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83rd INTERNATIONAL SCIENTIFIC CONFERENCE ON MEDICINE AND HEALTH SCIENCES OF THE UNIVERSITY OF LATVIA: ONCOLOGY

On 25 April 2025, the University of Latvia in Rīga is hosting the International Scientific Conference on Medicine, organised within the frame of the 83rd International Scientific Conference of the University of Latvia (see for details: Leja, M., Stonāns, I. 83rd International Scientific Conference on Medicine and Health Sciences of the University of Latvia: Basic Medical Sciences and Pharmacy, p. 19, this issue).

The section "Oncology" features a collection of abstracts that highlight diverse developments in cancer diagnostics, treatment strategies, molecular mechanisms, and public health implications.

Several studies examine clinical patterns and outcomes in specific cancer types. For example, the evaluation of survival outcomes in colorectal cancer, breast cancer, and glioblastoma multiforme patients emphasises the importance of clinical and molecular biomarkers in treatment planning. Factors such as age, sex, and tumour localisation are explored to determine their prognostic significance, underscoring the necessity of personalised approaches in oncology.

A strong focus is placed on the molecular and immunological landscape of tumours. Research includes the analysis of mutational profiles and immunohistochemical characteristics in endometrial, cervical, and breast cancers. Attention is given to PD-L1 expression, BRCA1 mutations, and Ki-67 proliferation indices, all serving as potential markers for therapy selection and disease monitoring. These studies contribute to knowledge guiding targeted and immunotherapy-based treatments.

Advancements in diagnostic and prognostic tools are also addressed. Novel approaches such as liquid biopsies, PET/CT imaging, and radiomic feature extraction are being investigated for their potential to enhance early detection and accurate staging. Integrating digital tools in diagnostics, such as the analysis of radiological images using artificial intelligence, is emerging as a valuable aid in oncology practice.

The abstracts further delve into oncological pharmacology and treatment efficacy, evaluating the effects of chemotherapeutic agents, endocrine therapies, and perioperative interventions. Studies involving tamoxifen therapy, antiplatelet agents, and novel chemoradiotherapy regimens highlight efforts to optimise existing treatments while minimising adverse effects.

Public health and epidemiological research also feature prominently. Several contributions investigate population-level trends in cancer incidence and screening uptake, with a particular emphasis on breast cancer screening and awareness in Latvia and Kazakhstan. These findings stress the ongoing need for effective public health strategies and education campaigns to improve early detection and outcomes, especially in underserved regions.

Additionally, psychosocial aspects of cancer care are explored, including patient experiences, decision-making processes, and communication between patients and healthcare professionals. Such studies reinforce the importance of holistic, patient-centred care in oncology.

Collectively, this section illustrates the vibrant and interdisciplinary nature of oncology research, integrating clinical experience, molecular insight, and population-based perspectives.

Mārcis Leja

Oncology

DIETARY PATTERNS AND BIOMARKERS CORRELATIONS IN OVERWEIGHT AND OBESE INDIVIDUALS

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Background. Obesity is a complex disease associated with an increase in several inflammatory markers, leading to chronic low-grade inflammation. The prevalence of overweight and obesity in Latvia has been increasing in recent years, adversely affecting individuals' economic participation and contributing to the development of various comorbidities. This trend is closely associated to dietary patterns and lifestyle behaviours.

Aim. To collect longitudinal data from individuals with overweight or grade I obesity in Latvia to improve data availability in the field of prediabetes and examine correlations with their nutritional intake.

Methods. This study utilised cross-sectional data from Latvian residents who participated in the PRAESIIDIUM study project. Dietary intake was assessed using food frequency questionnaires, and biochemical parameters were evaluated through blood tests conducted on the same day in a certified laboratory to ensure temporal alignment of dietary and metabolic assessments.

Results. This study included 73 individuals, predominantly women (n = 54), with a median age of 35.0 years (Me 32.0–42.0), median weight of 83.4 kg, and a median BMI of 28.33 kg/m² (Me 25.2–35.97). A significant positive correlation was observed between high-sensitivity C-reactive protein and ceruloplasmin levels ($p < 0.001$, r = 0.553). Additionally, ceruloplasmin levels exhibited a positive correlation with age ($p = 0.009$, r = 0.305) and high-density lipoprotein (HDL) cholesterol ($p = 0.013$, r = 0.289). In contrast, ceruloplasmin levels were negatively correlated with the waist-to-hip ratio ($p = 0.020$, r = –0.271), haemoglobin levels ($p < 0.001$, r = –0.453), and sex ($p < 0.001$, r = –0.448). Analysis of dietary patterns revealed that a consumption of coffee, tea, and other hot beverages was positively correlated with HDL cholesterol levels ($p = 0.025$, r = 0.262). Fasting glucose levels demonstrated a positive correlation with alcohol consumption patterns ($p = 0.043$, r = 0.238). Furthermore, fruit and berry consumption was positively correlated with HDL cholesterol levels ($p = 0.024$, r = 0.263) and negatively correlated with C-peptide levels ($p = 0.035$, r = –0.247).

Conclusion. The results indicate that overweight, obesity, and certain dietary patterns negatively affect health by promoting low-grade inflammation, altering lipoprotein levels, and elevating fasting glucose concentrations. Further research is needed to elucidate distinct dietary patterns and their impact on obesity, overweight status, and overall health. Such studies will help identify actionable strategies for the prevention and management of overweight and obesity in the population.

HISTOLOGICAL SUBTYPES OF HEREDITARY BREAST CANCER IN PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL IN THE PERIOD 2019–2024

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Background. Breast cancer is the most diagnosed cancer among women in Latvia, with an age-standardised incidence rate of 66.0 per 100,000 women. Approximately 5% to 10% of these cases are attributed to hereditary factors, primarily germline pathogenic/likely pathogenic variants in the BRCA1 and BRCA2 genes. Identifying individuals who carry these germline pathogenic/likely pathogenic variants is crucial, as it enables the implementation of targeted early detection strategies and preventive measures, thereby improving treatment outcomes and reducing mortality rates.

Aim. The study is being conducted to provide an overview of the incidence of hereditary oncology with breast cancer in Pauls Stradiņš Clinical University Hospital (PSKUS). The goal is to create a basis for further research about the incidence of breast cancer in patients with hereditary breast cancer in the PSKUS Oncology Clinic.

Methods. Data was collected from patient histories which have histologically confirmed breast cancer and have received care in PSKUS during the period of 2019 and 2024.

Data were compiled in a single database, analysed using statistical methods and presenting them in a summarized form.

Results. Altogether 86 patients with hereditary breast cancer were identified, the mean age being 43.5 (SD = 10.8). Most histological diagnosis were made for BRCA1 (n = 73), and BRCA2 (n = 13). Almost all tumours exhibited an invasive behaviour (96.5%), with non-invasive cases accounting for 3.5%. Stage 2 was the most frequently diagnosed, accounting for 47.6% of patient cases, while stage 4 was diagnosed the least (2.4%). Histological grading revealed that 3.5% of tumours were highly differentiated (grade 1), 41.4% were moderately differentiated (grade 2), and 55.1% were poorly differentiated (grade 3). The most prevalent subtype was triple-negative breast cancer (TNBC), which constituted 66.2% of cases. Luminal B comprised 23.3% of cases. HER2-overexpressing tumours represented 7%, while luminal A was the least common subtype, accounting for 3.5% of cases.

