding the risks linked to socio-demographic factors in this subgroup. Sensitivity analyses showed consistent results with very similar findings.

CONCLUSION. This study highlighted the main socio-demographic determinants associated with delayed diagnosis in lung cancer. Research on targeted interventions to address disparities in advanced lung cancer is needed.

ESTIMATING COLORECTAL CANCER INCIDENCE TREND IN BRAZIL (1995-2025) USING GAM WITH MULTIDIMENSIONAL PENALIZED SPLINE

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BACKGROUND: Colorectal cancer (CRC) is estimated to be the second most incident cancer in Brazil in 2023. National cancer incidence trends can be estimated even in countries with no national population-based cancer registries (PBCR). AIM: To estimate the national incidence trend over 1995-2025 from colorectal cancer (CRC: ICD C18-21) in Brazil, with predictions over 2020-2025.

METHOD: Data from 25 PBCR between 1995 and 2019 were used to estimate the national CRC incidence trend and project it up to 2025. We employed a General Additive Model (GAM) with Multidimensional Penalized Splines (MPS) to smooth the rates by age and year.

RESULTS: From 1995 to 2025, 1,119,713 new cases of CRC are estimated in Brazil, of which 552,756 among men and 566,957 among women, 27% of these are expected to occur during 2020-2025. The incidence rate among men is expected to increase by 92% from 1995 to 2025, rising from 14.03 to 26.95 cases per 100,000 inhabitants (with an Average Annual Percentage Chance (AAPC) of 2.2; p-value < 0.001). Similarly, among women, the incidence rate is predicted to increase by 59%, from 14.90 to 23.68 cases per 100,000 inhabitants (with an AAPC of 1.6; p-value < 0.001) in the same period.

CONCLUSION: Applying GAM with MPS by age and year, it was demonstrated that both men and women experienced an increasing trend in colorectal cancer (CRC) incidence rates from 1995 to 2025. These rising rates are related to the aging population process and the adoption of a Western lifestyle, including factors such as high-fat diet, sedentary behavior, and smoking. Our findings underscore the need for targeted interventions and prevention strategies to reduce the burden of CRC, particularly among older adults and those with Westernized lifestyles.

THYROID CANCER : DESCRIPTION AND RISE IN INCIDENCE IN THE FRENCH MARNE-ARDENNES THYROID CANCER REGISTRY FROM 1975 TO 2019.

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CONTEXT: Yearly incidence of thyroid cancer (TC) increased sharply in the past decades, due to improvements and better use of diagnostic procedures, enabling detection of smaller tumors. Objectives: The aim of our study was to confirm the increasing incidence, to describe the characteristics, circumstances of discovery, and to examine the evolution of treatments and survival of TC, based on the French Marne-Ardennes registry for 1975-2019.

DESIGN: This was a retrospective observational cohort study.

RESULTS: 3262 patients with TC were included between1975 and 2019, with an average of 72 new cancer case per year. Standardized incidence per 100,000 patient-years increased from 2.8 to 13.3 in women for the period 1975-1984 to 2005-2019 and from 1.1 to 5 for men. The peak of incidence was in 2015 and incidence begins to decline since. Incidence increased more in ≥50 year-olds than in <50 year-olds. 14.5% of TC were discovered incidentally in 1975-1979 and above 30% in the last period 2015-2019. Size at discovery decreased from 35.2 mm to 16.5 mm. Small cancer under 10 mm represented only 18% in 1975-1984 and more than 44% in 2005-2015. Papillary TC increased the most representing 53.6% in 1975-1979 and 84.6% in 2015-2019 ; medullary TC and anaplastic TC seams more stable. Lymphe node invasion and metastasis at diagnosis decreased. Total thyroidectomy was more performed with the years and complications like hypoparathyroidism and vocal cord paralysis decreased. TC were associated with excellent survival and low progression, complete remission improved from 70 to 80%.

CONCLUSION: The present study confirmed the large rise in incidence of TC with a peak in 2015. Changes in access to health care and in physicians' and pathologists' practices are likely explanations for our findings.

EPIDEMIOLOGY AND CHARACTERISTICS OF MEDULLARY THYROID CANCER: DATA FROM THE FRENCH MARNE-ARDENNES REGISTRY FROM 1975 TO 2018.

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CONTEXT:Medullary thyroid cancer MTC is a rare disease. The main objective of our study was to analyze the incidence evolution of MTC with a follow-up of more than 40 years. In a second time, a descriptive and survival analysis was performed.

DESIGN:This is a retrospective epidemiological study using data from the Marne-Ardennes registry from 1975 to 2018. 260 patients with MTC are included.

The incidence was calculated in the territory of the register (Marne and Ardennes departments of France) and standardized on the demographic structure of metropolitan France. Patient and tumor characteristics were described. An analysis in subgroup comparing hereditary and sporadic forms was performed. Analyzes of survival have been achieved.

RESULTS: The standardized incidence shows an increasing trend over time. The incidence increased from 0.41 to 0.57/100,000 person-years between 1986-1996 and 2008-2018. The MTC was hereditary in 21.2% of cases. The sex ratio was 0.73. The average age at diagnosis was 53 years. 97 patients were N1, 26 were M1 and 56 developed metastases during the follow up. Total thyroidectomy was the reference treatment, associated in 75.8% with lymph node dissection. Complete remission was obtained in 58.5% of patients. The disease was refractory for 18.1% of patients. The 5-year survival rate was 88.4%. Sporadic cases had a poorer prognosis than hereditary MTC.

CONCLUSION: Our study demonstrates a moderate increase in the incidence of MTC between 1975 et 2018. The prognosis remains good but less than for papillary or follicular cancer.

CARACTERISTICS, INCIDENCE AND SURVIVAL OF SYNCHRONEOUS DISTANT METASTASES IN DIFFERENTIATED THYROID CARCINOMA (DTC) IN FRANCE

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CONTEXT: The incidence of DTC has increased markedly in France and around the world in recent decades, especially the incidence of small papillary carcinoma, and in particular, papillary microcarcinoma.

OBJECTIVES: The aims of this study were to describe the characteristics of patients with DTC presenting synchronous metastasis between 1975 and 2015, to estimate incidence and survival, and to identify prognostic factors in this population, using data from the Marne-Ardennes Thyroid Cancer Registry.

DESIGN: Descriptive epidemiological study with retrospective extraction of data from the Marne-Ardennes Thyroid Cancer Registry.

RESULTS: A total of 2,543 patients were diagnosed with DTC. Synchronous metastasis were proven in 72 patients (2.8%). 51 (70.8%) were women and 21 (29.2%) were men. Median age at diagnosis was 60.1±18.1 years (range 12-89), and a majority (66.7%) were aged >55 years. The mean size of the primary tumour was 43.69±24 mm. Thirty-two patients (44.4%) had papillary carcinoma, 29 (40.3%) had follicular carcinoma, and 11 (15.3%) presented an aggressive histological subtype. Thirty-seven patients (51.4%) had isolated lung metastasis at diagnosis, 18 (25%) had isolated bone metastasis, 8 (12.5%) had other metastatic sites (including liver, adrenal, kidney, brain, parathyroid) while 9 patients (11.1%) had multiple metastatic sites.

Incidence remained stable over the study period, with an incidence of 0.118/100,000 person-years for the period 1975-1984, and 0.121/100,000 person-years in the period 2005-2015, in the whole population. After adjustment for variables significant by univariate analysis, multivariate Cox regression found that age >55 years at diagnosis, primary tumour size ≥40 mm and multiple metastatic sites were all significantly associated with the risk of death. All-cause mortality at 5 years after diagnosis was 37.5%, and disease-related mortality was 29.2%

CONCLUSION: The incidence of DTC presenting with metastasis at diagnosis was stable from 1975 to 2015, with overall and disease-specific mortality of 37.5% and 29.2% respectively at 5 years. Independent risk factors for mortality were age ≥55 years at diagnosis, tumour size ≥40 mm, and the presence of multiple metastatic sites.

TREND OF CANCER INCIDENCE IN PASTO – COLOMBIA. 1998-2017

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BACKGROUND: Long time surveillance information produced by the cancer registry of Pasto -Colombia is the input used by decision-makers of the local and national health system to plan cancer control strategies and evaluate the impact of their interventions.

METHODS: Observational descriptive study of cancer incidence in Pasto-Colombia during 1998 to 2017. The collecting and processing information were performed following the International Agency of Cancer Researh IARC recommendations. The incidence rates were calculated annually and quinquennially by sex, age, and tumor location. Annual trends were analyzed using a segmented linear regression (joinpoint analysis). Annual percent of change was estimated in each segmented significantly generated.

RESULTS: The age standardized rate of incidence per 100,000 women-years was: 1998- 2002=169.4, 2003-2007=169.4, 2008-2012=169.4, 2013-2017=169.4. In men was: 1998- 2002=169.4, 2003-2007=169.4, 2008-2012=169.4, 2013-2017=169.4. Over 20 years of observation, the annual percent of change (APC) show a significantly increase of the incidence of the main tumors in women: breast by 3.6% (ASR 1998=21.9 > 2017=44.1) and thyroid by 10.4% (ASR 2001=4.23 > 2017=20.36); while, a decreased incidence of cervical cancer by 2.1% (ASR 1998=27.1 > 2017=21.8). In men, prostate tumors increased significantly by 5.2% (ASR 1998=16.98 > 2017=43.1), stomach tumors decreased by 3.2% (ASR 1998=36.6 >2012=19.4), and lung tumors remain constant (ASR 1998-2017=6.83).

CONCLUSION: Cancer in general continues to be a serious public Health problem for the population of Pasto. This results identify the need to promote and strengthen promotion and prevention programs, especially focused on tumors that are increasing. The decrease in the incidence of cervical tumors shows improvements in early detection and timely management by the health system.

DECLINE OF NEW CANCER CASES IN THE FIRST PANDEMIC YEAR: A STUDY FROM TWO ITALIAN CANCER REGISTRIES

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BACKGROUND/AIM:

The COVID-19 pandemic has disrupted the health systems, including oncological services and cancer diagnoses. The aim of this study was to assess the impact of the COVID-19 pandemic on the incidence of new cancer cases in 2020 as reported in two cancer registries from northern and southern Italy.

METHODS:

Comparison of cancer incidence data registered in 2015-2019 and in 2020 by the Friuli Venezia Giulia cancer registry (FVG-CR), north-eastern Italy; and by the ASL Napoli 3 Sud cancer registry (ASLNA3-CR), Campania region, southern Italy. Crude incidence rates (IRc) for cancer types/sites with at least 35 cases/per year were computed for the 2015-2019 and 2020 periods, separately in men and women. The annual percentage change (APC) in the period 2015-2019 was also computed to account for the pre-pandemic trend. The number of 2020 new cancer diagnoses was compared, after adjustment for APC, with expected ones based on 2015-2019 IRc.

RESULTS:

360 diagnoses for all types/sites by ASLNA3-CR (-12.2%) and 348 (-8.0%) in FVG-CR were missed in men in 2020. In women, missed cases in 2020 were 330 (-11.2%) and 239 cases (-4.4%) by the ASLNA3-CR and the FVG-CR, respectively. Noteworthy declines were noted for colon-rectum (-28.8% in men; -22.6% in women) in ASLNA3-CR; for bladder (-23.6% in men, -23.0% in women), and kidney (-19.2% in men; - 23.9% in women) cancers in FVG_CR. In both registries, a decline in breast cancer cases was documented (-76 cases, -7.8% in ASLNA3-CR; and -31 cases, -1,4% in FVG-CR). Excesses in the number of expected cases in 2020 were also noted in both registries, e.g., in ASLNA3_CR, +16.3% for kidney cancer in men and +17.3% for the central nervous system in women (CNS); in FVG_CR, +16.3% for CNS in women.

CONCLUSIONS:

Study findings documented a drop in new cancer cases in 2020 as a consequence of the COVID-19 pandemic in both geographic areas, including colon rectum and breast cancers likely due to a reduction of screening activities.

MELANOMA TRENDS IN A NORTHEASTERN COASTAL STATE IN BRAZIL

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INTRODUCTION: Malignant Melanoma (MM) is a highly aggressive cancer that has shown an increase in incidence rates in western regions, due to changes in sun exposure behavior and the fair-skinned population's exposure to UV radiation. This study aimed to present trends in MM incidence and mortality in a Northeastern coastal state in Brazil with a high degree of miscegenation.

METHODS: The 2010 census showed the population consisted of 1,062,975 females and 1,005,041 males, with skin types 62% IV-V, 28% I-III, 9% VI, 1% Asians, and 0.3% Indigenous people, 75% residing in urban and 25% in rural areas. We assessed the Aracaju Cancer Registry (ACR) database from 1996-2017 to compute rates. For mortality, we used the Brazilian Mortality System's state-level database from 1991-2021. We used the Joinpoint Regression Program to describe trends. Results: During the 1996-2017 period, the ACR detected 380 invasive and 31 in situ incident cases in men, and 443 invasive and 55 in situ incident cases in women. Mean age-standardized incidence rates were 30.0 (95% CI: 27.0; 33.0) per 1,000,000 in men and 18.8 (95% CI: 17.1; 20.5) per million in women. Incidence trends rose with an Annual Percent Change (APC) of 5.1 (95% CI: 3.0; 7.2) in men, mainly due to increasing incidence in age groups from 45 years onwards, while they remained stable in women (APC 0.3, 95% CI: -1.6; 2.3) for all age groups. Mortality data from 1991-2021 revealed 137 cases in men and 107 cases in women. Mean age-standardized mortality rates were 5.2 (95% CI: 4.3; 6.1) per 1,000,000 in men and 3.2 (95% CI: 2.6; 3.8) per million in women. Mortality trends remained stable for all ages in both men (APC 1.2, 95% CI: -0.8; 3.2) and women (APC 0.7, 95% CI: -1.3; 2.7).

CONCLUSIONS: Overall, we observed an increase in MM incidence from 1996-2017 in both men (especially from 45 years of age) and women, while mortality trends remained stable throughout the study period.