Conclusion. This study highlights the histological characteristics of hereditary breast cancer cases, demonstrating a predominance of the TNBC subtype, high rate of inheritance of pathogenic/likely pathogenic BRCA1 variants, with majority cases occurring on average at a relatively young age (43.5 ± 10.8) which is usually diagnosed at an early stage with poor to moderately differentiated histological grading. Additionally, most of the TNBC were associated with BRCA1 variants. The high prevalence of TNBC underscores its significant impact on hereditary breast cancer patients, emphasising the need for further research into targeted treatment strategies and improved management approaches for this aggressive phenotype.

COMPARATIVE STUDY OF CYTOLOGY AND HISTOPATHOLOGY FINDINGS OF WOMEN POPULATION IN LATVIA

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Background. Cervical cancer is the fourth most common cancer in women. There are two screening methods available — cervical cytology and high-risk human papillomavirus (hrHPV) detection. It is essential for initiating timely intervention, reducing the risk of CIN progression to invasive cancer. The diagnosis and treatment strategy depend on several factors — anamnesis data, CPV testing, biopsy and biomarker determination. Oncocytological findings may not correspond to histological findings.

Aim. The aim of the current study was to see what Pap smear, which was diagnosed according to BETHESDA classification as "malignant" corresponded in their histological report and determine most common speculum finding.

Methods. The study is retrospective, conducted in Central Laboratory for a period of three years from January 2021 to December 2024. A total of 106 Pap smears were evaluated. The histopathological results of the smears was compared and analysed. The Central Laboratory Archive had cytological diagnoses of 106 patients according to the Bethesda classification with signs of malignancy (A6). In 91 patients, the diagnosis was confirmed histologically. The histological type was divided into three categories: squamous cell carcinoma, adenocarcinoma and transitional (rare types). Demographic data, cytological indicators, such as microflora, inflammatory status, presence of erythrocytes and others, were determined for the study. Oncomarkers were also analysed. Data collection was anonymised and entered into the Microsoft Office Excel 2016 software and the SPSS software was used for data analysis. Nonparametric tests were used for data processing: Chi-square (Exact Fisher test) and Mann–Whitney rank-sum.

Results. The study group consisted of 106 patients. The median age was 66 years (37–89 years). The median age of the squamous cancer case was higher (63 years) than in the adenocarcinoma group (52 years) (Mann–Whitney U test $p = 0.4$). The presence of erythrocytes was observed in 27 patients and a significant correlation was established between the number of erythrocytes and the histological diagnosis of squamous cell carcinoma (Mann–Whitney U test, $p = 0.04$). Most patients (n = 65) had low microflora and no significant correlation was observed. Ca125 and SCC tumour markers were determined in 54 patients and a trend was observed that elevated tumour markers are more often detected in squamous cell carcinoma with increased incidence and presence of malignancy.

Currently, not all patients have tumour markers determined, so the study group is still being analysed

Conclusion. The age of the studied group coincides with the global cancer statistics. Squamous cell carcinoma is the most common morphological type of tumour. Erythrocyte abundance is statistically reliably detected in squamous cell carcinoma, Oncomarker correlations are requested.

Acknowledgements. I would like to thank Central Laboratory for assistance in organizing the study.

MOST COMMON SYSTEMIC THERAPY REGIMENS FOR NON-SMALL CELL LUNG CANCER FROM 2021 TO 2023 IN PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL

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Background. Discussion and systematisation of chemotherapy combination regimens for lung cancer is necessary, as it can renew treatment options and thus improve patient outcomes. There are two main subtypes of lung cancer: small cell lung cancer and non-small cell lung cancer. The study discusses the current first-line chemotherapy combination regimens in Pauls Stradiņš Clinical University hospital (PSKUS) for non-small cell lung cancer.

Aim. To investigate the variability in different systemic chemotherapy regimens.

Methods. A retrospective anonymised data analysis of patients diagnosed with non-small cell lung cancer and received first-line chemotherapy in 2021–2023, using medical records from the PSKUS patient database and the electronic data recording and storage system "Ārstu birojs".

Results. During the study period, data from 156 patients who received first-line chemotherapy regimens were analysed. Platinum-based chemotherapy combinations with taxanes were used 78 times (50% of cases). Cisplatin and vinorelbine was used 7 times (4.49%), predominantly in stage 2. Carboplatin and docetaxel was used 23 times (14.74%), primarily in stage 3. Carboplatin and vinorelbine was applied 5 times (3.21%), mainly in stage 2. Carboplatin and paclitaxel was used 43 times (28%), mostly in stages 3 and 4.

Platinum-based chemotherapy drugs combined with antimetabolites were used 28 times (17.95% of cases). Carboplatin and gemcitabine was used 9 times (5.77%), predominantly in stage 3. Cisplatin and pemetrexed was used 3 times (1.92%), mostly in stage 3. Cisplatin and gemcitabine was applied 6 times (3.85%), mainly in stage 2. Carboplatin and pemetrexed was used 10 times (6.41%), mostly in stage 4.

Platinum-based chemotherapy combinations with topoisomerase II inhibitors were used 39 times (25% of cases). Cisplatin and etoposide was used 12 times (7.69%), mostly in stage 3. Carboplatin and etoposide was used 27 times (17.31%), predominantly in stage 4.

Conclusions. The study found that in PSKUS, from 2021 to 2023, platinum-based chemotherapy combinations with taxanes, especially carboplatin and paclitaxel, were most commonly used as first-line treatments, particularly in stage 3. Platinum-based combinations with topoisomerase II inhibitors, predominantly carboplatin and etoposide, were frequently used in stage 4. The most common platinum-based combination with antimetabolites was carboplatin and pemetrexed, also more often used in stage 4.

RADIOLOGICAL ASSESSMENT OF SARCOPENIA IN PATIENTS WITH THIRD AND FOURTH STAGE LUNG CANCER WHO HAD RECEIVED PALLIATIVE CHEMOTHERAPY DURING 2022–2023 AT PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL

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Background. Sarcopenia, characterised as a progressive loss of muscle functionality and mass, is one of the criteria that affects the course and rate of development of oncological diseases. Non-small cell lung cancer, which is the most common type of lung cancer, is associated with a poor prognosis and a rapid development of systemic complaints, including cachexia and general functional decline. Nevertheless, the radiological assessment and treatment of sarcopenia is still unclear in current practice. Understanding how quickly sarcopenia develops and how to evaluate it radiologically opens up the possibility of diagnosing it as a routine examination, which would improve the therapeutic outcome of patients and possibly reduce the number of hospitalisations due to lung cancer symptoms.

Aim. This research assesses abdominal skeletal muscle mass using computed tomography, obtained at the spinal L3 transverse segment, before and after palliative chemotherapy.

Methods. This study retrospectively, using "Ārstu birojs", analysed patients who were diagnosed in 2022–2023 with end-stage non-small cell lung cancer and indicated for palliative chemotherapy. Of the selection, 25 patients with CT images obtained at the midpoint of the L3 vertebrae before

and after palliative chemotherapy were selected. Then images were processed using the NIH-ImageJ programme, which attained data for the area of the internal and external abdominal skeletal muscles. Using the gathered data and the height of the patients, the skeletal muscle index (SMI) was calculated, which, by comparing it with the sarcopenia cut-offs, determined whether the particular patient has it or not.

Results. Out of 198, 25 patients met all criteria, 8 females and 17 males. The average age between the sexes was about 68. On average, patients received four cycles of chemotherapy, the shortest being two cycles and the longest — 9. Before the chemotherapy, four patients already had sarcopenia according to radiological criteria, while seven patients developed it during therapy. The average decrease in skeletal muscle index before and after chemotherapy was 5.95% from which 4.91% was for women and 6.44% for men.

Conclusions. Judging by the data it seems that patients who are receiving chemotherapy are rapidly losing muscle. Given that sarcopenia is associated with a worse prognosis, it seems important to raise awareness of this topic and standardise how we diagnose, treat, and prevent its development.

LYMPH NODE DOWNSTAGING IMPACT ON PROGRESSION-FREE AND OVERALL SURVIVAL IN PATIENTS WITH LOCALLY ADVANCED RECTAL CANCER

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Background. Many characteristics of rectal cancer, such as clinical and pathological tumour and lymph node stages, are thought to be significant for the long-term outcomes and used as prognostic factors for survival rates of rectal cancer. Studies show that evaluating only primary tumour regression is not enough for full outcome assessment. Lymph node involvement plays significant role, for it is related to development of metastases and thus affecting long-term survival outcomes for rectal cancer patients.

Aim. The aim of the study was to determine if lymph node downstaging after the use of neoadjuvant therapy impacts locally advanced rectal cancer patients' survival rates.

Methods. Altogether 40 patients were included in the study with locally advanced rectal cancer diagnosis, who received neoadjuvant therapy at Pauls Stradiņš Clinical University Hospital from 2020 till 2023. All patients had lymph node involvement stages either N1 or N2. Data used in this study was clinical lymph node (cN) and pathological lymph node after neoadjuvant therapy (ypN) status, presence or lack of downstaging, calculated time till progression or death. For statistical analysis, IBM SPSS Statistics 29 software and Kaplan–Meier survival analysis was used.

Results. In total, lymph node downstaging occurred in 80% (n = 32) of patients and only 20% (n = 8) of patients' lymph node involvement stage did not change after neoadjuvant therapy. In terms of progression free survival (PFS), lymph node downstaging showed statistically significant difference (p = 0.0034; HR 7.95) with 2-year PFS being 88% in those who achieved downstaging and 56% in those who did not, with median PFS being 25 months in patients without downstaging. In downstaging group, median PFS was not reached. Similarly, in overall survival (OS), lymph node downstaging showed statistically significant difference (p = 0.0217; HR 8.67) with 3-year OS being 79,2% in those who achieved downstaging and 34.3% in those who did not, with median OS being 68 months in patients with downstaging and 31 months in patients without downstaging.

Conclusion. Based on the study results, it is safe to conclude that lymph node downstaging after neoadjuvant therapy usage significantly improves survival rates of patients with locally advanced rectal cancer.

Acknowledgements. There is no conflict of interest in this study.

CANCER REGISTRATION SYSTEM IN UZBEKISTAN: ORGANISATION OF NATIONAL CANCER REGISTRY

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Background. A population-based cancer registry (PBCR) is an ongoing surveillance system that collects, stores, manages, analyses, and disseminates information on cancer occurrence in a defined population. PBCR data are a cornerstone of cancer control, enabling planning, monitoring, and evaluating preventive activities and cancer care. The Cancer Registry Department is within the Cancer Prevention Centre in Republican Specialized Scientific and Practical Medical Centre of Oncology and Radiology (RSSPMCOR), which was established by Presidential Decree. Several attempts were made to introduce cancer registration software; nevertheless, in 2024 the new cancer registration system is being developed with the help of National Cancer Centre, IT company and IARC.

Aim. The aim of this study is to evaluate the current state of cancer registration in Uzbekistan.

Methods. In Uzbekistan there are 15 regional branches RSSPMCOR and 232 oncology rooms in district and city healthcare centres (polyclinics), where district oncologists see patients. There are 2265 cancer beds in the country. The Cancer registry department (CRD) in RSSPMCOR is mandated to collect data on cancer patients and act as the National Cancer Registry. RSSMPCOR's Cancer registry department has at least 12 medical specialists and medical registrars. There are several positions at the CRD that are labelled: medical statistician, medical registrar, medical technician. At least two specialists, one oncologist and one medical registrar, are working at the CRD in each of the 15 RSSMPCOR regional branches responsible for cancer registration.

Results. In Uzbekistan, a cancer data collection system was established in the 1950s as part of the USSR cancer surveillance system. In Uzbekistan, the data collection system is passive, based on mandatory reporting of clinical and pathology data (ICD-10 codes: C00-C97, D00-D09) from the hospitals using several forms (Form 027, Form 030 and Form 090). These forms are completed by medical specialists responsible for cancer care and diagnostics, including oncologists and medical statisticians at branches of RSSPMCOR. Forms 0271 are collected and sent to district oncologists at polyclinics; Form 090 is supposed to be created by any medical specialist who encounters a cancer case. Form 030 is created by a district oncologist using information from other forms and then sent to the branches of RSSPMCOR and sometimes biannually to the CRD at RSSPMCOR. This reporting is paper-based, and all information is then aggregated and sent to the medical statistics departments of the branches of RSSPMCOR. After that, it is aggregated on the regional level and sent to the CRD at RSSPMCOR. Several attempts to implement cancer registration software were made in Uzbekistan. The new cancer registry software is being developed with the help of IT company, which is also tasked with developing health information systems in Uzbekistan. It is a modern IT software for data collection, quality evaluation, and reporting according to international recommendations and guidelines. The modules for data entry, linkage with mortality and population data have been completed and the functionalities for data consolidation and analysis/reporting at the central office are almost ready. Diagnosis morphology are coded using ICD-O. The stage is recorded using AJCC/UICC classification. Cancer registry software is linked with both the population registry and mortality database, thus reducing possible duplicate person registration and loss to follow-up. In November 2024, we organised a training course for the registrars from each region. The launch was started from the beginning of 2025 within the pilot projects (two regions).

Conclusion. The results of this study show that a lot of work have been done and there are a large number of challenges in cancer registration system in Uzbekistan. National cancer registry is potentially a great asset for cancer epidemiology and enable us to create appropriate cancer control plans.

EFFECTIVENESS OF INDUCTION CHEMOTHERAPY IN PATIENTS WITH ORAL CANCER

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Background. Oral cavity cancers account for the majority of head and neck malignancies and are associated with aggressive progression and poor prognosis. Squamous cell carcinoma is the most common type of tumour in the oral cavity. Traditional treatments, such as surgery and radiotherapy/chemotherapy, do not always provide the expected survival rates, especially when tumours are diagnosed at an advanced stage due to the complexity of the treatment approach, as these tumours are locally invasive and often metastasis to regional lymph nodes. Induction chemotherapy is an initial treatment used to reduce the size of a tumour, improve resectability, and decrease development of distant metastasis.

Aim. The aim of the study is to evaluate the efficacy of induction chemotherapy using cisplatin/docetaxel/5FU (TPF scheme) by analysing the dynamic tumour dimensions, the presence of lymphadenopathy and the change in lymph node size using imaging tests like CT and MRI.