EPIDEMIOLOGY AND CHARACTERISTICS OF HEPATOCELLULAR CARCINOMA IN FRANCE: RESULTS OF THE FIRST 2000 REAL-LIFE PATIENTS FROM THE CHIEF PROSPECTIVE COHORT

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INTRODUCTION: Hepatocellular carcinoma (HCC) is the leading cause of primary liver cancer (6th cause of cancer in the world, 2nd in men), and the 3rd cause of cancer-related death worldwide*. The objective of the study is to describe the epidemiology and management of HCC in France based on data from the CHIEF cohort.

MÉTHODS: CHIEF is a prospective, national observational cohort initiated in September 2019. Clinical, biological, radiological and therapeutic characteristics of patients were collected with a planned 5-year follow-up for each patient..

RESULTS: 2043 patients were included from September 2019 to September 2021 at 32 centers. The analysis was performed on 1640 patients (median age 68 years, 86% male, BMI 26.8). In 35.2% of cases, HCC was discovered during screening. 40.2% of the cases presented a nodule, the rest were multinodular with, overall, 29.3% having a nodule >50mm. 10.7% of the patients were metastatic with one or more pulmonary metastases in 46% of the cases. A liver biopsy was performed in 46.3% of cases. Patients had cirrhosis (F4) in 71% of cases, portal hypertension in 39% and esophageal varices (≥2) in 28%. Liver function was quite good (Child A 78%). Patients had good general condition: WHO 0 or 1 in respectively 65% and 29% of cases. The etiologies were by order of importance: 58.5% alcoholic, 39% metabolic, 23.3% viral and 3.9% Hemochromatosis with presence of co-morbidity: Alcohol not weaned (85%), BMI≥25 (64.5%), HTA (55.1%) and Diabetes (42.7%). HCC was in the Milan criteria in 32.9%, with a median AFP of 39 ng/mL, a median ALBI score of -2.4 [-2.7; -1.9] and in 8.3% of cases presence of portal thrombosis. The distribution of BCLC stages 0, A, B, C and D was 6.1%, 29.8%, 28.8%, 32.1% and 3.2%, respectively. The median follow-up was 17.76 months with 29.1% of deaths. Overall survival at 6 months, 1 year and 18 months was 84.9%, 76.7% and 69.3%. First-line treatment access was 40.5% for curative, 36.2% for locoregional**, 19.2% for systemic, and 4% for palliative (44.4%, 42.2%, 40.9%, 9.1% when at least one treatment was applied, respectively). The 1-year survival rates for BCLC stages 0, A, B, C, and D were 95.6%, 89.7%, 81.7%, 54.9%, and 40%, ($p<0.0001$). No difference in survival was found according to etiology. The 1-year survival rates for curative, locoregional** and systemic treatments were 92.9%, 82.2% and 57.8% ($p<0.0001$). The results obtained are comparable to those of other French and foreign cohorts (CHANG 2008-2009, SNDS 2015-2017, international USA 2015, Europe 2015, China 2015) with methodological limitations inherent to each study.

CONCLUSION : Data from the CHIEF cohort show a good overall survival at 1 year for all BCLC stages and for all treatments applied, with greater access to curative therapies (1st intention applied >40%). Given the pessimistic epidemiological evolution of HCC in France (metabolic etiology becoming the 2nd cause), organized HCC screening is associated with a better prognosis.

*Globocan 2020. https://gco.iarc.fr
** SIRT, TACE, Radiofrequency, and radiotherapy

EPIDEMIOLOGY AND SPATIAL ANALYSIS OF CUTANEOUS MELANOMA IN THE MARCHE REGION 2010-2017. PRELIMINARY STUDY.

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INTRODUCTION

Skin melanoma is an important disease even in younger age groups, in fact, more than 50% of cases are diagnosed under the age of 60 and increases with age. In Italy it represents, both in males and in females, about 2 % of all malignant tumors, given underestimated in consideration of the number of small melanomas removed in surgery and not subjected to histopathological analysis. The incidence of cutaneous melanoma has shown, in recent years, a significant increase with a decreasing trend from north to south; mortality is broadly stable. This study examines the epidemiological characteristics and the distribution on the territory of melanomas detected by the Cancer Registry of the Marche Region in the period 2010-2017.

MATERIALS AND METHODS

Incidence trends were analyzed on a total of 3,237 (1,669 M, 1,568 F) invasive skin melanomas reported in 2010-2017 throughout the Marche region. The cases were analyzed by age, sex, seat and subside, geographical distribution throughout the period and for each year. The data was stored and processed using the CrTool management software, Excel; spatial analysis was studied using QGIS. Only the first melanoma diagnosed, and all relapses excluded as established by IARC and ENCR rules.

RESULTS AND CONCLUSIONS

Incidence has increased over the years in all age groups in both sexes.

In males, most new diagnoses of malignant melanoma in the period 2010-2017 were observed in the 70-79 age group (400 for a standardized rate of 70.32%), in females in the 60-69 range (280 for a standardized rate of 37.2%).

From the analysis of the spatial disposition of the cases emerged from the georeferencing study it seems to be present a greater concentration of the cases in a coastal strip comprised between the municipality of Ancona and the municipality of Senigallia. This fact, confirmed by the analysis of standardized rates, seems to merit further study.

EPIDEMIOLOGY OF THYROID CANCER IN ALGERIA

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INTRODUCTION: Thyroid cancer (TC) is the third most frequent malignancy in women and the eighth in men in Algeria. Standardized incidence rates (SIR) range from 6,2 to 27,9 per 100 000 in females and from 1,4 to 5,9 per 100 000 in males according to regions. Population-based cancer registries implemented in the mid-1980s and early 1990s have shown evidence of increased incidence rates in at least three regions of the country. These trends occurred at the expense of the papillary histologic subtype (PTCs), and have been attributed to changes in medical practice. Since 2014, cancer registries have covered the entire national territory as part of the national cancer control plan. We carried out an investigation to describe TC patterns and temporal trends nation-wide.

METHODS: Using population-based cancer registries we assessed TC incidence and temporal trends, and estimated the annual percent change (APC) in the incidence. All thyroid cancer cases were classified according to the International Classification for Diseases in Oncology, 3rd edition. Age-specific, age-adjusted incidence rates per 100 000 person-years, and annual percent change in the incidence were computed for women and men.

RESULTS: The number of TC cases reached 2 170 in 2020 with a female to male sex-ratio of 6:1. On average, TC was diagnosed at 43 and 48 years in women and men respectively. The most frequent histopathological subtype was PTC (60% to 80%). There were important geographic disparities in standardized incidence rates from 6,2 to 27,9 per 100 000 in women, and from 1,4 to 5,9 per 100 000 in men. An increase in the incidence rates was observed, but only significant for women (APC: +3.2% to +3.7%; $p<0.05$).

CONCLUSIONS: The incidence of TC has increased in Algeria. Our study confirms the trends observed earlier in a few regions of Algeria. Changes in medical practice and the programme of iodine supplementation implemented in 1992 are believed to have played a role in the observed trends.

INFLUENCE OF SEX AND AGE ON SITE OF ONSET, MORPHOLOGY, AND SITE OF METASTASIS IN COLORECTAL CANCER: A POPULATION-BASED STUDY

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OBJECTIVE : The prognosis of colorectal cancer is affected by factors such as site of origin, tumor morphology, and metastasis at diagnosis, but also age and sex seem to play a role. This study aimed to investigate within the Italian population how sex and age interact in influencing certain aspects of the disease and how they affect patient survival, particularly in the metastatic cohort.

METHODS : Data from four cancer registries were collected, and patients were classified by sex and age (<50, 50-69, and >69 years). Two separate analyses were conducted: one for patients having right or left colon cancer with adenocarcinoma or mucinous morphology, and one for patients having metastases at diagnosis.

RESULTS : Women showed significant differences in right colon cases from the youngest to oldest age group (36% vs 45% vs 60%). Men <50 years had a significantly higher mucinous carcinoma percentage than their female counterparts (22% vs 11%), while in the oldest age group women had the highest percentage (15% vs 11%). The metastatic pattern differed between men and women and by age. The three-year relative survival in the <50 age group was better for women than men, but this survival advantage was reversed in the oldest group.

CONCLUSION : In conclusion, sex and age are factors that influence the biological and clinical characteristics of colorectal cancer, affecting the metastatic pattern as well as patient survival.

TRENDS IN CERVICAL CANCER AND CERVICAL PRECANCEROUS LESIONS INCIDENCE BY AGE AND HISTOLOGY IN FRANCE (1990-2017)

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OBJECTIVE

Incidence of cervical cancer (CC) has been decreasing for decades, mainly due to screening, but a slowdown in this decline has been observed since 2010.

METHODS

Incidence data of CC by age and histology were provided by French cancer registries. Histology was described by squamous cell carcinoma (SCC) and adenocarcinoma (AC) for invasive and precancerous lesions (PreK-L: CIN3, in situ carcinoma and adenocarcinoma).

World age-standardised incidence (ASI) per 100,000 person-years (p-y) was calculated. Trends for invasive CC (1990-2017) and for PreK-L (2005-2017) were analysed using JointPoint Regression Program, and presented with annual percentage change (APC).

RESULTS

Overall incidence rates for invasive CC decreased from 10.6 per 100,000 p-y in 1990 to 7.0 in 2017 (APC: -1.5%); yet an increase was observed in the most recent years (APC: 2.5% between 2010 and 2017). Increase was observed in women aged >45 years, for the younger women rates were decreasing over the entire period (APC: -1.4%). For invasive CC, SCC incidence decreased by 2.0% per year (with a slowdown since 2010) and conversely AC increased by 2.2%.

For PreK-L, incidence increased by 5.2% per year between 2005 and 2017 (ASI: 30.4 in 2005 and 50.6 in 2017). However, trends were different according to age. There was an increase for women aged 25-44 and 45-64 years (APC: 5.5% and 5.2%, respectively), whereas in the youngest women incidence decreased. For older women, after a decrease, from 2009 onwards incidence increased. Incidence increased for both SCC and AC, by 5.2% and 5.8% per year, respectively; for AC, the increase was higher in the recent period (APC: 9.4% between 2007 and 2017).

CONCLUSIONS

After a decrease since 1990, CC incidence increased since 2010 in women over 45 years of age. The decrease in incidence has been only observed in SCC. PreK-L incidence increased for both SCC and AC, and for women aged 25-64 years, for the youngest and the oldest women a decrease was observed since 2010.

CANCER BURDEN ESTIMATES IN ALGERIA USING THE ALGERIAN NATIONAL NETWORK OF CANCER REGISTRIES

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INTRODUCTION. Population-based cancer registries were set up in Algeria in the mid-1980s which coincided with the country entering its epidemiological transition phase. In 2015 the Algerian National Network of Cancer Registries (ANNCR) was created as part of the national plan against cancer, in order to estimate the cancer burden, provide health-decision makers with robust cancer incidence data, and forecast future incidence rates to organize health services accordingly.

METHODS. Cancer data sources, data collection and quality control methods are standardized throughout registries. The ICD-O-3 is used for coding the cancer site and morphology. Cancer data registration, validation and analysis is performed with the CanReg software. Reports on cancer incidence and characteristics are released annually.

RESULTS. In 2020 about 50 000 new cancer cases were diagnosed nationwide. Among them 57,5% in women and 42,5% in men. Median age at cancer diagnosis was 54 years for women and 64 years for men. Overall standardized incidence rates (SIR) per 100 000 were 141,7 for women and 129,7 for men. Breast, colorectal and thyroid cancers represented 56% of cases in women (SIR: 55,8; 14,2 and 8,0 respectively), whereas in men lung, colorectal and prostate cancers represented 41% of cases (SIR: 20,2; 17,0 and 16,5). Geographic disparities were observed with higher SIRs in Northern Algeria compared with the South. Cancer incidence has increased steadily over the past decade varying with cancer site (APC: +3% to +8%), a trend that is expected to continue. By 2025, about 60 000 new cancer cases will be diagnosed nationwide.

CONCLUSION. Algeria has been experiencing a rapid increase in cancer incidence for over 10 years, mainly due to an ageing population, increased life expectancy, and a high prevalence of modifiable risk factors. With the new challenges facing the health system, accurate cancer data are needed to evaluate cancer control and prevention programmes.

INCIDENCE AND TRENDS OF FIRST BASAL CELL CARCINOMA IN FRANCE BETWEEN 1980 AND 2019: A POPULATION-BASED REGISTRY STUDY

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BACKGROUND: Basal cell carcinoma (BCC) is the most common malignancy worldwide. In most countries, BCC are only partially or not at all registered, and there is a lack of incidence data. This study assessed current incidence rates and trends in the only two French districts were BCC have been recorded for several decades.

METHODS: This population-based study used data from two French cancer registries (Doubs and Haut-Rhin) where first BCC diagnosis were recorded. European age-standardized incidence rates (EASR) were calculated per 100 000 person-years (p-y). Trends and annual percentage change were assessed using joinpoint analysis.

RESULTS: In total, 49 065 patients were diagnosed with a first BCC during the study period. Median age at diagnosis was 69 years and BCC were mainly located in head and neck (68.8%). In Doubs between 1980 and 2016, the EASR of BCC increased from 59.9 to 183.1 per 100 000 p-y. The annual increase for men was 5.72% before 1999 and 1.49% after 1999, and in women 4.56% before 2001 and 1.31% after 2001. In Haut-Rhin, the EASR increased from 139.2 in 1991 to 183.6 per 100 000 p-y in 2019. EASR annually increased in men by 2.30% before 2000 and by 0.33% after 2000; in women it increased by 0.97% over the entire period (1991-2019).

In the most recent period and for both districts, age-specific incidence rates of BCC for men and women were close before age 60, except between 40-49 years where the rates were significantly higher in women. From 60 years onwards, men had much higher rates of BCC, the maximum sex gap being observed among the oldest patients.

CONCLUSION: BCC incidence increased since 1980 and is still increasing, particularly in men and the elderly. A slowdown was observed around the year 2000, which may be the result of prevention policies. This study provides insight into the BCC burden in France and highlight the need to maintain effective prevention strategies as the incidence is still increasing.

LUNG CANCER TRENDS BY SEX, AGE, HISTOLOGY, AND STAGE: A 1994-2020 POPULATION-BASED STUDY OF GIRONA, PROVINCE OF SPAIN.

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Objective: The aim of this study is to analyze incidence and trends by sex, histology, and stage of Lung cancer (LC) in a population-based study over 27 years in Girona. Methods: We collected LC cases between 1994-2020 from the population-based Girona Cancer Registry. Stages were available from 2010-2020. Age-adjusted incidence rates (ASR) using 2013 European standard population were calculated per 100,000 person-years and stratified by age, sex, histology (non-small-cell lung cancer [NSCLC]/ small-cell-lung cancer [SCLC]) and stage at diagnosis. Poisson regression models were used for trend analysis. Results: From 1994 to 2020, 9,567 LC cases were recorded, with 4,564 cases between 2010-2020, in which stages were available. Mean (± SD) age was 68 ± 11 yrs. LC patients were predominantly men (83%) and diagnosed at an advanced stage (stage IV: 53.1%). The most frequent histology was NSCLC (71%). The overall ASR was 58.7 (95%CI: 57.5; 59.9). The highest age-specific rate was 230.0 between 75-79 yrs.. Trend analyses showed no statistically significant changes in overall period incidence (annual percentage change (APC): -0.15%, 95%CI: -0.41; 0.12); however, there were statistically significant changes by subgroups. There was a significant increase in women (APC: 4.4%, 95%CI: 3.7; 5.0) and a decrease in men (APC: -1.15%, 95%CI: -1.44; -0.87). By histology, trend changes were observed in SCLC which had a -1.43% APC (95%CI: -2.04; -0.82) during the 1997–2020, and in NSCLC which had an increase of 0.5% during all period. By stage, we observed statistically significant trend changes; an increase during 2015-2020 for stage I (APC: 9.74%, 95CI%: 5.29; 14.19) and 2010-2020 for stage IV (APC: 1.27%, 95CI%: 0.37;2.16). Conclusions: LC incidence is non-negligible, particularly in advanced ages and men. Global trends are not changing however, in men are decreasing while in woman are not. In addition, changes by stage and histology were also observed.

ESTIMATE OF INCIDENT BREAST CANCERS IN ITALY BY SUBTYPES AND AGE

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Aim. Cancer registries have to exploit their data for bridging the gap between descriptive epidemiology and clinical needs. The therapy and prognosis of breast cancers (BC) is mainly driven by molecular subtype. Therefore, the aim of this study was to provide estimates of the number of Italian incident BC by subtypes, according to the distribution of hormonal receptor (HR) status and expression of human epidermal growth factor 2 (HER2).

Methods. We reviewed the literature to collect already published Italian studies based on registries including information on the subtype distribution among female incident BC. Moreover, we analysed 10,711 BC cases from the Romagna Unit of the Emilia-Romagna registry incident during 2007-2018. BCs were grouped into: HR+ /HER2–, HR+ /HER2+, HR–/HER2+, HR–/HER2– and missing, and by age: < 50, 50–69 and 70+ years. Previous Italian data were far less complete than the new ones, with proportion of missing 3-times higher than in Romagna series. Therefore, the latter were applied to global national estimates, adjusting for age- and geographic-specific incidence variation across the Italian population.

Results. In Italy, we estimated 38,841 (70.7%) incident BC cases HR+ /HER2-, 4665 (8.5%) HR+/HER2+, 4098 (7.5%) HR-/HER2-, 2281 (4.1%) HR-/HER2+, and 5092 (9.3%) not specified. The ranking of subtypes was similar across age-groups but with age-specific differences, e.g., the highest proportion of HR+/HER2+ (12,3%) ad Triple – (9.3%) was among women <50 years, that of HR+ /HER2- in the age 50-69 years (73.8%), while oldest women had the highest proportion of unspecified subtypes (17.8%).

Conclusions. The present estimates based on high-quality population-based data offers a clinically relevant information on the burden of breast cancer subtypes. These data will support the planning of therapy needs for oncologists, decision makers, and all other stakeholders.

CANCER MORTALITY OVER TIME IN THE GRAND DUCHY OF LUXEMBOURG

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Time-trend studies about the incidence, prevalence, and mortality of different types of cancers provide valuable information to decision-makers and enable to identify risk factors or effective preventive measures decreasing the cancer burden. Additionally, identified related-environmental or lifestyle factors could be described and used for tailoring cancer interventions for prevention, screening and care. This study aims to provide a comprehensive analysis of cancer mortality trends in the Grand Duchy of Luxembourg, utilizing population-based data to gain essential insights into cancer epidemiology and to detect changes over time. Population size data from the National Institute of statistics and economic studies (STATEC) and cancer mortality data from the Directorate of health are used for the period of 1998 to 2021. Age-standardized mortality rates will be calculated for the 10 most common causes of cancer deaths, by gender. This data will be analysed using the Joinpoint Regression Program (Version 4.9.1.0 - April 2022; Statistical Methodology and Applications Branch, Surveillance Research Program, National Cancer Institute), which allows to identify significant changes/trends in mortality over time in a given population through the average annual percentage changes (AAPC) for period-cohort and for age-period-cohort. The results generated will be important for informing future public health initiatives on cancer prevention and control, as well as helping to evaluate progress towards achieving objectives set out in Luxembourg's second National Cancer Plan (2020-2024).

THE DIFFERENCE BETWEEN WOMEN AND MEN IN MUSCLE-INVASIVE BLADDER TUMORS: A RETROSPECTIVE ANALYTICAL STUDY OF A FRENCH REGIONAL POPULATION

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Context.

According to the literature data in muscle-infiltrating bladder cancers (MIBC) women have a more advanced stage at diagnosis and a worse prognosis than men.

Objectives.

We performed a retrospective population-based analytic study in a French department on MIBC comparing patients, tumors, treatments, and overall and specific survival data in women versus men.

Material and Methods.

We included in the study MIBC at diagnosis in patients who lived in the department of Hérault between 01/01/2017 and 31/12/2019.

Statistical analysis.

Unifactorial and multifactorial analyses were performed on all variables of interest. For the survival study, the time point was 12/31/2020.

Results.

Our study involved 124 women and 432 men. There were no significant gender differences in age and stage at diagnosis. Men had more cystectomies than women (50.7% vs 35.4% (p=0.039)). In multifactorial analysis, the independent factors for being treated by cystectomy were gender (p=0.004), age (p<0.001) and stage (p<0.001). At the end of follow-up, overall mortality was 79% in women and 63% in men (p<0.001) and specific survival was 10.8 months in women and 32.7 months in men (p<0.0001). In multifactorial analysis, the independent factors of mortality were: female gender (p=0.047), cT4 stage (p=0.005), no cystectomy (p<0.001).

Conclusions.

Our study shows that women are less often treated with cystectomy and have a worse prognosis than men, all other variables being equal. The reasons for this gender difference are multifactorial and their knowledge could improve the prognosis of MIBC in women.

CERVICAL CANCER IN BRAZIL: FOCUS ON THE FUTURE

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Cervical cancer control represents a public health challenge. Vaccination against HPV in the population between 9 and 14 years of age is the main strategy to eliminate cervical cancer. Cancer registries play a key role in monitoring the disease and pointing out which populations and territories need greater actions to promote health and prevent cancer.
The analyzes were based on information on cervical cancer in Brazil, in situ and invasive, from population-based cancer registries, hospital registries and mortality registries, covering the period from 2005 to 2019, in women aged 25 to 64 years of age (target population of the screening program). Age-specific and age-adjusted incidence and mortality rates were calculated, as well as frequencies for sociodemographic and tumor diagnosis and treatment variables.

The incidence rates of cervical cancer show important regional differences, with the highest rates in the North region (76/100,000) and the lowest in the Southeast region (36/100,000). When analyzing the neoplasm in situ, the inverse of what was found for malignant neoplasms was observed. Cervical cancer mortality in the North region is also the highest, with a risk of death three times higher than in the Southeast region, reflecting marked differences in conditions of access to screening, diagnostic confirmation and treatment.

A social inequality is pointed out when it is observed that more than 60% of diagnoses are in black women and 80% of women have low education. In addition, the difficulty in accessing treatment means that 85% of women who arrive at the health unit with a diagnosis take more than 60 days to start treatment, and the majority in an advanced stage of the disease (50.5%).
The results found indicate that much still needs to be done in the country, as there are marked regional differences that indicate gaps in screening, early detection and treatment.

INCIDENCE CANCERS TRENDS IN THE "OLDEST-OLD" POPULATION: A POPULATION BASE STUDY 1987-2020, IN HÉRAULT, FRANCE

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Background.

The incidence of cancer increases with age, more than half of new cases occur after 65 years.

The French population is ageing. In 2022, 21.0% of people in France are aged 65 and older, 3.4% of those over 85. Cancer in the elderly is therefore a public health problem. The main objective of this study is to analyze cancer trends in people over the age of 85 years.
Methods.

The cancer incidence data 1987-2020 and aged older than 65 years old were extracted from the Hérault cancer registry. The age group: 65-84 years and the "oldest old" (85 years and older). Time-trends were expressed from the annual percent changes (AAPC) in age-standardized incidence rates using Joinpoint Regression.

Results.

Among the 102,148 new cases diagnosed, 13.8% were aged 85 and older.

For women, the rates increased similarly for the 2 age groups with AAPC +2.3*[1.2;3.5] for 85+ years and + 2.0*[1.7;2.2] for 65-84 years. For the "oldest-old", the incidence rate of lung cancer had the fastest increase (AAPC+8.3%) follow by pancreas (+5.4%) and LMNH (+4.1%). The rate of breast cancer has increased to become as frequent as colorectal cancer in 2020.
For men, the rates increased similarly for the 2 age groups with AAPC +2.0*[1.3;2.7] for 85+ years and + 1.9*[1.1;2.7] for 65-84 years. For the "oldest-old", the incidence rate of prostate cancer has decreased since 1998 (AAPC–2.6%) to become less common than colorectal cancer (+1.5%) from 2014.

Conclusion.

This population-based study provides information on cancer incidence trends in adults aged 85 years and older in the Hérault district. The specific features of cancer in the "oldest old" were: cancer trends are similar to those in 65-84 years; faster increase for lung and pancreas cancer for women; faster increase for lung and bladder cancer and decrease for prostate cancer for men; similar increase for both gender for colorectal cancer that become on the last period the more frequent cancer.

BREAST CANCER STAGE IN ELDERLY WOMEN IN FRANCE (2009-2019)

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Objective

To describe breast cancer (BC) stage and its temporal trends in French elderly women.

Methods

Primary invasive/in situ BC diagnosed from 2009 to 2019 in women aged 70 years and more were randomly sampled from five French cancer registries. Analyses were performed for 3 age groups: 70-74 years (targets of organized screening (OS)), 75-79 (outside OS) and ≥80 (far removed from OS). BC stage distribution and its temporal trends were described by detection mode (OS, opportunistic screening (OpS), unscreened) and by socioeconomic environment (French European Deprivation Index).

Results

In total, 2424 women was included, mostly aged 80 years and more (42%). OpS was more common in women aged 75-79 years (27% versus 10-12% for the others) while OS detected 60% of BC in the youngest group.

In situ BC accounted 7% of all cancers. They decreased with age (from 12% to 3%) and remained stable between 2009 and 2019.

Invasive BC were mostly stage 1 in women aged 70-74 (55%) and 75-79 years (40%) while stage 2 were more frequent in women over 79 (40%). In women detected by screening (OS/OpS), BC were diagnosed at earlier stage, with less stage 1 in the oldest group. For unscreened BC, stage distribution was similar regardless of age. For the 70-74 group, stage 1 tended to decrease since 2012 in women detected by OS and in affluent women. No trend was observed in unscreened and deprived women. In the 75-79 group, stage 4 decreased especially in unscreened and affluent women. In the oldest group, stage 1 decreased while stage 2 increased, especially in unscreened and affluent women.

Conclusions

The decrease of stage 1 in women aged 70-74 years is concomitant with lower OS participation in France since 2011-12. The decrease in stage 4 in the 75-79 group could be explained by the fact that these women -contrary to the oldest one- still benefit from the effects of OS through early cancer detection. In deprived stage distribution did not change over time.

TRENDS OF THE MAIN INCIDENT FEMALE CANCERS IN BRAZIL

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Background: Cancer incidence and mortality are rapidly increasing worldwide due to demographic and epidemiological transitions. It reflects ageing, behavior and environmental changes Breast and cervix uteri cancers are the most common cancers among women in the world. In Brazil, in 2023, 74,000 new cases of breast cancer and 17,000 new cases of cervix uteri. Trends analysis are a useful tool to evaluate interventions to cancer control Objective: To analyze temporal trends of incidence rates for breast and cervix uteri (in situ and invasive), in Brazil.
Methods: Incidence data were collected from Population-Based Cancer Registries in the period 1990-2019 were20 PBCRs met the criteria. All Incidence rates were age-adjusted by World Standard Population. Joinpoint regression was used to analyze the incidence trends.

Results: in situ breast cancer incidence trends were stable in most PBCRs, except Curitiba, with a significant increase AAPC: 6.6 (1.3; 12.2). Invasive breast cancer was stable in most PBCRs except Belém with an increase of 3.4 (0.6; 6.3) AAPC and decrease AAPC: -1.4 (-1.8;1.0) in Curitiba. In situ cervix uteri trends were increasing (AAPC: 6.0 (3.1;9.1) in Recife, Jau (AAPC: 3.4 (1.4;5.3)) and Aracaju (AAPC: 3.1 (0.2;6)) and decreasing in Florianópolis (AAPC: -7.7 (-14.2; -0.7)), Distrito Federal (AAPC: -3.9 (-6.5; -1.2)) and Palmas (AAPC: -1.5 (-3,15; 0.48)). Invasive cervix uteri trends were decreasing in 10 PBCRs ranging from (AAPC: -7.5 to -0.38).