Methods. A retrospective study of patients with oral cavity cancers who had undergone induction chemotherapy before radiotherapy/chemotherapy or surgical treatment. The data was collected from medical documents of 23 patients from 2022 to 2024.

Results. Out of all 23 patients (4 women (17%) and 19 men (83%)), 18 (78%) completed the full course of induction chemotherapy. 5 (21%) out of 23 patients did not complete the course by choice, due to death or were incurable. Of the 18 patients who completed treatment, 16 (89%) patients had a positive dynamic and the tumour decreased in size, while 2 (11%) patients had a negative dynamic and the tumour continued to grow. 17 (74%) out of 23 patients had lymphadenopathy. 12 (71%) of these patients had positive dynamics after induction chemotherapy and lymphadenopathy decreased, 2(12%) patients had no changes. 3 (18%) patients did not receive the full course. 6 (26%) of 23 patients had no lymphadenopathy. In 2 (33%) out of 6 patients lymphadenopathy appeared over time.

11 (61%) out of 18 patient who completed the full course of induction chemotherapy were sheduled for surgical treatment and then treated with radiotherapy/chemotherapy. 7 (39%) out of 18 patient were treated with radiotherapy/chemotherapy without surgical treatment due to good results of induction chemotherapy or reluctance to have surgery.

Conclusion. Based on the data from the research on induction chemotherapy effectiveness in patient with oral cavity cancers, results demonstrate the potential effectiveness of induction chemotherapy. Among the 23 patients, 78% successfully completed the full course of induction chemotherapy, with 89% of them experiencing a reduction in tumour size, indicating a positive response.

DE NOVO AND NEVUS-ASSOCIATED MELANOMAS HISTOPATHOLOGIC CHARACTERISTICS IN YOUNG ADULTS: A MONOCENTRIC RETROSPECTIVE STUDY (2018–2023)

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Background. The clinical relevance of nevus-associated melanoma (NAM) versus de novo melanomas (DNM) continues to be a subject of debate. The evidence suggests a possible link between NAMs and increased Breslow thickness, indicating unfavourable outcome.

Aim. The aim of this study was to investigate the histopathologic and clinical characteristics of NAMs and DNMs in young adults.

Methods. A retrospective study of patients diagnosed and/or treated with melanoma in the time period of

2018–2023 was conducted. Data were collected from Rīga East University Hospital (REUH) Oncology Centre of Latvia. Statistical analysis was performed using MS Excel and SPSS softwares.

Results. In total, 97 patients aged 18 to 40 years were enrolled in this study; 40 (41.2%) were male and 57 (58.8%) were female. The mean age of the participants was 32.70 ± 5.22 years, and the median age was 34 years. The most common subtype of melanoma was superficial spreading melanoma (n = 53 or 54.6%). A total of n = 22 (22.7%) DNMs and n = 25 (25.8%) NAMs were included in the study. NAMs significantly correlated with histological regression (18.2% vs 0%, p = 0.054), Clark invasion level (52.2% vs 47.8%, p = 0.03), and BRAF mutation V600E (10% vs 0%, p = 0.025) compared to DNMs. Most of the NAMs were found on the trunk and head/neck (n = 17 or 68%), whereas extremities were more frequently affected by DNMs (n = 19 or 40.4%). Furthermore, none of the other variables, such as sex, histopathology, ulceration, mitotic rate, lymphovascular invasion, perineural invasion, tumour-infiltrating lymphocytes, lymph node involvement, and presence of metastasis, showed statistically significant differences between DNMs and NAMs (p 0.05). The most common pathological stage (pT) in NAMs was IA (n = 13 or 52%). In stage IA, the mean Breslow thickness was 0.59 ± 0.30 mm. The average Breslow thickness was 1.45 ± 1.38 mm, with de novo melanoma showing a higher mean Breslow thickness compared to NAM (1.27 ± 0.75 mm vs 1.23 ± 1.46 mm, p = 0.903). Overall, the proportion of NAMs significantly decreased with greater tumour thickness, ranging from 68% in melanomas less than 1 mm to 4% in melanomas greater than 4 mm (p = 0.030). Superficial spreading melanomas demonstrated higher proportion of NAMs than nodular melanomas.

Conclusions. In this study, NAMs were associated with superficial spreading melanomas, lower Breslow thickness, and tumour regression in pathohistological findings. These results marked the importance of detailed assessment of nevi for better long-term prognosis.

METASTASIS AND HUMAN PAPILLOMAVIRUS PREVALENCE IN TONSILLAR CANCER PATIENTS BY GENDER

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Background. Tonsil cancer is one of the most common oropharyngeal cancers, and its incidence has increased in recent years. The development and spread of tonsil cancer are influenced by many risk factors, but one of the main risk factors is the human papillomavirus, which promotes the development of cancer.

Aim. The aim of the study is to analyse whether the presence of human papillomavirus (HPV) affects the metastatic spread of tonsil cancer, considering the patient's gender in Rīga East University Hospital (Oncology Centre of Latvia).

Methods. The study used a retrospective analysis of tonsil cancer patients in the Rīga East University Hospital (Oncology Centre of Latvia) from 2022 to 2023. The study included 73 patients, and the data were taken from the platform Doctor's Office and processed using MS Excel.

Results. The study included 73 patients with tonsil cancer, of whom 58% (n = 42) were men and 42% (n = 31) were women. 63% (n = 46) of patients were HPV-positive and 37% (n = 27) of patients were HPV-negative. Cervical lymph node metastases were present in 95% (n = 18) of HPV-positive men, of whom one patient also had distant metastases in the lungs and one in the lungs, brain, and liver. Cervical lymph node metastases were present in 81% (n = 22) of HPV-positive women, of whom 5% (n = 1) also had distant metastases in the lungs. There were no metastases in 5% (n = 1) of all HPV-positive men and 19% (n = 5) of women. Cervical lymph node metastases were present in 78% (n = 18) of HPV-negative men, of whom 17% (n = 3) also had distant metastases in the lungs and one of whom also in the liver. Cervical lymph node metastases were present in 75% (n = 3) of HPV-negative women. Metastases were absent in HPV-negative 22% (n = 5) men and 25% (n = 1) women.

Conclusion. Of the patients with tonsil tumours, HPV-positive was detected almost twice as often in women (87%) as in men (45%). Cervical lymph node metastases were 14% more frequent in men than in women for HPV-positive tonsil tumours. HPV-positive or negative women were more likely to have no metastases than men. Women were more likely to be HPV-positive, but metastases were less frequent. Distant metastases were most often in the lungs, but rarely in the liver and brain.

CHARACTERISING SOMATIC GENETIC ALTERATIONS IN NON-SMALL CELL LUNG CANCER

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Background. Non-small cell lung cancer (NSCLC) is characterised by various acquired genetic alterations, which have implications in the management of this disease. A new NSCLC investigation algorithm was proposed in Latvia in 2024 to aid in the discovery of molecular targets for precision medicine.

Aim. To evaluate the effectiveness of the established algorithm to find targetable genetic changes and to determine the frequency of somatic genetic mutations in various types and stages of NSCLC based on pathological and genetic examinations conducted at the Rīga East University Hospital during the period from 1 April 2024, to 31 December 2024.