Conclusion: Trends in incidence of in situ and invasive breast cancer remain stable in most PBCRs, except for PBCRs Curitiba and Belém. However, incidence trends for in situ cervix uteri increased and invasive cervix uteri cancer decreased significantly during the study period. These results confirm the key hole of PBCR as a tool for surveillance. The Incidence information is essential to monitor the cancer burden and its trends and to evaluate the cancer control programs, improving cancer policies.

A PILOT STUDY ON TUMOR STAGING ON POPULATION-BASED DATA IN A MIDDLE-INCOME COUNTRY USING THE TORONTO STAGE GUIDELINES

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BACKGROUND: childhood cancer represents a small percentage among cancer burden therefore population-based data is less known especially among low-middle-income countries. Most population-based cancer registries (PBCRs) hold incomplete data on tumor stage for childhood cancers. No population data in low-middle income countries exist to support that advanced stage at diagnosis is higher. Objective: to test the feasibility of staging childhood cancer using the Toronto Childhood Cancer staging System on PBCRs in Brazil.

METHODS: Four PBCRs were selected: Aracaju, Belo Horizonte, Curitiba and Cuiaba with database from 2005 to 2014. Data collection included demographic variables, information on examinations for the diagnosis, cancer site and morphology codified by ICD-O3. Absolute and relative frequencies were performed. Toronto Childhood Cancer Staging system was used.

RESULTS: It was possible to retrieve 866 cases to perform stage. The most frequent age group was 0 to 9 years with 467 (53.9%) cases; male sex was more frequent with 479 (55.3%) cases. 820 (94.7%) had sufficient information in the medical records to apply the stage according to Tier 1 criteria and 796 (91.9%) according to Tier 2 criteria. The most common types of cancers in the study were Acute lymphoblastic leukemia (30.5%); Hodgkin's lymphoma (10.6%); non-Hodgkin lymphoma (9.6%) and; acute myeloid leukemia (8.4%). 77,7% of cases had localized or regional disease at diagnosis, 14,3% were diagnosed with metastatic cancer and 8.0% were not possible to perform staging.

CONCLUSION: Stage of disease represented a major prognostic variable vary among pediatric oncology institutions according in which treatment protocol is used. It is extremely necessary to have a uniform tool to compare international staging and survival. This pilot study demonstrates that the Toronto guidelines is feasible in a middle-income country as Brazil. This is the first Brazilian population-based data with standard staging system.

THE INCIDENCE OF RARE TUMORS IN CUIBÁ, MATO GROSSO STATE, BRAZIL

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OBJECTIVES

The objective of this study was to evaluate the incidence of rare cancers and to compare the characteristics between rare and common cancers in Cuiabá, Brazil.

MATERIALS AND METHODS

Data were obtained through the population-based registry of Cuiabá, capital of Mato Grosso state, Brazil, between 2001 and 2018. Rare cancers were defined according to the list made by RARECARE (as a combination of topographical and morphological codes of the ICD-O-3) based on the criterion of rare cancers having a crude annual incidence lower than 6/100,000/year.

Crude incidence rates were calculated as the number of all cancers occurring divided by the overall population at risk. Incidence by age, age-adjusted incidence rates, and the proportion of rare and common cancers were also calculated.

RESULTS

Between 2001 and 2008, 25.6% of tumors were considered rare in Cuiabá. The mean annual incidence of all cancers was 487.6 per 100,000, and the incidence of rare tumors was 124.8 per 100,000. Rare tumors were predominant in the age groups up to 40 years.

DISCUSSION AND CONCLUSIONS

Rare tumors represent a relevant percentage of cancer cases (25.6%) in the city of Cuiabá, which is close to the percentage observed in Europe (22% - 1995-2002), in Italy (25% - 2000-2010), in São Paulo, Brazil (20.4% - 1997-2012), the USA (20% -2009-2013), and higher than Japan (15%: 1998-2007). Regarding age, rare tumors were predominant in young people, under 40 years old in Cuiabá, while they were predominant in young people under 35 years old in Europe, Italy, Japan, and in young people under 24 years old in São Paulo. An estimated incidence of around 12,500 (124.8 per 100,000/year) of new rare cases diagnosed annually in Cuiabá. The present study showed the magnitude of the burden of rare tumors in Cuiabá, Brazil, which may contribute to the study of these entities for a more effective diagnostic and therapeutic approach in Brazil.

RECENT TRENDS OF INCIDENCE AND MORTALITY OF BREAST CANCER IN URUGUAY

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PURPOSE: This study aimed to analyze the trends in breast cancer mortality and incidence among adult women in Uruguay using Joinpoint and age-period-cohort analysis.Methods: The study analyzed mortality data from 1990-2020 and incidence data from 2002-2019. Joinpoint analysis was conducted for four age groups: all ages, 20-44 years, 45-69 years, and 70 years and older. Age-period-cohort analysis was conducted using 5-year age groups and 5-year periods.

RESULTS: The study registered 34,113 new breast cancer cases from 2002-2019 and 19,582 deaths from 1990-2020. Mortality rates showed a decrease among all ages included (EAPC=0.91%[-1.14;-0.67]). However, mortality rates among women younger than 45 years stopped declining after a trend that existed from 1990 (EAPC=-2.07%[-3.00;-1.13] for period 1990-2010 and EAPC=2.27% [-0.58;5.21] for period 2010-2020). Mortality rates continued to decline among women aged 45-69 years (EAPC -1.23 [-1.53;-0.92]), while among women aged 70 years and older, mortality rates remained stable (EAPC:-0.17[-0.48;0.14]). Cohort parameters confirmed a uniform decline in mortality among women born after 1920, with a possible increase among those born after 1985. Attributing all drift to the period effect, show a uniform decline in mortality rates with a possible increase in the last period. Incidence rates showed a stable trend among all ages included (EAPC= -0.08%[-0.51;0.35]), with an increase among women younger than 45 years (EAPC=0.90 [0.29;1.51]),with net increase of 1.34% annually for women aged 40-44 years, and a decrease for 70 years and older (EAPC=-0.75[-1.35;-1.15]). Cohort parameters confirmed the incidence rate ratio remained stable across all cohorts.

CONCLUSION: The study found that breast cancer mortality rates have stopped declining among women younger than 45 years. Incidence rates remain stable, with a small rise among women younger than 45 years.

INCIDENCE TRENDS OF THYROID CANCER INCIDENCE IN THE MANCHE FRENCH DEPARTMENT BETWEEN 1994 AND 2020

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BACKGROUND: The purpose of the study was to describe the trend in the incidence of thyroid cancer in over 27 years in the Manche French department.

METHODS: We collected thyroid cancer cases between 1994-2020 from the population-based Manche Cancer Registry. All thyroid cancer cases were classified according to the International Classification for Diseases in Oncology, 3rd edition. World age-standardized incidence rates were analyzed using a Poisson regression model, in order to estimate average annual percent changes (AAPCs).

RESULTS:
During the period 1994-2020, 939 patients with thyroid cancer were identified, with an average of 38 new cancer cases per year. Among them 77.6% in women and 22.4% in men. On average, thyroid cancer was diagnosed at 51 and 53 years in women and men respectively. The most frequent histopathological subtype was PTC (63.1%). Overall standardized incidence rates per 100 000 were 8.5 for women and 2.4 for men. Standardized incidence per 100 000 patient-years varied from 8.9 in woman for the first period (1994-2000) to 7.4 in last period (2009-2020) and from 2.2 to 2.5 for men.

CONCLUSIONS:
In our study, we did not observed a statistically significant trend changes in the incidence of thyroid cancer in both sexes during the period studied, while at the national level, the incidence increased sharply in the two past decades for both sexes. The department is under-incidence compared to the national average, but strong geographical disparities are observed.

6. Method

DESCRIPTION OF PREVALENT CANCER CASES' HEALTH STATUS BASED ON THE DYNAMICS OF PROBABILITY OF DEATH FROM CANCER AND OTHER CAUSES.

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Cancer prevalence is heterogeneous because it includes individuals who are undergoing initial treatment and those who are in remission, experiencing relapse, or cured. The proposed statistical approach describes the health status of this group by estimating the crude probabilities of death among prevalent cases. The application concerned colorectal, lung, breast, and prostate cancer and melanoma in France in 2017.

The French cancer registry network FRANCIM provided national incidence estimates and individual follow-up up to 31/12/2017 for colorectal, lung, breast, prostate and melanoma cancers diagnosed between 1990 and 2017, which were used to estimate prevalence at 1/1/2017. Excess mortality was used to estimate the probabilities of death from cancer and other causes.

For the studied cancer sites, most cancer deaths in 2017 occurred within 5 years of diagnosis. The probability of dying from cancer decreased with time since diagnosis and increased with age, but the magnitude of these changes depended on the site of the cancer and reflected its overall prognosis. For breast cancer, this probability was always < 5%, but remained at medium levels (0.5 to 2%). It became < 1% for all sites except for women under 55 with breast cancer and people over 65 with lung cancer. The time beyond which the probability of dying from cancer became lower than that from other causes depended on the site and decreased with increasing age: for example, for women with colorectal cancer, it decreased from 20 years for those aged 45-54 to 6 years for those aged 75-84. For those under 75 with lung or breast cancer, cancer remained the main cause of death regardless of the time since diagnosis. Conversely, beyond the age of 75, deaths due to other causes became the most frequent in all sites and over different times.

The proposed indicators allow a better description of the burden of cancer by estimating outcomes in prevalent cases according to time since diagnosis.

PROJECTING CANCER PREVALENCE BY PHASE OF CARE: A METHODOLOGICAL APPROACH

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INTRODUCTION:

In most developed countries, the number of cancer survivors is expected to increase over the coming decades, because of raising incidence and survival and population ageing. These people are heterogeneous in terms of health service requirements; therefore, it is worth to provide updated measures of prevalence for groups of patients based on the level of care they require. Aim of this paper is to illustrate a new method to estimate short-time projections of phase-of-care prevalence.

METHODS

The proposed method combines linear regression models to project limited duration prevalence derived from Cancer Registry data and a session of the software COMPREV to estimate projected complete prevalence into three distinct clinically relevant phases of care: the initial phase following diagnosis, the last year of life and the continuing phase in between. The method is illustrated using data from Veneto Cancer Registry, for breast, colorectal, and lung cancers.

RESULTS

Prevalence is expected to increase in the period 2020-2026: in women for lung cancer (2.6% average annual variation), breast (2.3%) and colorectal cancer (1%); in men for colorectal (0.5%). The only exception is the decreasing in lung cancer among men (-1.9%). The dynamic of prevalence slightly affects the distribution of cancer survivors into the three phases of care: most patients are in the continuing phase of care, followed by the initial and final phases of care, except for lung cancer, where the final phase percentage is higher than the initial one.

DISCUSSION

The paper proposes an easy method to provide evidence of future cancer health care needs. Results from the validation confirms the applicability of our methodological approach to most frequent cancer types, provided at least 15 years of cancer registration. Evidence from this method is addressed to policy makers for planning future cancer care, thus improving cancer survivorship experience for patients and caregivers.

DISABILITY-ADJUSTED LIFE-YEARS IN TARRAGONA, SPAIN, 1998-2017. ESTIMATION AND TRENDS

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OBJECTIVES: Disability-adjusted life-years (DALYs) is a measure of the total disease burden, expressed as the number of years lost due to ill health, disability or premature death. The aim of this study was to estimate the trend of DALYs rates over the period 1998-2017 in Tarragona. Methods: Incidence and mortality data were extracted from the Tarragona Cancer Registry for the periods 1998-2002, 2003-2007, 2008-2012 and 2013-2017. To calculate total DALYs we used the methodology developed by Murray and Lopez: The sum of Years Lived with Disability (YLDs) and Years of Life Lost (YLLs). Data on population, incidence, mortality, life expectancy by age, proportion of treated, cured and survivors with sequelae, time to cure, time to death, as well as, time in each stage of the disease and their disability coefficients were used to estimate DALYs and European standard population age-adjusted DALYs rates (ASRe).

RESULTS: From 1998-2002 to 2013-2017, DALYs ASRe of all cancers except non-melanoma skin decreased 10% in men (from 4914.1 to 4418.9) and only 2.5% in women (from 3318.0 to 3236.4).

In the most recent period, 2013-2017, cancers with the highest ASRe were lung (1171.0), colorectal (619.4) and prostate (376.2) in men, and breast (894.2), lung (384.4) and colorectal (366.9) in women. Whereas in men, cancers with the highest DALYs showed small changes in ASRe, in women, lung cancer presented a remarkable steady increase from 1998-2002 (121.1) to 2013-2017 (384.4), with a total increase of 217.4%.

CONCLUSIONS: The decrease in DALYs in Tarragona in both sexes in the last decades is also observed in other European countries despite the fact that incidence trends are increasing for main cancer types. This reduction could be associated with advances in treatment and detection. However, lung cancer presents an increase in DALYs in women in our area which indicates a differential burden of disease and incidence for this sex and should raise awareness among health authorities.

JOINT ACTION ON EUROPEAN NETWORKS OF EXPERTISE (JANE): WHAT ROLE FOR CANCER REGISTRIES?

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JANE is one of a series of complementary Joint Actions rooted in the European Commission's Beating Cancer Plan. JANE will prepare the groundwork for the establishment of seven new **EU Networks of Expertise (NoE)**, to support specific, challenging cancer conditions, benefiting from cross-border cooperation and European Union know-how.

These conditions include Personalised primary prevention; Survivorship; Palliative care; Hi-tech medical resources; Omic technologies; one or more Complex and poor-prognosis cancer(s); and Adolescents and young adults (15-39 years at cancer diagnosis) with cancer. Sixteen countries (Belgium, Czechia, Croatia, France, Germany, Greece, Hungary, Italy, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovenia, Spain) will be involved, with a total of 36 partners. The JA started on 1st October, 2022 and will run for 24 months.

The envisaged NoEs will be new kinds of networks. Unlike **EUROPEAN REFERENCE NETWORKS** (ERNs), which are linked directly to patients, their mandate will be to provide healthcare services and tools to healthcare cancer institutions and networks in Europe on the indicated conditions.

The **OUTPUTS** will be shared with the European oncology community and MSs, through a green paper and a European conference. Healthcare networking could become a privileged hallmark of the EU, having the potential to target the health of half a million citizens in a highly coordinated fashion. JANE represents a major opportunity to position cancer registries (CRs) as key partners in future NoEs. CR data could contribute to the NoE on survival by defining late effects after cancers; to the NoE on Poor Prognosis Cancer by defining and monitoring such cancers, and to the AYA NoE by reporting the cancer burden for this discriminated population. This abstract aims to stimulate a discussion on how to ensure the involvement of CRs in future European NoEs

HEALTH SPATIAL ACCESSIBILITY INDEX (SCALE) IN METROPOLITAN FRANCE

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Access to care is a major public health issue. Many studies have established that the social component of accessibility plays a determining role in patient care. The influence of the geographical component is more debated in the literature because of its great variability between countries and the difficulty of obtaining aggregate measurement tools.

Contrary to other tools available to understand the accessibility of populations, the SCALE index was calculated on an infra-communal scale (residential area N≈2,8 M) in order to have a fine representation of the territory. In addition, it provides an overall measure of access to care including various health professionals.

The population was located in the centroid of the residential area. The facilities mainly concerned the provision of primary health care. Since accessibility is related to both the proximity of the resource and its availability, both concepts were taken into account. The calculation of the index is based on the mean weighted distance to facilities accessible for the population. The weight was defined as the theoretical pressure applied on it.
The mapping and description of the index are available for metropolitan France and for each region at the url:
https://unicaen.maps.arcgis.com/apps/MapJournal/index.html?appid=aeab64aec57442f0b37ec61a47a43fa6

The SCALE index highlights the over- or under-endowed territories in metropolitan France, but also for each region, to help implement more effective public policy in terms of health planning and to study the influence of accessibility to care on different health indicators (incidence, screening, survival, management of different diseases, etc.). In addition to the social deprivation indexes, the SCALE index allows cancer registries to assess in detail the influence of socio-territorial inequalities in health for the whole of France.

FREE ELECTRONIC STAGING TOOL FOR POPULATION-BASED CANCER REGISTRIES: CANSTAGING+

https://www.canstaging.org

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INTRODUCTION

Cancer stage is a measure of cancer progression at diagnosis. It is an important indicator for clinical decision making and facilitates local and international monitoring of cancer outcomes at population level. Population-based cancer registries (PBCRs) are key partners in assigning stage at diagnosis while adhering to internationally agreed, complex and regularly updated rules.

METHODS

In an international collaboration, we assessed variations in staging data collection across PBCRs from submissions to Cancer Incidence in 5 Continents via the International Association for Research on Cancer. Then working with IT and staging experts, we built CanStaging+. We are currently working on language translations and encourage use of the UICC TNM 8th edition. CanStaging+ has been incorporated for automated use into the IT system of the National Cancer Registry of Ireland.

RESULTS

346/464 registries (75%) reported collecting staging information from 2008 to 2012. The proportion varied from 96% of North American and European registries collecting some staging information to 52% in Latin American and Caribbean registries. Collection was highest for breast and cervical cancer and lowest for lung cancer.

CanStaging+ provides automatic calculation of TNM 7 and 8 for 25 tumour sites, Essential TNM for 8 sites and the two-tiered approach of Toronto Guidelines for childhood cancer for fifteen malignancies. It will soon be available in Spanish, Turkish, Malay and Japanese, with plans for additional translations. Monitoring of the CanStaging+ website indicates increasing, interest and use. The tool will be included in various training initiatives.

CONCLUSIONS

We present a free electronic staging tool for cancer registries, which is available online and offline, intended to enhance completeness and comparability of cancer staging data internationally and help explain variations in cancer outcomes and survival. We recommend incorporating CanStaging+ for automated use into IT systems of cancer registries."

CanStaging+ Available at https://www.canstaging.org

7. Screening

THE EFFECT OF THE FLEMISH BREAST CANCER SCREENING PROGRAM ON BREAST CANCER-SPECIFIC MORTALITY: A CASE-REFERENT STUDY.

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BACKGROUND: RCTs in the 1980s showed lower breast cancer-specific mortality after mammography screening. Consequently, many countries introduced breast cancer screening programs. However, estimates for their effect on breast cancer-specific mortality vary and their effectiveness remains debated. The Flemish breast cancer screening program was introduced in 2001, in a context of high and slowly declining levels of opportunistic screening. We studied its effect on breast cancer-specific mortality.

METHODS: A case-referent study in women eligible for screening in 2005-2012 investigated the effect of participation in the Flemish population-based mammography screening program (PMSP) on breast cancer-specific mortality. Cases died from breast cancer in 2005-2017 and had the opportunity to be screened within the program before their diagnosis. Referents (4:1) were randomly selected among women who (a) were alive at the case's time of death and (b) had the opportunity to be screened prior to the case's diagnosis.

The association between breast cancer-specific death and PSMP participation status in the four years prior to (pseudo)diagnosis was modeled using multiple logistic regression, adjusted for potential confounders (individual socio-economic position and calendar year of diagnosis) and stratified for age. Several sensitivity analyses were performed.

RESULTS: The adjusted odds ratio [aOR] for participation in the PMSP in our 1571 cases versus their 6284 referents was 0.49 (95 % CI: 0.44–0.55). Sensitivity analyses did not markedly change the estimated associations. Correction for self-selection bias reduced the effect size, but the estimate remained significant.

CONCLUSION: The risk of breast cancer-specific mortality was halved in women who participated in PMSP compared to those who did not, even in a context of substantial opportunistic screening rates. These results should be balanced against the potential harms of screening, including overdiagnosis and overtreatment.

EFFECT OF SCREENING PARTICIPATION ON EXCESS MORTALITY IN WOMEN WITH BREAST CANCER ACCORDING TO SOCIAL DEPRIVATION

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BACKGROUND: In France, women over 50 are invited to participate in organized breast cancer screening (OrgS). Among women who do not undergo OrgS, some perform opportunistic screening (OppS), prescribed by physician. This OppS is rarely considered in survival studies after a breast cancer because it is very difficult to identify. The aim of this study was to identify the practice of OppS in women with breast cancer and to estimate the excess mortality hazard according to participation in screening and to deprivation.

METHOD: Using data from cancer registries, we identified women aged 50 to 74 diagnosed with breast cancer between 2009 and 2015, residing in Côte d'Or, Gironde, Loire-Atlantique and Vendée. We identified women who participated in the OrgS by matching with the screening management structures, and women who benefited from mammographic surveillance (assimilated to OppS), by matching with the National Health Data System. We estimated 5 years net survival and excess mortality hazard in each group and according to social deprivation (by the European Deprivation Index) using flexible parametric penalized model.

RESULTS: 14,208 women with a breast cancer were included (75% OrgS, 10% OppS, 15% no screening (NoS)). Net survival at 5 years was highest for OrgS women (97%). The excess mortality hazard was higher for NoS women compared to OrgS and OppS women, regardless of follow-up time, age or deprivation level. Among NoS women, a social gradient was observed from the diagnosis, most deprived women having a 64% higher excess mortality hazard at 1 year than least deprived women.

OppS women had a slightly higher excess mortality hazard compared to OrgS women, mainly in the first year after diagnosis, and aggravated by deprivation.

CONCLUSION: This study allowed to distinguish OppS and OrgS to study survival of women with breast cancer. It also shows the benefit of screening, and in particular OrgS, on mortality after breast cancer, increasing with deprivation.

EVALUATION OF THE BREAST CANCER SCREENING PROGRAMME BY USING LUXEMBOURG'S NATIONAL CANCER REGISTRY DATA FROM 2013-2018

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BACKGROUND: Breast cancer is the most frequent and lethal cancer in women in Luxembourg. Since 1992, a national organized population-based breast cancer screening programme is implemented in Luxembourg. The screening programme invites all residents affiliated to the National Health Insurance (Caisse national de santé, CNS) aged between 50 to 70 years to perform a mammogram every two years in one of the registered radiotherapy centres in Luxembourg. This study is aiming to realise for the first time data linkage between the programme's and Luxembourg's National Cancer Registry data, and to evaluate and to quantify the effectiveness of the breast cancer screening programme.

METHOD: A pseudo-identifier was used to link data from all first breast cancer cases diagnosed in women aged between 50 to 73 years during the period of 2013-2018. Three detection modes were defined being screened cancers, interval cancers and diagnosed cancers.

RESULTS: Breast cancer cases diagnosed between 2013-2018 with known laterality will be presented by detection modes. Preliminary results showed that screened cancers were less invasive, smaller, had less advanced stage at diagnosis and less invaded lymph nodes compared to interval and diagnosed cancers.

CONCLUSIONS: Luxembourg breast cancer screening programme seems to achieve its goals of detecting breast cancers earlier. This study generates the first set of indicators and a method for monitoring of the breast cancer screening programme in Luxembourg. In addition, the study will yield international insights into the applications of high-resolution data from population-based cancer registries for the evaluation of cancer screening programmes.

SETTING GASTRIC CANCER PREVENTIVE INTERVENTIONS: A PILOT STUDY IN THE HIGHEST INCIDENCE AREA IN ITALY

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Italy has intermediate levels of gastric cancer (GC) incidence in Europe but there are pockets of high incidence. Incidence and mortality from GC in Umbria, central Italy, rank high in Europe. In 2014-2018 the age-standardized incidence rate (ASIR world) was 12.5 (95%CI 11.5-13.6) per 100,000 among males and 6.7 (95%CI 6-7.6) among females. GC imposes a heavy burden in terms of cancer mortality due to late diagnosis and unfavorable prognosis. The age-standardized mortality rate (ASMR) was 7.5 and 4 per 100,000 male and female respectively.

Even if Umbria is a small Region, geographic heterogeneity in GC risk does exist; incidence of GC is as high in the northern regional health districts: 20.9 (95%CI 16.6-26.5) among males and 10.8 (95%CI 7.8-14.9) among females.Recently, screening interventions have been introduced in high risk areas in Asia (e.g. Japan). Available interventions include diagnosis and eradication of Helicobacter pylori infection and early identification of premalignant lesions and GC through endoscopy. Moreover, serum tests, based on the assessment of pepsinogen (PG) I and II plasma levels, can identify atrophic gastritis and have been proposed as a screening test. Considering the high mortality burden, we planned an experimental pilot study of GC screening in two high risk regional districts (population 46,607 residents); persons in the age group 45-69 years will be invited. Subjects will be divided in two groups following PG tests.Test-positives (PGI≤70ng/ml and PGI/PGII≤3) will undergo gastric endoscopy and eventual HP eradication. Anti-HP Ab will be measured for test-negatives (PGI>70 ng/ml and PGI/PGII>3). Patients HP- and PG- will drop-out in the study. Additional markers will be determined (e.g. gastrin-17) and a questionnaire on diet, drinking habits and other determinants of GC will be administered. Screening data will be registered in an ad hoc section of the regional cancer registry

SHOULD WE RECONSIDER THE AGE TO START THE SCREENING FOR BREAST CANCER IN COLOMBIA?

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BACKGROUND: Breast cancer is the most frequent malignancy in Colombian women. By 2020, there were 15,000 new cases and 4,450 deaths; 30% of cases and 20% of deaths occur in people under 50 years of age. Currently, opportunity screening is performed with two-projection biennial mammography; starting at age 50, and continuing until age 69.

OBJECTIVE: To evaluate the behavior of breast cancer in women under 50 years of age in Cali.

METHODS: The information on incidence, mortality and net survival (Pohar-Perme) was obtained from the population registry of Cancer of Cali, between 1962 and 2017.

RESULTS: The aging index of Colombia for 2018 was 40.4%. From 1960 to 2017, the incidence rates of breast cancer in those under 50 years of age increased by an annual average of 0.9 (95% CI 0.6; 1.2); and in the subgroup under 40 years of age, by 1.1 (95% CI 0.7; 1.5). Mortality rates remained stable, which suggests greater detection in early stages. Net survival did not change in the last 15 years; and it was 81.1% for the period 2013 - 2017. In the 1960s, 45% of breast cancers occurred in people under 50 years of age; currently, it is 25% (2013 to 2017). The onset of screening age is variable in different regions, with ages between 40 and 50 years; and it does not respond to a relationship with life expectancy or with the relative risk of cancer in relation to age groups (under and over 40 years). Some countries in the Americas, including Colombia, have outdated clinical practice guidelines.

CONCLUSIONS: It is necessary to revaluate the age of initiation of screening in Colombia taking into account the aging index, life expectancy and fertility rate.

KEYWORDS: Breast cancer, screening, age of onset.

8. Social and territorial inequalities

THE IMPACT OF HUMAN DEVELOPMENT INDEX AND STOMACH CANCER INCIDENCE IN BRAZIL

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BACKGROUND: The incidence of stomach cancer (SC) is declining in most countries in the world, potentially associated with increases in the human development index (HDI). This study was conducted to characterize the incidence and trends of SC in the Brazilian population and its correlations with HDI components: longevity, education and income.

METHODS: Data on incidence of SC from Population-based cancer registry (PBCR) in Brazil during the period 1988–2017 were extracted from the Instituto Nacional de Câncer (INCA). Incidence rates were estimated for each PBCR in the same calendar period. Trends were analyzed using the Joinpoint Regression Program, and correlations with HDI components (longevity, education and income) were examined using the Pearson test.

RESULTS: SC incidence rates in Brazil ranged from 22 to 89/100,000 among men and from 8 to 44/100,000 among women. The highest incidence rates for men and women occurred in northern Brazil. The SC incidence is stable in most of the capitals of northern and northeast, with reductions for both sexes in South, Southeastern, and Midwest. There was an inverse correlation of SC incidence rates for women with the components of the HDI education (p=0.038) and longevity (p=0.012). For men, the inverse correlation occurred for the longevity HDI (p=0.013).