Methods. *EGFR* gene somatic mutations were detected by real-time PCR. *ALK*, *ROS1*, *RET* fusion genes and *MET* gene exon 14 skipping were detected by real-time reverse transcriptase PCR. The fluorescent *in situ* hybridisation method was used to clarify the RT-PCR results.

Results. Altogether 176 patients with an average age of 68.5 (range 40.9–88.8) years were included, of whom 78 (44.3%) were females and 98 (55.7%) were males.

Out of 177 NSCLC samples, 155 (87.6%) were lung adenocarcinoma, 17 (9.6%) were lung squamous cell carcinoma, and 4 (2.3%) were large cell carcinoma. PD-L1 expression of 50–100%, 1–49% and % was present in 44 (24.9%), 69 (39%) and 63 (35.6%) tested samples, respectively.

EGFR gene somatic mutations were detected in 32 (18%) samples out of 177 tested. All *EGFR* mutant cases were found in lung adenocarcinoma samples, with no mutations detected in the 17 included lung squamous cell carcinoma samples and four large cell carcinoma samples. The most frequent *EGFR* gene somatic mutations were L858R (n = 14; 43.8%) and exon 19 deletions (n = 12; 37.5%). Less frequent *EGFR* gene somatic mutations were exon 20 insertions (n = 2; 6.25%), L861Q (n = 2; 6.25%), G719X (n = 1; 3.1%) and S768I (n = 1; 3.1%). NSCLC patients with *EGFR* gene mutation were diagnosed in different stages: I (n = 12; 37.5%), II (n = 2; 6.3%), III (n = 9; 28.1%), IV (n = 9; 28.1%).

According to the algorithm, 147 NSCLC samples were tested for *ALK*, *ROS1*, *RET* fusion genes and *MET* exon 14 skipping. *ALK*, *ROS1*, *RET* gene fusions were detected in 8 (5.4%), 5 (3.4%) and 1 (0.7%) specimens, respectively. *MET* gene exon 14 skipping was detected in 8 (5.4%) specimens. NSCLC patients with *ALK*, *ROS1*, *RET* fusion genes and *MET* gene exon 14 skipping were diagnosed in following stages: I (n = 7; 31.8%), II (n = 2; 9.1%), III (n = 3; 13.6%), IV (n = 10; 45.5%).

Conclusions. Our research findings correspond to results from comparable studies and support the applicability of the proposed algorithm of genetic investigation of NSCLC in clinical practice.

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ASSESSMENT OF PAIN CHARACTERISTICS AND EVALUATION OF TREATMENT EFFECTIVENESS IN CANCER PATIENTS

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Background. Pain is a critical issue for oncology patients, with its prevalence increasing due to various factors. In advanced stages, at least 70% of patients experience pain. Pain, one of the most distressing symptoms, is often underestimated and inadequately treated despite available therapies.

Aim. The study aimed to prospectively survey oncology patients about pain to analyse its prevalence, characteristics, and the effectiveness of analgesic therapy using statistical methods.

Methods. Conducted at the Oncology Clinic of Pauls Stradiņš Clinical University Hospital, 131 oncology patients were randomly selected, regardless of tumour type, gender, age or other factors. Among them, 59 reported pain of any etiology. These patients completed a questionnaire on pain characteristics, intensity, therapy type, and effectiveness. Additional information from medical records about these patients was compiled and analysed using program R and statistical methods.

Results. Complaints of pain of various etiologies were reported by 45% of patients. Most commonly, patients described experiencing persistent pain, which was often either acute (51 %) or chronic, lasting for more than one year (29 %). In terms of qualitative characteristics, the pain was frequently described as stabbing, drilling, pulling, or tearing, with physical exertion or emotional stress exacerbating the symptoms. Among patients in pain, 69% used analgesic therapy, with 83% experiencing reduced pain intensity, including 50% achieving complete relief. Nearly 15% reported no change. Overall, the reduction in pain intensity was statistically significant. Patients with metastases (66 %) were more likely to report pain; however, these patients also experienced a statistically significant reduction in pain intensity following analgesic therapy. Correlation analyses were conducted between pain intensity and various patient factors, with one statistically significant positive correlation indicating that the higher the tumour grade, the higher the pain intensity, particularly following analgesic therapy.

Conclusion. After collecting and processing the obtained data, it was concluded that the number of oncology patients experiencing pain remains high; however, the reduction in pain intensity is also statistically significant after analgesic therapy. Additionally, by asking patients the most precise possible questions about their pain, it is possible to evaluate the most common types of pain they experience and identify potential correlations, such as between pain intensity and tumour grade.

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SALVAGE COLOPLASTY AFTER GASTRIC ISCHAEMIA DURING IVOR-LEWIS ESOPHAGECTOMY FOR ESOPHAGEAL CANCER

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Background. Coloplasty and colon interposition are established alternatives for esophageal reconstruction when the stomach is unsuitable. Gastric ischaemia is a rare but critical complication during Ivor–Lewis esophagectomy for esophageal cancer, necessitating alternative reconstruction methods.

Aim. This case report aims to demonstrate the feasibility, technical considerations, and outcomes of coloplasty as a salvage procedure following gastric ischemia during Ivor–Lewis esophagectomy.

Methods. A male patient in his forties, diagnosed with esophageal squamous cell carcinoma (cT3N1M0), underwent neoadjuvant chemotherapy and radiotherapy prior to Ivor-Lewis esophagectomy. During surgery, indocyanine green (ICG) dye was used to evaluate the perfusion of the gastric graft. Gastric ischemia was identified, with no blood supply beyond the duodenum. A decision was made to proceed with coloplasty. A total gastrectomy was performed, and the transverse colon, mobilized and supplied by the middle colic artery, was utilized for reconstruction. Right thoracotomy was performed to complete esophageal resection with lymphadenectomy and end-to-side esophagodescendostomy. Three intraabdominal anastomoses were created (ascendojejunostomy, jejunojejunostomy in Roux-en-Y configuration, and ascendodescendostomy), along with a nutritional jejunostomy and preventive appendectomy. All anastomoses were hand-sewn in two layers with Monosyn 3/0 sutures.

Results. The surgery lasted 10 hours and was technically complex but completed successfully. The postoperative course was uneventful except for worsening pneumonia, which manifested as a fever. A CT scan confirmed the absence of anastomotic failure. The patient resumed oral nutrition and was discharged on postoperative day 25. Pathological examination showed ypT0N0M0, confirming the absence of residual cancer.

Conclusions. Coloplasty is a feasible and effective salvage procedure for esophageal reconstruction in cases of gastric ischemia during Ivor–Lewis esophagectomy. Despite its technical challenges and increased operative complexity, it offers favorable outcomes, as seen in this case. The use of ICG dye was pivotal in intraoperative decision-making, while multidisciplinary perioperative management, including nutritional support, contributed to the successful recovery.

ASSOCIATION OF LIVER-TO-SPLEEN RATIO WITH METACHRONOUS LIVER METASTATIC RISK IN COLORECTAL CANCER PATIENTS

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Background. Colorectal cancer (CRC) is a major oncological challenge, with liver metastases (MTS) significantly impacting prognosis and treatment. Hepatic steatosis, assessed via the liver-to-spleen (L/S) ratio on computed tomography (CT), has been proposed as a potential marker for metastatic risk. This study evaluates the association between L/S ratio, hepatic attenuation (Hounsfield Units, HU), and metachronous liver metastases in CRC patients.