CONCLUSION: The improvement of HDIs in Brazil during the study period may have contributed to the stability of the SC incidence but was not sufficiently to reduce the overall SC incidence in the whole country. To better understand SC incidence in Brazil, effort should be made towards to ensure that incidence data is recorded by the PBCRs timely.

INCIDENCE CLUSTERS AND GEOGRAPHICAL VARIABILITY OF THE SOCIAL ENVIRONMENT: AN ANALYSIS OF LUNG CANCER DATA IN NORTH-WEST FRANCE

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BACKGROUND: The incidence of lung cancer is unequally distributed in France. Several studies have shown the existence of a link between the socio-economic environment of populations and the incidence of cancers. The objective of this study was to analyze the geographical variability of lung cancer incidence in Normandy by taking the spatial distribution of the social environment into account.

METHODS: The study included 5 808 men with lung cancer, recorded in the General Tumour Registry of Calvados and in the Cancer Registry of Manche, between 2006 and 2016. A Bayesian approach was used to calculate the Standardized Incidence Ratio (SIR) of each IRIS and a spatial scan model for cluster detection. The influence of geographic variability in the social environment was assessed by using two adjustment methods.

RESULTS: The incorporation of the socio-economic environment into the modeling of the spatial distribution of incidence modified the estimates : 22 SIRs became insignificant and 68 became significant and at higher risk. IRIS where the SIR became insignificant were mostly areas with a low socio-economic level, while areas where the SIR became significant and over-risk were mostly areas with a high socio-economic level. The spatial distribution of the social environment modified the geographical variability of cancer incidence in men with the change of some incidence clusters. After adjustment on social environment, 3 main clusters emerged in men in the North-West of Calvados, around a large city and in the East of Calvados.

CONCLUSION: Results confirmed that the socio-economic environment is related to the geographical variability of lung cancer and that the socioeconomic environment should be taken into account in the analysis of lung cancer incidence clusters. However, further studies have to be carried out to further develop the spatial analysis of cancer and to understand to what extent socio-economic environment may influences the spatial distribution of cancer incidence in France.

CERVICAL CANCER SURVIVAL IN FRANCE BY AGE, HISTOLOGY AND STAGE (2010-2015), A FRANCIM STUDY

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OBJECTIVE: Cervical cancer (CC) survival has been decreased in France since 1990 for women aged 60 and over. The study aimed to describe CC survival, and examine differences by age, histology and stage.

METHODS: A retrospective population-based study using data of women diagnosed with a CC between 2010 and 2015, from 18 French departments covered by registries, was carried out to analyse survival. Excess mortality rates (EMR) and five-year net survival (5y-NS) were calculated using the Pohar-Perme estimator. NS was age-standardised with the International Cancer Survival Standard (ICSS) weights. Flexible parametric hazard model was used to investigate the impact of age and stage at diagnosis on patient survival.

RESULTS: For the 3,615 women diagnosed with a CC in 2010-2015, five-year Age-Standardised Net Survival (5y-ASNS) was 63%. Net survival was lower for older women (82%, 67% and 40% for 15-44, 45-64, ≥65 years, respectively). No difference in 5y-ASNS was observed between squamous cell carcinoma and adenocarcinoma (64% and 63%, respectively). More advanced CC were diagnosed in older women compared to younger women (49% of CC were diagnosed at a localized stage and 11% at an advanced stage for 15-44 years, 11% and 42% for ≥65 years, respectively). There was a very large gap in 5y-ASNS between localized and advanced CC (from 92% to 23%). Flexible models found 5y-NS decreased with increasing age for all stages except for locally advanced CC. Except for localized CC, the higher EMR were observed during the three first years after the diagnosis. EMR were all the higher the more advanced the stage and the women were older.

CONCLUSION: Lower CC survival among older women was caused mainly by the presence of more advanced disease at diagnosis. Increasing early stage diagnosis could improve survival difference among older women.

ASSOCIATION BETWEEN ACCESS TO PRIMARY CARE AND MORTALITY IN EXCESS FOR PATIENTS WITH CANCER IN FRANCE

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BACKGROUND : Little is known about the effect of geographical inequalities in cancer care. The objective of this study is to measure the influence of access to primary care on mortality in excess for ten major localisations for French mainland territory.

METHODS : The study used data from 21 french registries. We included the 10 most common solid invasive cancer sites in France between 1 January 2013 and 31 December 2015 (N=151,984). The effect of access to primary care was estimated using two indexes : SCALE index, a new multiscalar index available for all residential areas of France (approximately 2.8 millions) and APL index, potential accessibility localised well-known index developed by IRDES and available for all communes.

The effect of access to primary care on mortality in excess was investigated, using additive excess hazard models with multidimensional penalised splines. All models were adjusted on year of diagnosis and European Deprivation Index.

RESULTS : Mortality in excess was associated with remoteness. An increase of SCALE index (evoking a worse accessibility to primary care) was associated with an increase of mortality for breast cancer in females (EHRmedian_scale vs ref =2.26[1.07 ; 4.80]), lung cancer in males (EHRmedian_scale vs ref =1.08[1.04 ; 1.13]) and liver cancer for both sex (EHRmedian_scale vs ref =1.20[1.00 ; 1.43] for males & EHRmedian_scale vs ref =1.51[1.12 ; 2.04 for females]). An increase of APL index (explaining a better accessibility to primary care) was associated with a decrease of mortality for colorectal cancer in males (EHRmedian_apl vs ref =0.83[0.73 ; 0.94]).

CONCLUSION : In addition to the previously demonstrated effect of social inequalities, our study shows that geographical accessibility to primary care is an independent prognostic factor for the survival of some cancer localisations. This loss of opportunity concerns more than 45% of patients diagnosed with cancer in France.

SOCIOECONOMIC AND CLINICAL DETERMINANTS CONDITIONS AND BREAST CANCER SURVIVAL IN PASTO COLOMBIA 1998-2017

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BACKGROUND: In Colombia there is limited knowledge about the influence of determinants on breast cancer survival; this situation that prevents the implementation of strategies for cancer control.

METHODS: An analytical observational study was carried out, with a 5-year follow-up to all the women resident in Pasto-Colombia, diagnosed with malignant breast cancer during 1998-2017 (N=1221). The information were proccesed by the Cancer Registry of Pasto to explore the relationship between clinical, demographic and socioeconomic conditions and survival using Kaplan Meier and Cox proportional hazards models.

RESULTS: The 5-year overall observed survival rate was 67.1% (IC95% 65.4-68.9). The probability of survival was greater in patients with tumors TNM I (90.2%), aged 15-49 years (70.8%), living in urban áreas (68.4%), with private health insurance (71.5%) and high education level (78.2%). The adjusted risk of death was higher for patients with tumors TNM II (AHR= 1.98 IC95% 1.06;3.69), III (AHR= 3.55 IC95% 1.92;6.58) and IV (AHR= 16.03 IC95% 8.66;29.67) compared to those with TNM I; The risk was also higher in women older than 65 years (AHR=1.35 IC95% 1.04;1.74) compared to those younger (15-49 years) and in women living in rural areas (AHR=1.42 IC05% 1.02 ;1.96) and medium (HR=1.57 IC95% 1.15;2.15) and low (AHR=1.46 IC95% 1.10;1.94) education level, compared with women living in urban areas and with high education level, respectively

CONCLUSION: It is necessary to focus public policies in vulnerable populations with non opportune access to health services, and low socioeconomic status for improvement survival rates of Pasto population

SEX DIFFERENCES IN INCIDENCE AND SURVIVAL OF LUNG CANCER IN SOUTHEASTERN SPAIN

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INTRODUCTION

Worldwide, lung cancer is the most frequent in men and the second in women. Recently variations in incidence have been observed, with important differences by gender and histology. Objective: to analyze the incidence and survival of lung cancer in Murcia Region

METHODS

Data come from Murcia Cancer Registry, population based. Period 1983-2018. Number of cases, incidence and age-standardized incidence rates to European population (ASIR)/100000 is calculated by sex. Joinpoint regression was used to detect changes in incidence trend with the annual percent change (APC). ASIR by histology group (WHO 2021) was obtained for 1983-1990, 1991-2000, 2001-2010 and 2011-2018, and adjusted Net survival (NS) at 5 years from diagnosis for 2000-2007 and 2008-2015

RESULTS

In 1983-2018, 15691 cases in men and 2311 in women were diagnosed. APC in men was 1.04% in 1983-2004 and -1.06% in 2004-2018, and in women of 4.34% in 1983-2018. In 1983-2018 the most diagnosed in men was squamous cell carcinomas (SCC) (30%), followed by adenocarcinomas (ADK) (23%) and neuroendocrine neoplasms (NN) (17%), and in women ADK (47%), NN (16%) and SCC (11%). The ASIR of ADK raised from 8.0 in 1983-1990 to 23.8 in 2011-2018 in men, from 1.4 to 8.2 in women, and NN in women from 0.2 to 3.4. NS at 5 years increased from 2000-2007 to 2008-2015 from 11.7% to 17.1% in men and from 15.1% to 24.8% in women

CONCLUSION

Lung cancer incidence decreases in men since 2014 while in women increased continuously in the last 4 decades. Increased incidence of ADK in both sexes and NN in women stands out. It highlights the greater lung cancer survival in women, having increased in both sexes

SPATIAL DISTRIBUTION BY BASIC HEALTH AREA OF COLORECTAL CANCER IN THE PROVINCE OF SALAMANCA (SPAIN) 2011-2016

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INTRODUCTION AND OBJECTIVES

In Salamanca, colorectal cancer (CRC) was the most frequent in both sexes in the period 2011-2016, ranking 2nd in both men and women.

The aim of the study was to describe the spatial distribution patterns of the incidence of CRC in the province of Salamanca by Basic Health Area (BHA), which is the most basic geographical healthcare unit of the Health System of Castilla y León (HSCYL).

METHODS

The new cases of CRC were extracted from the Population Cancer Registry of the province of Salamanca 2011–2016. The population at risk data in the study period by age groups, sex and the 36 BHA of Salamanca were obtained from the HSCyL user database. To analize the spatial distribution in both sexes combined and in each sex (considering if the BHA is urban, semi-urban or rural), the smoothed Standardized Incidence Ratios (SIRs) were calculated according to the model proposed by Besag, York and Mollié, as well as the posterior probability of risk relative > 1 (PP) using Bayesian methods. PP above 0.80 were considered statistically significant.

RESULTS

For both sexes (n=2,281) we observed a statistically significant excess risk in 7 BHA, finding in Periurbana Norte the highest risk with SIRs of 1.14 and PP of 0.95. For males (n=1,357) we found statistically significant excess risk in 7 BHA highlighting Ciudad Rodrigo (SIRs: 1.05; PP: 0.87) and Universidad-Centro (SIRs: 1.05; PP: 0.87) and for female (n=924) in 12 BHA, jutting out Periurbana Norte (SIRs: 1.08; PP: 0.91) and Pizarrales-Vidal (SIRs: 1.07; PP: 0.88).

CONCLUSIONS

In the province of Salamanca, no areas were found with a large excess of CCR relative risk (all SIRs were less than 1.15). We note that the majority of BHA at higher risk were in and around urban zone.

SOCIO OCCUPATIONAL INEQUALITIES IN BREAST AND LUNG CANCER NET SURVIVAL AMONG SWISS WORKING WOMEN

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Breast (BC) and lung (LC) cancer are respectively the cancer with the highest incidence (except skin cancer) and that with the highest mortality in women. Occupation and socio professional variables can contribute to differences in risk and stage at diagnosis of cancer.

We aimed to describe socio occupational characteristics of breast and lung cancer female patients and to assess the relationship between those characteristics and breast and lung cancer net survival in Western Switzerland in 1990-2014.

We included all women aged 18-65 years who resided in western Switzerland (French-speaking cantons of Fribourg, Geneva, Jura, Neuchâtel, Vaud and Wallis) in the 1990 or 2000 census, with known occupation. Probabilistic linkage with records from five cancer registries identified all primary invasive breast (n=8’678) and lung (n=1’413) cancer cases diagnosed between 1990 and 2014 in this region. Patients were followed from the date of breast or lung cancer diagnosis until the earliest of the following events: date of emigration, 85th birthday, death, or study termination.

LC patients were more frequently Swiss (87% vs 81%, $p<0.001$) and divorced or widowed (32% vs 20%, $p<0.001$). The percentage of women employed in manual occupations was 13.4% in the BC group and 15.6% in the LC group (p 0.02). The skill level required for the occupation was higher for the BC group ($p<0.001$). As expected, tumor stage was higher for the LC group. Stage 1 and 2 cancers were 68.3% in BC and 18.6% in LC. The net survival analysis showed that BC women working as professionals (HR 0.73, 95%-CI: 0.56-0.96), at a top manager level or as an independent (HR 0.49, 95%-CI: 0.26-0.90) and with the highest skill level (HR 0.76, 95%-CI: 0.59-0.97) had a better 5-year net survival prospect. In LC, an intermediate high skill level was associated with a better net survival (HR 0.77, 95%-CI: 0.60-0.99) while occupation and socio professional category had a less marked impact on net survival.

SOCIODEMOGRAPHIC AND CLINICAL FACTORS ASSOCIATED WITH NON-RECEIPT OF OVARIAN CANCER SURGERY IN RIO DE JANEIRO STATE, BRAZIL

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OBJECTIVES: To verify whether sociodemographic and clinical factors are associated with non-receipt of ovarian cancer surgery in tertiary hospitals in the state of Rio de Janeiro.

METHODS: The Integrated Hospital-Based Cancer Registry (IHBCR) was used to extract sociodemographic and clinical data (histology, staging, and treatment type) in women with ovarian cancer (ICD C56) from 2005 to 2015. Univariate and multivariate Poisson regression models with robust variance were used with 95% confidence intervals.

RESULTS: 1,191 women were included in the sample, 406 (34%) of whom had not received surgery. In the multivariate regression, the highest proportions of OC patients who had not undergone surgery were those with histological subtypes "other/NOS" (PR = 1.96, 95% CI 1.41-2.73) and stages II to IV (PR 1.93, 1.83, and 2.22, respectively), those reported by Brazil´s Unified Health System or SUS (PR = 1.24, 95% CI 1.02-1.51), and those treated in the interior of Rio de Janeiro state (PR = 1.86, 95% CI 1.52-2.28).

CONCLUSIONS: The high prevalence of failure to perform surgery for ovarian cancer in the hospital system in the interior of Rio de Janeiro state may be due to smaller numbers of cases and/or lower availability of specialized gynecology teams. Independent sociodemographic factors showed no statistical association with failure to perform surgery, while there was a higher prevalence of women with unoperated epithelial ovarian cancer coming from services in the Unified Health System and with stage II ovarian cancer. A possible solution would be to prioritize public policies reinforcing the role of adequate training of professionals involved in ovarian cancer care, accompanied by incentives for qualified teams to practice in currently underserved areas in the state of Rio de Janeiro.

CENTRALIZATION OF RECTAL CANCER CARE: WHAT COST, WHAT BENEFIT AND FOR WHICH POPULATIONS? ANALYSIS OF FRANCIM REGISTRIES DATA

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INTRODUCTION: Resection of the mesorectum is currently the gold standard for the treatment of localized invasive rectal cancer (RC). The quality of this surgery and the reduction in the risk of relapse seem to be correlated with the surgical activity level of the center. In France, a threshold of 30 annual interventions for digestive cancer has been set for centers to be authorized to surgically treat CR. Centralizing the RC care could benefit patients but would likely have a cost that would not be the same for all. The objective of this work is to study the impact of RC treatments centralization on survival (benefit) and patients travel distance (burden) in metropolitan France and the distribution of these benefits and costs.

METHOD: We study a sample of non-metastatic invasive RC cases diagnosed from 2010 to 2015 that underwent curative surgery identified by registries, and the national PMSI (medical information systems program) database to retrieve the total number of digestive cancer surgeries and among them the number of RC.

The residence of the cases and the treatment centers were geolocalized to build an origin-destination distance matrix using QGIS software. Current recourse was described and different authorization thresholds were studied.

RESULTS: 3221 patients (median age: 69 y, sex ratio 1.7 were included. One-third of them consulted the nearest treatment center , were older than those who consulted farther center (p <0.001) but did not differ regarding social disadvantage. However, the most disadvantaged patients (EDI 4 and 5) as well as the oldest ones consulted more frequently centers performing fewer interventions on RC (p<0.001).

DISCUSSION: Our first results suggest that a concentration of care towards centers with the highest activity will be more restrictive for the oldest and most disadvantaged patients, although nothing predicts the meaning of the relationship in terms of survival. The next step of Centrum study will focus on these analyses.

KNOWLEDGE, ATTIDUDES AND BEHAVIOURS OF WOMEN ABOUT CERVICAL CANCER IN SANA'A YEMEN

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TOPIC: Information, attitudes and behaviors of women in Yemen-Sanaa about cervical cancer and prevention methods. Istanbul University Institute of Health Sciences, Public Health Department.

BACKGROUND AND AIM: The research was conducted to determine the knowledge, attitudes and practices of women in Sanaa, which is the capital of Yemen, about cervical cancer, prevention methods and human papilloma virus.

MATERIALS AND METHODS: This case-control study was conducted among 400 randomly selected women in five large hospitals in Sanaa. Since the data showed normal distribution, parametric tests were used and differences between groups were evaluated by chi-square, ANOVA and student t tests. The significance level was taken as $p < 0.05$ at the 95% confidence level.

RESULTS: About 60% of each group patient and non-patient groups have heard of cervical cancer. Moreover, 32% non-patient group and 59% patient group have heard about the Pap smear, but only 7% non-patient group and 49% patient group have done it. Around 10% of each group have heard about HPV and 20% of each group anticipate that HPV can cause cervical cancer. People with higher education have more information about HPV, chew less kat and have less rate of cervical cancer (10%). On the other hand, the majority of the illiterate group don't have enough information about HPV, chew more kat and have higher rate of cervical cancer (57%).

CONCLUSION: This study demonstrates a very low level of knowledge about cervical cancer, Pap smear testing and HPV in a sample of Yemeni women. In order to protect women from cervical cancer, it is a critical need to provide adequate information about prevention methods first. For this purpose, in order to reduce the burden of cervical cancer in Yemen and save the lives of women as much as possible, it is necessary to attract the attention of health professionals and the media, inform the public, raise awareness, and increase the studies on the subject.

9. Survival

BIOSCA PROJECT: IMPACT OF AGE ON SURVIVAL ACCORDING TO MOLECULAR TUMOR FINDINGS IN CHILDREN AND ADOLESCENTS WITH SARCOMA

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BACKGROUND: Adolescents (15-19 years) with sarcoma are known to have significantly worse survival than children (0-14 years). One possible reason may be that the adolescent sarcomas exhibit specific biological characteristics resulting in differences in clinical presentation and treatment resistance behaviors. The BIOSCA project aims to explore the impact of age group on survival according to molecular tumor findings in children and adolescents with sarcoma.

METHODS: A retrospective population-based observational study with documented somatic genetic analyses was conducted between 2011 and 2016 of patients aged from 0 to 17 years with a diagnosis of sarcoma using the National Registry of Childhood Cancers Database.

RESULTS: A total of 1,637 children (0-9 years: 40%), preadolescents (10-14 years: 35%) and adolescents (15-17 years: 25%) with a diagnosis of sarcoma were included: bone sarcomas (N=845) and soft-tissue sarcomas (N=792). Compared to children and preadolescents, adolescents had significantly worse outcome for undifferentiated small round cell sarcoma (USRCS; N=467), alveolar rhabdomyosarcoma (ARMS; N=111), and epithelioid sarcoma (ES; N=21). Five-year overall survivals were worse among CIC-rearranged USRCS patients (46.7% [21.2-68.7]) as compared to other USRCS, and PAX3::FOXO1 ARMS patients (44.0% [32.0-55.4]) as compared to PAX7::FOXO1 ARMS cases (88.2% [60.6-96.9]). After adjusting for stage and genomic-profiling status, adolescents with USRCS were 1.58-fold more likely to die than children (P=0.05), and the difference in survival between age of ARMS patients was statistically insignificant. Indeed, the prevalence of PAX3::FOXO1 varied significantly with age: from 70.7% in children, to 82.8% in preadolescents, and 100.0% in adolescents (P=0.05).

CONCLUSION: Age was an independent prognostic factor of outcome only in patients with USRCS, while association between poor survival and adolescents with ARMS was due to differences in prevalence of PAX3::FOXO1.

RARE CANCERS IN EUROPE: THE EUROCARE-6 UPDATED RESULTS.

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OBJECTIVES

To update survival estimates for rare cancers (RC) in Europe and to describe the differences in RC survival between countries and over time.

METHODS

We used the EUROCARE6 database (106 cancer registries; 29 European countries). We analysed about 2 million adults (aged 15-85+ years) diagnosed with solid RC (the 10 families defined by the Joint Action on Rare Cancers) in 2000-13 followed up to the end of 2014. We analysed the differences in 5-year relative survival (RS) by country (2010-2014) and over time (2004-06 vs 2010-14) using period analysis Funnel plot and the index of heterogeneity (I2) were used to identify relevant RS differences between countries.

RESULTS

RS of RC was 54% with differences by family type and subtype. Specifically, RS was very low (<20%)for mesothelioma, central nervous systems tumours and gallbladder and extrahepatic biliary tract, intermediate (50%-70%) for sarcomas, neuroendocrine and tumours of the vulva and vagina, anal canal, head and neck and thymus, and high (>70%) for skin, paratesticular cancers and endocrine tumours. For each RC family, survival decreased with increasing age. The I2 heterogeneity index showed, for each of the RC families, that differences in survival between countries were not due to chance (I2>85%). The funnel plots confirmed that it was mostly eastern and southern European countries that had lower RS. Time trend analysis is in progress.

CONCLUSIONS

This is the first time that survival for all adult solid RC families is reported and differences by country are analysed. Our results show similar RS differences between countries to those observed for common cancers suggesting that the same weaknesses affecting common cancer management also impact, and perhaps even more, on RC. Finally, the time frame of our analyses precedes the implementation of the European Reference Networks (ERNs) to improve outcomes for RCs and thus provides an important baseline from which to evaluate the effectiveness of the ERNs.

CAUSES OF DEATH OF HEAD AND NECK CANCER PATIENTS: CAUSE SPECIFIC AND RELATIVE SURVIVAL ESTIMATIONS

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BACKGROUND Survival analysis based on population cancer registries (CRs) is usually carried out in terms of relative or net survival, attributing to the diagnosed cancer the mortality risk in excess with respect to that of the general population. However, chronic diseases and cancers shared similar risk factors. This is the case for head and neck cancers(HN): smoking, alcohol, occupational factors and viruses are associated to a higher risk of death for other cancers, cardiovascular and respiratory diseases. In addition, cancer treatments can increase the risk of death for other diseases. Although, cause of death is often not available to CRs or condidered unreliable, measuring such extra risk of patients is relevant for statistical purpose and for planning clinical follow-up and services for cancer survivors.

METHODS We selected from the EUROCARE-6 database 26683 patients aged 40-79, diagnosed with HN in 1998-2002 and from 14 CRs with >90% completeness of cause of death information. Cancer specific deaths were defined as those attributed to any HN subsite. The number of deaths from other causes were obtained by subtracting cause-specific deaths from all observed deaths. The number of expected deaths was calculated from population life table probabilities times the number of person-years at risk, by sex, age and year of follow-up.

RESULTS We counted 20548 deaths during 1998-2014: 13193 attributed to HN and 7355 to other causes (other cancers (42%), cardiovascular (23%), respiratory (7%) or digestive diseases (3%) and accidents (2%)), vs. a number of 4357 deaths expected in the general population. The overall observed/expected ratio of other cause deaths was 1.7 and was inversely associated to age at diagnosis. 15-yr cause-specific vs. relative survival was 41% vs. 30% in men and 51% vs. 40% in women.

DISCUSSION This is a preliminary analysis. Further studies on extra risk of death from other causes can help disentangle determinants of long-term cancer survival.

SURVIVAL OF BREAST, OVARIAN, AND CERVICAL CANCER IN CALI, COLOMBIA. 2015-2018.

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INTRODUCTION: In Colombia, the incidence and mortality rates per 100,000 women per year in 2020 due to breast, cervical and ovarian cancer were 47.8, 13.3, 6.3, and 13.6, 7.3, and 7.3, respectively. The anatomical and clinical staging of the cancer is the most critical prognostic predictors without molecular markers.

AIM: To determine the pathological stage and survival of patients diagnosed with breast, ovarian and cervical cancer in Cali, Colombia, from 2015-2018.

METHODS: The Population-based Cancer Registry and the Secretary of Health of Cali, and the National Department of Statistics provided the information on incidence, mortality and life tables. Women diagnosed with breast, cervical and ovarian cancer registered between 2015 and 2018 were included. Non-invasive lesions were excluded. Pathologic reports determined the pathologic stage, and 5-year Net Survival was estimated using the Pohar-Perme method.

RESULTS: There were 3,325 cases of breast, 830 cervical, and 528 ovarian cancers. 74% had semi-private or public health insurance, and in women with cervical cancer, it was 64%. The Five- year Net Survival was 81% (95% CI: 78.7-83.3); 50% (95%CI: 46.9-53.2), and 38% (32.5-42.7); and the mean age at diagnosis was 59, 51, and 58 years, respectively. Staging was obtained in 27% of the cases, and the early stages of breast and cervical cancer predominated (78%). In ovarian cancer, 46% of the patients were in advanced stages.

DISCUSSION: There is a limitation in interpreting the results because the information from the pathology reports is insufficient, making it difficult to determine the staging. Women with cervical cancer had a higher proportion of health insurance granted by the state. Cancers with opportunity screening activities (breast and cervix) had a higher proportion of early stages. Advances in cancer control in Cali are not enough because differences in clinical outcomes of cancer patients persist compared to high-income countries

CONDITIONAL SURVIVAL OF YOUNG PATIENTS (0-24 YEARS) DIAGNOSED WITH LEUKAEMIA DURING 2000-2014 WORLDWIDE (CONCORD-3)

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BACKGROUND

CONCORD-3 highlighted global variations in trends in five-year survival from several morphological sub-types of leukaemia among children, adolescents and young adults (0-24 years) diagnosed during 2000-2014. Here, we examine trends in five-year survival for young patients who survived to one year (conditional survival).

METHODS

We analysed 164,563 patients diagnosed during 2000-2014. Age was grouped as 0-14 (children), 15-19 (adolescents) and 20-24 years (young adults). We estimated net survival up to 5 years, and at 5 years conditional to surviving one year, using the non-parametric Pohar-Perme estimator. Net survival at 5 years, conditional to surviving at least one year after diagnosis, is the cumulative 5-year net survival for all patients alive and under follow-up at the end of the first follow-up year. All-ages survival estimates were standardised using weights from the marginal age distribution of all persons included in the analysis.

RESULTS

Age-standardised 5-year conditional net survival in children, adolescents and young adults diagnosed during 2010-2014 varied widely, ranging from 62% in Mexico to 95% Ireland. 5-year conditional survival was lower in parts of Asia and America (South and Central), but still reached over 80% in most GRELL countries. Throughout 2000-2014, survival remained consistently high for children, while minimal improvement was seen for adolescents and young adults in most countries.

CONCLUSIONS

Conditional survival enables an indirect assessment of the success of treatment during the first year after diagnosis. This provides an alternative perspective to assessing the success of health care systems in managing young patients with leukaemia. Regional differences in five-year survival were smaller among patients who survived the first year. However, this was not consistent world-wide, and survival was still lower in parts of America (Central and South), Asia and Eastern Europe.