Aim. To assess the relationship between hepatic attenuation (HUliver), L/Sratio, andmetachronous liver metastases in CRC patients.

Methods. A retrospective study was conducted at Rīga East University Hospital and Latvian Oncology Centre, analysing 779 CRC patients who underwent surgery. Among them, 69 (8.86%) developed liver metastases (MTS) within five years. Due to study constraints, 47 MTS and 47 non-MTS patients were selected for matched comparative analysis. No significant differences found in T ($p = 0.942$) and N stages ($p = 0.103$) between groups. Non-contrast CT scans were used to determine hepatic attenuation (HU liver) and spleen HU, with L/S ratio calculated as HU liver/HU spleen. Patients were categorised into four L/S groups (≤ 1.0; 1.0–1.2; 1.2–1.4; > 1.4), and associations with tumour stage (T, N), vascular invasion (V), and lymphatic invasion (L) were analysed.

Results. HU liver values were significantly lower in MTS patients (53.8 vs. 57.4, $p = 0.018$). A significant difference was observed in N0 group (53.29 vs. 59.43, $p = 0.0019$). No significant differences were found in N1 ($p = 0.5347$) and N2 ($p = 0.1093$) groups. T1 group had significant differences (54.77 vs. 65.72, $p = 0.0358$), while T2-4 groups also showed a difference (53.73 vs. 56.84, $p = 0.0477$). L/S ratio was lower in MTS patients (1.19 vs. 1.24, $p = 0.161$), but the difference was not significant. Among patients with L/S ≤ 1, 77.8% developed metastases, compared to 33.3% of those with L/S > 1.4 ($p = 0.092$).

Conclusion. Lower HU liver values are significantly associated with metachronous liver metastases, particularly in N0 and T1 stage CRC patients. T1 and T2-4 MTS patients had lower HU liver values than non-MTS patients, though the difference was less pronounced in later stages. L/S ratio showed a trend toward lower values in MTS patients but was not statistically significant. Liver HU values may serve as imaging markers for predicting metachronous metastases in early stage CRC patients, supporting their integration into preoperative imaging assessments and therapy planning.

Acknowledgements. There are no conflicts of interest to disclose.

PROGRESSION-FREE SURVIVAL IN PATIENTS WITH BRAIN METASTASES: A RETROSPECTIVE ANALYSIS OF RADIOTHERAPY MODALITIES AND INFLUENCING FACTORS

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Background. Brain metastases impact survival and quality of life for cancer patients, with radiotherapy being a key treatment option. However, its effect on progression-free survival (PFS) varies based on treatment modality, patient and tumour biology. Additionally, systemic therapies like immunotherapy and targeted therapy may influence the progression-free survival, but their role in combination with radiotherapy remains not fully understood.

Aim. To evaluate progression-free survival (PFS) in patients with brain metastases treated with stereotactic radiosurgery (SRS), hypofractionated radiotherapy (HFRT), or whole- brain radiotherapy (WBRT) and assess the impact of sex, cancer origin, and systemic therapies on outcomes.

Methods. This retrospective cohort study analysed 74 patients with brain metastases (2016–2024) at Rīga East Clinical University Hospital. Treatments included WBRT, HFRT, and SRS. Time to local progression was defined as the interval between the last therapy date and the first MRI-confirmed progression. Survival and progression-free intervals were analysed using Kaplan–Meier estimates.

Results. Among 74 participants, 67.6% (n = 50) were women and 32.4% (n = 24) were men. 24.3% (n = 18) underwent radiosurgery, 18.9% (n = 14) underwent hypofractionated radiotherapy, and 56.8% (n = 42) underwent whole-brain radiotherapy. The overall median PFS was 7.3 months. The median PFS was 8.8 months for radiosurgery,

7.2 months for hypofractionated radiotherapy, and 6.2 months for whole-brain radiotherapy. The median PFS was 5.5 months for men and 8.1 months for women. The median PFS for melanoma was 8.1 months, breast cancer 7.7 months, lung cancer 8.8 months, and other cancer types 6.2 months. The median PFS with immunotherapy was 8.1 months, without 7.2 months. The median PFS with target therapy was 7.7 months, without 6.9 months.

Conclusion. In this retrospective study, treatment modality influenced progression-free survival. Stereotactic radiosurgery had the longest PFS (8.8 months), followed by hypofractionated radiotherapy (7.2 months) and whole-brain radiotherapy (6.2 months). These differences may be attributed to selection bias, as patients receiving SRS typically have better performance status and lower disease burden compared to those undergoing HFRT or WBRT. Differences in progression-free time depending on cancer origin, immunotherapy, or targeted therapy; were not statistically significant ($p > 0.05$). Further research is needed to assess the impact of systemic therapies in combination with radiotherapy on PFS and to validate these findings in larger, prospective cohorts.

Acknowledgements. The authors declare the absence of a conflict of interest.

SURVIVAL OF PATIENTS UNDERGOING FRACTIONATED RADIOTHERAPY AND RADIOSURGERY FOR BRAIN METASTASES

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Background. Brain metastases are the most common adult brain tumours. Without treatment, survival is limited, but therapies like radiotherapy, radiosurgery, surgery, and systemic treatments can improve survival. Assessing survival differences based on treatment is essential.

Aim. The objective of this study is to investigate how survival varies among patients with brain metastases depending on the treatment modality used, including radiotherapy, radiosurgery, systemic therapy, and surgery, while also exploring the influence of factors such as patient age, number of metastases, primary cancer type, and treatment combinations.

Methods. This retrospective cohort study analysed 233 patients with brain metastases (2016–2023) at Rīga East Clinical University Hospital. Treatments included radiotherapy, radiosurgery, systemic therapy, surgery, and combinations. Overall survival was measured from diagnosis to death or last follow-up. Factors like age, metastasis count, primary cancer type, and treatment were assessed. Descriptive statistics summarised baseline data, and Kaplan–Meier curves compared survival outcomes.

Results. Among 233 participants 38.6% (n = 91) men, 60.9% (n = 142) women, the most common cancers were lung 43.1% (n = 100), breast 28% (n = 65), and melanoma 9.5% (n = 22). Treatments included immunotherapy 17.8% (n = 41), targeted therapy 39.7% (n = 91), and chemotherapy 79.9% (n = 183). Surgery was performed in 51.4% (n = 120) of cases. The median survival for patients who received radiosurgery was 12.5 months and 8 months for radiotherapy. Median survival was 6 months for men and 10 months for women. Median survival for lung cancer was 7 months, breast cancer 11 months, and melanoma 10 months. Median survival with immunotherapy was 10 months, without it 8 months. With targeted therapy, the median survival was 12 months, without it 6 months. Median survival was 15 months with surgery 6 months without surgery. No significant differences were found for age, metastasis characteristics, chemotherapy, or high Ki-67 levels.

Conclusion. Radiosurgery, surgery, targeted therapy, and immunotherapy were associated with longer median survival, with surgery providing the greatest benefit. Women had better survival outcomes than men, and survival varied by primary cancer type, with lung cancer patients having the shortest survival. No significant differences were found based on age, number of metastases, chemotherapy, or Ki-67 levels. These results highlight the importance of personalised treatment approaches and suggest that future studies should explore the effectiveness of combination therapies in this patient group.

Acknowledgements. The authors declare the absence of a conflict of interest.

EPITRANSCRIPTOMIC STUDIES OF GLIOBLASTOMA: ANALYSIS OF GENE EXPRESSION IN TUMOUR CELLS AND TUMOUR TISSUES

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Background. Glioblastomas are the most aggressive and lethal primary brain tumours, with a median survival of 14.6 months [1]. RNA methylation is a post-transcriptional modification that regulates RNA translation, splicing, and stability, which may contribute to cancer initiation and progression [2]. With the rise of personalised medicine need, it is believed that aberrant RNA methylation patterns present a novel opportunity for targeted gene therapy and early diagnostics. The expression of the transcription factor SOX2 is associated with a poor prognosis and is essential for glioma stemness and malignancy [3]. Investigating a modified SOX2 variant lacking the C-terminal domain, which is crucial for transcriptional activation, reveals its regulatory impact on glioma cell survival and proliferation. Integrating SOX2 activity with RNA methylation may uncover potential biomarkers that could facilitate liquid biopsy development, providing a minimally invasive approach to diagnose and treat gliomas, monitor progression and effectiveness of the treatment [4].

Aim. This study aims to identify novel biomarkers for early glioma diagnostic and targeted gene therapy.

Methods. Samples of copy DNA from tumour biopsies of 54 glioma patients were analysed with de-identified clinical data. mRNA extracted from U87 and U87 SOX2ΔC cell lines was used for cDNA synthesis. Gene expression (RT-PCR) and cell migration (wound-healing assay) were assessed. Bioinformatic analysis of publicly available RNA sequencing data explored the impact of ALKBH5 knockdown on gene expression and related pathways. Statistical significance was determined at $p \leq 0.05$.

Results. This study found that ALKBH5, FTO, and BUD23 expression levels correlated with glioma malignancy and patient survival, suggesting their potential as diagnostic biomarkers. Higher gene expression linked to longer survival. Significant associations were observed between these genes and clinical factors, including IDH mutation status, age, and gender. Furthermore, we demonstrate that SOX2ΔC influences ALKBH5 and BUD23 expression, indicating its involvement in glioma development. Knockdown of ALKBH5 significantly altered gene expression profiles and impacted crucial biological pathways, suggesting potential therapeutic benefits. Additionally, novel glioma therapy targets were identified based on their functional relevance and prior use in other cancers.

Conclusion. This study suggests that ALKBH5, FTO, and BUD23 may serve as novel glioma biomarkers with prognostic value. Further research into targeting these genes and investigation of SOX2's role in RNA methylation may improve glioma treatment strategies.

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PROGRESSION-FREE SURVIVAL IN FIRST-LINE CHEMOTHERAPY FOR PATIENTS WITH METASTATIC PROSTATE CANCER AT PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL FROM 2021 TO 2023

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Background. Metastatic prostate cancer remains one of the most common oncological diagnoses among men and presents a significant challenge in clinical management. Despite therapeutic advancements, first-line palliative chemotherapy with docetaxel continues to be widely used to improve patient outcomes. However, limited data are available regarding progression-free survival (PFS) in metastatic prostate cancer patients receiving first-line docetaxel chemotherapy in Latvia.

Aim. The aim of this study was to evaluate PFS and identify potential influencing factors in patients with metastatic prostate cancer who received first-line docetaxel chemo-

therapy at the Pauls Stradiņš Clinical University Hospital Oncology Clinic from 2021 to 2023.

Methods. A total of 60 patients diagnosed with metastatic prostate cancer and treated with first-line docetaxel chemotherapy at the Pauls Stradiņš Clinical University Hospital Oncology Clinic from 2021 to 2023 were included in the study. Clinical data, including age, ECOG performance status, TNM classification, Gleason score, and site of metastasis, were collected from medical documents. Statistical analysis was performed using Microsoft Excel and IBM SPSS Statistics version 29. Kaplan–Meier survival analysis was conducted to evaluate PFS, and additional statistical methods were used to identify prognostic factors.

Results. The study included 60 patients aged 55 to 81 years, with an average age of 69. The mean PFS was 4 months (±2.4), with a median PFS of 3.5 months, ranging from 0.5 to 11 months. Most patients had an ECOG performance status of 0–1 (n = 53, 88.3%), while (n = 7, 11.7%) had ECOG 2–4. The most frequent TNM classifications were T3N1M1b (n = 9, 15%) and T4N1M1b (n = 7, 11.7%). Among the included patients, the most common Gleason scores were 4 + 3 = 7 (n = 20, 33.3%) and 4 + 4 = 8 (n = 17, 28.3%). The most frequently observed metastatic sites were the pelvis (n = 17, 28.3%) and spinal cord (n = 14, 23.3%). Kaplan–Meier survival analysis demonstrated that 50% (n = 30) of patients experienced disease progression within 3.5 months. Patients with ECOG 0–1 and lower Gleason scores had a tendency toward longer PFS.

Conclusion. The median PFS in patients with metastatic prostate cancer treated with first-line docetaxel chemotherapy was 3.5 months, highlighting the variability in treatment response. Patients with lower ECOG scores and lower Gleason grades demonstrated a tendency toward longer PFS. These findings underscore the need for further research to improve clinical decision-making and optimise treatment strategies for metastatic prostate cancer patients in Latvia.

Acknowledgements. The authors declare the absence of a conflict of interest.

TNF VARIANTS INFLUENCE METASTASIS IN LARYNGEAL SQUAMOUS CELL CARCINOMA

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Background. Laryngeal squamous cell carcinoma (LSCC) is the second most common malignant tumour of the respiratory tract, after lung cancer. Despite improved molecular and clinical knowledge, the survival rate of patients with LSCC remains low. It is known that the development of solid tumours is regulated by inflammatory processes, including angiogenesis. Tumour development is facilitated by mast cells that accumulate near blood vessels and secrete mediators that promote angiogenesis and suppress the immune response: vascular endothelial growth factor A, histamine, tumour necrosis factor (TNF), and interleukins. To date, the association of TNF variants involved in angiogenesis with metastasis to the neck lymph nodes in LSCC has not been studied.

Aim. The study aimed to determine the association between the LSCC metastasis and TNF variants.

Methods. A total of 190 patients with LSCC and 190 healthy individuals were enrolled in the study. DNA was isolated from the venous blood by the salting out method. Genotyping of TNF (rs361525 and rs1800629) variants was performed by real-time polymerase chain reaction (RT-PCR). Statistical data analysis was conducted using the IBM SPSS Statistics 30.0.0.0 software.

Results. We determined that the distribution of genotypes and alleles does not differ statistically significantly in LSCC with and without metastasis to the neck lymph nodes compared to the control group. In binomial logistic regression analysis, the results showed that each A allele of TNF rs1800629 reduces the odds of developing non-metastasised LSCC by 1.7-fold under the additive model (OR = 0.579, 95% CI: 0.361–0.927, p = 0.023). The AG genotype and AG+GG genotypes of rs1800629 decrease these odds by 1.9-fold under the codominant and dominant models, respectively (OR = 0.538, 95% CI: 0.316–0.914, p = 0.022 and OR = 0.537, 95% CI: 0.321–0.899, p = 0.018, respectively), while under the overdominant model, the AG genotype decreases these odds by 1.8-fold (OR = 0.545, 95% CI: 0.321–0.926, p = 0.025). Analysis of TNF rs361525 did not reveal any statistically significant results.