SURVIVAL OF CANCER PATIENTS ATTENDED AT THE INSTITUTO CANCEROLOGICO DE NARIÑO ICN LTDA-COLOMBIA

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INTRODUCTION: Survival is the main indicator of the effectiveness of early diagnosis and timely treatment of cancer. However, in Colombia the studies are limited, preventing the evaluation and planning of actions for cancer control.

METHODS: All people diagnosed in the period 2016-2020 with breast cancer (N=765), cervix (N=410), prostate (N=379), stomach (N=370) and colon and rectum (N=201), who were treated at the Instituto Cancerológico de Nariño ICN-Colombia, were followed up for 5 years to evaluate the overall observed survival using the Kaplan-Meier method. The clinical information of each cohort was processed by the Institutional Cancer Registry of the ICN in coordination with the Cancer Registry of Pasto-Colombia following standardized methods. The follow-up information was obtained from the death certificate database of the Municipal Health Department of Pasto.

RESULTS: during the 5 years of follow-up, the number of deaths in each cohort was: breast (N=164), cervix (N=174), prostate (N=94), stomach (N=269), and colon and rectum (N=103). The observed overall 5-year survival rate was: breast (ST=76.9% 95%CI 74.3%-79.5%), cervix (ST=55.3% 95%CI 52.5%-58, 1%), prostate (ST=73.7% CI95% 70.1%-77.3%), stomach (ST men=25.2%, CI95% 23.8%-26.6%; ST women= 27.8% IC95% 25.5%-30.1%) and colon and rectum (ST men=44.5% IC95% 39.4%-49.6%; ST women=46.3% IC95% 41 0%-51.6%).

CONCLUSIONS: At the Instituto Cancerológico de Nariño ICN-Colombia survival rates are similar and slightly higher than the population rates reported in other studies for Pasto by the Cancer Registry of Pasto and other Colombian populations by other registries. These results are the first input to advance in the study of cancer survival taking into account clinical, demographic and treatment variables.

TRENDS IN LIVER CANCER INCIDENCE AND SURVIVAL IN ITALY BY HISTOLOGIC TYPE, 2003–2017

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BACKGROUND: Liver cancer in Italy is characterised by one of the highest incidence rates worldwide outside of Asia coupled with comparatively favourable survival figures. This study evaluated the most recent epidemiologic trends of the disease.

METHODS: Thirteen cancer registries covering a population of about 12,740,000 (21% of the national population) made available 35,574 cases registered in 2003-2017. Trends in age-standardised (Europe 2013) incidence rates were analysed with age–drift models. Trends in survival were analysed using 1-year, 2-year, 5-year and 10-year net survival (NS) and 5|1-year and 5|2-year conditional NS.

RESULTS: Over the study period, the average annual incidence rates per 100,000 were 29.4 (men) and 9.4 (women) for total liver cancer; 14.6 and 3.5 for hepatocellular carcinoma (HCC); 1.8 and 1.1 for intrahepatic cholangiocarcinoma (ICC); and 13.0 and 4.8 for the 'other liver cancer types' group. Total liver cancer and HCC incidence decreased significantly for both sexes. For total liver cancer, the estimated average annual percent change was -1.6% among men and -2.1% among women. For HCC, the change was -1.3% among men and -2.7% among women. ICC followed an opposite trend. For men, the risk of HCC had two peaks, one in the birth cohorts of 1928 and 1933 and another, more moderate, in the cohort of 1958. Both sexes exhibited comparable improvements in early and mid-term conditional NS from HCC. In 2013–2017, 5-year NS was 28.9% (95% CI: 27.3%; 30.6%) for men and 30.1% (95% CI: 26.9%; 33.5%) for women. The uptrend in survival from ICC was less pronounced and was weakly significant, with a 5-year NS in 2013-2017 of 13.9% (95% CI: 10.8%; 17.3%) for men and 17.4% (95% CI: 13.5%; 21.7%) for women.

CONCLUSIONS: The opposite incidence trends of HCC and ICC confirm a pattern observed in other populations. The generalised, albeit slow, improvement in survival from HCC indicates a trend towards earlier detection coupled with improvements in treatments.

TRENDS IN THE SURVIVAL OF CANCER PATIENTS DIAGNOSED IN 1999–2016 IN NAVARRA FOLLOWED UP TO THE END OF 2020

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BACKGROUND. Cancer survival monitoring is an essential part of cancer control assessment. We aimed to analyze the survival of adult patients diagnosed with cancer in Navarra and describe the trend. Methods. The cases of adult patients diagnosed with cancer in 1999–2007 and 2008–2016 were selected from the Navarra population-based cancer registry. The vital status had been updated to the end of 2020. Observed survival, net survival (NS) and age-standardized NS (ASNS) at 5 years from diagnosis were estimated for the total and for 29 cancer groups.

RESULTS. We included 57,564 cases. The ASNS of men and women diagnosed in 2008–2016 was 59.9% (95%CI 59.1, 60.8%) and 63.8% (95%CI 62.8, 64.7%), respectively. ASNS ranged from 13.4% (95%CI 10.4; 17.4%) for pancreatic cancer to 94.0% (95%CI 88.1; 100.0%) for thyroid cancer in men, and from 11.9% (95%CI 7.2; 19.7%) for liver cancer to 95.6% (95%CI 92.6; 98.6%) for thyroid cancer in women. Compared with cases diagnosed in 1999–2007, ASNS increased significantly in 10 cancer groups (chronic myeloid leukemia, the group of leukemia not otherwise specified (NOS) and others, cancers of the oral cavity and pharynx, colon, rectum, lung, thyroid, pancreas, prostate, and bladder), resulting in an overall increase of 5.1 (95%CI 4.1, 6.0) percentage points. In patients diagnosed in 2008–2013, the ASNS in Navarra was 2.7 (95%CI 1.9; 3.4) percentage points higher than that found in Spain in the same period.

CONCLUSIONS. Survival of cancer patients diagnosed in 2008–2016 in Navarra improved significantly compared to 1999–2007. This progress is probably due to multiple factors, including earlier diagnoses, more effective treatment options, and improvement in the health-care process. This study suggests a better survival in Navarra compared to that estimated in Spain.

PROGNOSIS OF ORAL AND PHARYNGEAL CANCERS IN SPAIN. A REDECAN STUDY

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BACKGROUND

Oral cavity and pharyngeal cancers (OCPC) are a heterogeneous group of malignancies, which affect different sites and whose prognosis varies. The aim of this study was to analyse the survival of patients diagnosed with OCPC in Spain.

METHODS

Adult cases diagnosed with OCPC during 2002–2007 and 2008–2013, from 13 Spanish population-based cancer registries included in the REDECAN network, were selected and followed up to the end of 2015. 5-year age-adjusted net survival (5NS) using the Pohar-Perme method, and excess mortality rate ratios (EMRR) through flexible parametric relative survival models were estimated. Age (continuous), sex and period of diagnosis were included in the models as covariates.

RESULTS

We included 14,828 OCPC cases (78.4% men). In 2008–2013, 5NS was highest in oral cavity (50.2%, 95%CI 47.5–53.0%), tongue (50.2%, 95%CI 47.4–53.2%) and nasopharynx (45.6%, 95%CI 40.7–51.0%) sites, and lowest in oropharynx (32.8%, 95%CI 29.5–36.4%), hypopharynx (24.7%, 95%CI 21.8–28.0%) and other/overlapping (O&O) sites (24.6%, 95%CI 19.6–30.8%). In multivariable analysis, older age at diagnosis predicted poorer survival globally (EMRR 1.03, 95%CI 1.027–1.030) and in each subsite. EMRR was higher in men than in women overall (EMRR 1.46, 95%CI 1.38–1.54) and in each subsite, except hypopharynx and O&O sites which showed no significant differences between sexes. Patients diagnosed in 2008–2013 showed a better prognosis than those diagnosed in 2002–2007 (EMRR 0.90, 95%CI 0.86–0.94) for all OCPC; however, by subsite, significant improvement between periods was only found for tongue and oral cavity cancers.

CONCLUSIONS

This study confirms the heterogeneity of OCPC prognosis. Worse survival was found for hypopharyngeal and O&O sites, possibly largely related to later stage diagnosis. Improvement was observed for tongue and oral cavity cancers. Further research should include other prognostic factors, such as stage at diagnosis, treatments and comorbidities.

SURVIVAL OF ADOLESCENT AND YOUNG ADULT CANCER PATIENTS IN EUROPE: UPDATES FROM EUROCARE-6

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OBJECTIVES: To update survival of adolescent and young adult (AYA, 15-39 years) cancer patients in Europe and describe differences in survival between countries and over time.

METHODS: We used the EUROCARE-6 data (108 cancer registries; 29 European countries). We analysed 700,000 AYAs with cancer diagnosed in 2000-2013 (follow-up at 2014). AYA cancers were defined according to the new classification proposed by Barr in 2020. We focused the analysis on the 16 most commonly diagnosed tumours in AYAs. We analysed 5-year relative survival (RS) in Europe, differences in 5-year RS by country (2010-2014) and over time (2004-06 vs. 2010-14) using period analysis. We used funnel plots to identify relevant survival differences between countries.

RESULTS: The 5-year RS for AYA tumours was 84% overall, and exceeded 80% for many of the 16 cancers analysed, except acute lymphoblastic leukaemia (61%), acute myeloid leukaemia (59%), central nervous system tumours (62%), bone sarcoma (70%), soft tissue sarcoma (74%) and colon cancer (65%). Bone sarcoma includes osteosarcoma, chondrosarcoma, and Ewing sarcoma, with 5-year RS of 65%, 85% and 52%, respectively. We found differences in survival between countries for all of the 16 selected cancers except ovarian and thyroid cancer. The funnel plots confirmed that lowest survival was mainly observed in Eastern and Southern European countries for most of the 16 cancers. Time trend analysis is in progress.

CONCLUSIONS: This is the first time that survival for 16 AYA cancers has been reported across 29 European countries. We showed differences in survival between countries most likely due to differences in stage at diagnosis (e.g. uterine cervix), access to treatment/expertise (e.g. sarcomas), misdiagnosis (e.g. central nervous system). Our data confirm that cancer registry data are important to monitor and support ongoing efforts (ESMO-SIOPE AYA WG, Joint Action on Network of Expertise) to reduce survival differences between countries.

CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA: SURVIVAL IN CAMPANIA REGION.

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BACKGROUND

The acute lymphoblastic leukemia (ALL) is the most common childhood malignancy, accounting for 25% of all childhood cancers. This study aims to provide survival estimates in children and adolescents in Campania region for ALL and assess the effect of some of the most important prognostic factors.

METHODS

This population-based study included incident cases of ALL registered by Childhood Cancer Registry of Campania in the period 2008-17 among children (0-14years) and adolescents (15-19years). The cases were selected through ICD-O-3 morphology codes. 5-years observed survival (OS) with 95% confidence interval (IC) was calculated by Kaplan-Meier method and the groups differences were tested by log-rank test of equality. Multivariable Cox proportional hazards model (hazard ratio: HR) was performed to assess the prognostic factors for ALL.

RESULTS

We registered 445 (M/F ratio 1.5) ALL cases (80%B-cell;12%T-cell;8%NOS), accounting for 69% of all leukemias. Overall 5-years OS was 88%(CI:84%-91%), higher in children (91%;CI:87%-93%) than in adolescents (70%;CI:57%-80%). Diagnosis of T-cell ALL (HR:1.99;CI:1.00-4.09) and onset in the 10-14 (HR:2.86;CI:1.28-6.39) and 15-19 (HR:4.68;CI:2.17-10.10) age groups are negative survival predictors. The OS improves significantly when periods 2008-12 and 2013-17 were compared (p-value:0.01). This difference is wider in adolescents (from 64% to 79%) than in children (from 87% to 93%), although without statistical significance.

CONCLUSIONS

The study provides population-based survival estimates for children and adolescents with ALL in the most populous region of Southern Italy. The time trend shows an improvement in survival, most sustained by adolescents. This finding could be due to the more frequent use of pediatric protocols in this age group. Innovative and less toxic treatments, such as immunotherapy, might be explored in further studies as factors associated with the improvement of outcomes and, thus, consolidating this trend.

CLINICAL FACTORS IMPACTED NET SURVIVAL AMONG PATIENTS DIAGNOSED WITH NON-HODGKIN LYMPHOMA IN FRANCE: A POPULATION BASED STUDY

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BACKGROUND: Diffuse large B-cell (DLBCL) and follicular lymphoma (FL) account for most non-Hodgkin lymphoma diagnoses: around 18% and 11% in France, respectively. The prognostic roles of clinical factors in DLBCL or FL patients after diagnosis in real life were less evaluated. The aims of our study were to describe net survival of patients with DLBCL or FL and to identify the prognostic factors in this population.

METHODS: We included DLBCL and FL patients from the three specialized Register of Hematological Malignancies in Normandy, Gironde, and Côte d'Or. Treated patients were matched (4:1) to non-treated on age at diagnosis, sex and department. Net survival was estimated with a non-parametric Pohar-Perme method, and We used a flexible excess mortality hazard model to identify prognostic clinical factors.

RESULTS: Overall, 2,336 and 1,320 patients were diagnosed with DLBCL and FL during the period 2010-2018. The 5 years net survival in DLBCL was 63% (95% confidence interval (CI): 59 - 66) and 97% (95% CI:92-100) in FL. Multivariate analysis amongst DLBCL and FL patients, respectively, those in the Ann Arbor Stage 3 and 4 showed 1.94 (95% CI: 1.73–2.14) and 2.12 (95% CI:1.68–2.55) higher risk of excess mortality hazard compared to those in the Ann Arbor Stage 1 and 2. DLBCL patients who were treated showed 0.17 (95% CI:0.03–0.30) lower risk of excess mortality hazard compared to those who were not treated. Treatment was not associated with excess mortality in FL patients 1.45 (95% CI:0.94–1.95).

CONCLUSIONS: Advanced Ann Arbor Stage is consistently associated with poorer survival among patients diagnosed with DLBCL or FL. In FL patients, treatment was not a prognostic factor, « wait and see approach» seems to be the right option for the cases concerned.

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