Conclusion. Our study suggests that the TNF rs1800629 variant may be protective in LSCC metastasis to the neck lymph nodes.

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PATHOLOGICAL RESPONSE TO NEOADJUVANT TREATMENT IN LOCALLY ADVANCED RECTAL CANCER

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Background. Neoadjuvant chemoradiation therapy, followed by surgery is a widely used treatment method of locally advanced rectal adenocarcinoma. Pathological response to neoadjuvant treatment may predict a survival advantage with better overall survival. This kind of study has not been conducted in the Oncology Centre of Latvia.

Aim. The goal of this study was to evaluate the pathological response subsequent to neoadjuvant chemoradiation therapy in locally advanced rectal adenocarcinoma and share the experience of this strategy in the Oncology Centre of Latvia.

Methods. A retrospective review of patients with locally advanced rectal adenocarcinoma treated in Oncology Centre of Latvia between November 2021 and December 2023 was performed. Altogether 101 patients with histologically proven rectal adenocarcinoma were treated with radiotherapy and concurrent 5fluorouracil (5-FU), followed by curative surgery. Pathologic response to neoadjuvant treatment was evaluated by comparing pathological staging (yp) with pre-treatment clinical staging (cTN). Overall survival (OS) was compared in patients with pathological complete response (pCR), partial pathological response and no response to neoadjuvant therapy.

Results. 16.8% (17 patients) had a pCR, 69.3% (70 patients) showed downstaging and 13.9% (14 patients) had no change in staging. At follow-up (range 7 to 50 months, median 27.5 months) OS rates for all groups was 89%, in patients with pCR, partial responder and non-responder group OS was 97.1%, 89.9%, and 78.6%, respectively.

Conclusion. The majority of patients showed some response to neoadjuvant treatment. Findings of this study seem to indicate that tumour response to neoadjuvant chemoradiotherapy improves overall survival.

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ASSOCIATION BETWEEN TUMOUR-INFILTRATING LYMPHOCYTES AND MILLER–PAYNE SCORE IN BREAST CANCER PATIENTS RECEIVING NEOADJUVANT CHEMOTHERAPY

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Background. Tumour-infiltrating lymphocytes (TILs) are an important component of the anti-tumour immune response, playing a key role in the tumour microenvironment. Previous studies showed that a high level of TILs may correlate with a favourable prognosis and increased sensitivity to neoadjuvant chemotherapy specifically in breast cancer. The histopathological response to therapy is assessed using various scales, one of which is the Miller–Payne score, which quantitatively determined the reduction in tumour cells after treatment. Understanding the impact of TIL levels on the histopathological response could optimise treatment strategies and predict therapy effectiveness.

Aim. To evaluate the impact of TIL levels on the histopathological response according to the Miller–Payne score in patients with breast cancer receiving neoadjuvant chemotherapy.

Methods. The study was retrospective. The 79 breast cancer patients undergoing neoadjuvant chemotherapy were enrolled in the study. The histopathological response was assessed using the Miller–Payne score, dichotomised into low (grades 1–4) and high response (grade 5). The primary predictor was the level TILs, assessed on hematoxylin an eosin (H&E)-stained slides following the International TILs Working Group recommendations, were quantified as the percentage of stromal lymphocyte infiltration. They were analysed as a continuous variable using multifactorial logistic regression to evaluate their association with histopathological response.

The model's overall significance was confirmed through the Omnibus Test of Model Coefficients ($p = 0.004$), and the association between TIL and response remained statistically significant ($p = 0.015$, Exp(B) = 301.71). To assess model fit, the Hosmer–Lemeshow test was performed ($p = 0.065$), indicating a good model fit. The model's discriminative ability was evaluated using the ROC curve with an AUC of 0.795, demonstrating good predictive performance. Multicollinearity was assessed using the Variance Inflation Factor (VIF = 1.000), confirming no multicollinearity issues.

The robustness of the model coefficients was validated through bootstrap analysis with 1000 samples, confirming statistical significance for TIL (p = 0.002, 95% CI: 1.853–11.538).

Results. The obtained results showed that high TIL infiltration was significantly associated with a favorable histopathological response (p = 0.015), indicating that TIL is a strong predictor of treatment effectiveness in breast cancer. The model showed good predictive performance, correctly classifying 69.6% of cases. These findings highlight the potential of TIL as a prognostic biomarker in clinical practice.

Conclusion. This study demonstrated that higher TIL infiltration was significantly associated with improved histopathological response in breast cancer patients receiving neoadjuvant chemotherapy. TIL can serve as a valuable prognostic biomarker to predict treatment outcomes and guide personalised therapy strategies in clinical practice.

HUMAN IMMUNODEFICIENCY VIRUS IN PATIENTS WITH ANAL CANAL SQUAMOUS CELL CARCINOMA AT PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL FROM 2018 TO 2023

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Background. Anal canal squamous cell carcinoma (SCC) is a rare malignancy, comprising less than 1% of all cancers and approximately 3% of gastrointestinal malignancies. The incidence is estimated at 0.5–2.0 cases per 100,000 population annually. Human immunodeficiency virus (HIV) has been identified as a significant risk factor for anal canal SCC, and routine HIV testing is necessary to ensure proper diagnosis and management of SCC.

Aim. The aim of this study was to emphasise the importance of HIV testing in anal canal SCC patients and its potential impact on disease staging and progression.

Methods. A retrospective study was conducted at Pauls Stradiņš Clinical University Hospital Oncology Clinic from 2018 to 2023. Patients with histologically confirmed anal canal squamous cell carcinoma were enrolled in this study. Data used for this study were collected from medical records. TNM classification, tumour grading, and HIV test results were analysed. Statistical analysis was performed using IBM SPSS Statistics version 29.

Results. The study included 50 patients diagnosed with anal canal squamous cell carcinoma. The median age was 67 years, with a predominance of females (78%, n = 39) compared to males (22%, n = 11). The most frequent TNM stage was cT2N0M0 (n = 9, 18%), followed by cT2N1M0 (n = 7, 14%) and cT3N2M0 (n = 5, 10%). Nodal involvement (N+) was observed in 28 cases (56%), while distant metastases (M1) were present in four cases (8%). Grade 2 was the most common tumour grade (n = 24, 48%), followed by Grade 1 (n = 9, 18%), Grade 3 (n = 9, 18%). Tumour grading was not assessed in eight patients (16% of cases). HIV testing was performed in 24% (n = 12) of patients, with all results being negative, while 76% (n = 38) were not tested. More females (n = 7, 58.3%) than males (n = 5, 41.7%) underwent testing.

Conclusion. This study emphasises the importance of HIV testing in anal canal squamous cell carcinoma, a rare malignancy with a known association with HIV. The high proportion of untested patients (76%) highlights the need for improved screening. While all tested patients were HIV-negative, the absence of positive cases limits conclusions on its impact on tumour progression. Knowing the HIV status of patients can help refine prognosis and guide personalised treatment strategies, ultimately improving disease management and outcomes.

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Content

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