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# ONCOLOGY INSIGHTS

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## CONTENTS

<b>ONCOLOGY INSIGHTS INFO</b> .....	I
<b>SDIR6 CONGRESS INFO</b> .....	III
<b>LEGACY INSIGHTS</b> .....	1
The foundation of the Serbian Association for Cancer Research .....	2
SDIR evolution: important steps from 2016 to 2022. ....	5
<b>FUTURE HORIZONS IN CANCER</b> .....	7
The importance of sex as a biological variable in cancer research. ....	8
The Role of Microbiota in Cancer Patients .....	16
<b>PROCEEDINGS BOOK</b> .....	23
<b>PLENARY LECTURES</b> .....	25
Unconventional approaches to the treatment of cancer .....	25
Targeting KRAS: achievements and drawbacks .....	25
<b>INVITED LECTURES</b> .....	26
Discovery of novel HDAC inhibitors for therapy of triple-negative breast cancer – preclinical study .....	26
Estrogen Receptor Beta promoter methylation as a possible biomarker in breast cancer .....	26
A new approach to the design of metal-based antineoplastic drugs. ....	27
Approaches to targeting cancer cell resistances in preclinical research .....	28
Small hydrophobic molecules in multi-targeted cancer therapy: disruption of plasma membrane and mitochondrial functions .....	30
Good cop-bad cop: different roles of hsa-miR-93-5p in colorectal cancer .....	31
Network based approaches in cancer research- chances and challenges .....	34
Tackling omics research in pathology in a low-budget setting .....	34
Sex as a biological variable in preclinical melanoma research .....	35
The importance of adequate molecular diagnostics in the era of precision oncology – focus on lung cancer .....	36
High-throughput screening of multidrug-resistance markers in non-small cell lung carcinoma patient-derived cells – contribution to personalized treatment. ....	37
Circulating cytokines as potential biomarkers of disease progression in BRAFwt metastatic melanoma patients receiving anti-PD-1 therapy .....	40
Targeting chitinase 3-like 1 for the treatment of pancreatic cancer .....	42
Establishment of a first cancer Biobank at the Institute for Oncology and Radiology of Serbia – advantages, challenges and future perspectives .....	44
Advancing reversible immunocapture toward scalable purification of extracellular vesicles .....	45
Dying of cancer cells feeds the others to create more aggressive tumor .....	46
The role of Hedgehog signaling pathway in plasticity, stemness and resistance of melanoma. ....	47

What is new in care of Adolescents and Young Adults, AYA with cancer. . . . .	49
Control of IFN- $\gamma$ Responsiveness and Metastatic Potential in Melanoma by GSTA4 . . . . .	50
MicroRNAs – biomarker properties in prostate cancer. . . . .	52
Significance of molecular diagnostics in therapy of chronic lymphocytic leukemia. . . . .	54
<b>ORAL PRESENTATIONS.</b> . . . . .	57
The PDK-1 inhibitor GSK2334470 induces cell death and G1 cell cycle arrest in human pancreatic cancer cells . . . . .	57
Suppressor Effects of The Mixed Ligand Platinum (II) Saccharinate Complexes ( <i>trans</i> -[Pt(sac) <sub>2</sub> (PPh <sub>3</sub> ) <sub>2</sub> ] and <i>trans</i> -[Pt(sac) <sub>2</sub> (PPh <sub>2</sub> Cy) <sub>2</sub> ]) on <i>In Vitro</i> And <i>In Vivo</i> Angiogenesis . . . . .	57
All-trans retinoic acid activities in Merkel cell carcinoma: implication of the retinoic gene signature . . . . .	58
Predicting response to chemoradiotherapy in locally advanced rectal cancer using MRI-based radiomics features . . . . .	59
Transcriptomic profiling of the early stage squamous cell lung cancer . . . . .	59
The role of p53 family in melanoma development and therapy resistance . . . . .	60
The anticancer effects of triterpene saponin deglucocyclamine isolated from <i>Cyclamen hederifolium</i> . . . . .	61
The effect of diiron thiocarbonyl complex on tumor cells of different grade. . . . .	61
The effects of cisplatin-ibuprofen conjugate free and immobilized in mesoporous nanostructured silica on the change of morphology of mouse melanoma cells, and antitumor potential <i>in vivo</i> . . . . .	62
Role of Claudins 3, 4 and 7 in Triple Negative Breast Cancer progression. . . . .	63
Impairment of cystatin F activation can increase the cytotoxicity of NK cells. . . . .	63
Cisplatin-Killed Cells as a Preferable Method for Generating Tumor Cell-Based Vaccines. . . . .	64
Modes of Activity and Prognostic Significance of the Hedgehog-Gli Signaling Pathway in Prostate Cancer. . . . .	64
Platelet-released factors boost proliferation of multiple myeloma cells and changes in bone marrow stroma with implications of NF $\kappa$ B pathway involvement . . . . .	65
<i>In vitro</i> anticancer activity of kaempferol-derived flavonoids against pancreatic adenocarcinoma. . . . .	66
Amassing a treasure trove for drug repurposing using chemoproteomics. . . . .	66
Characterization of heterogeneity of cancer-associated fibroblasts isolated from PDAC patients . . . . .	67
Exploring the anticancer activity of essential oil of <i>Satureja montana L.</i> from Montenegro . . . . .	67
<b>POSTER PRESENTATIONS.</b> . . . . .	69
A pilot study of the association between variants rs25487 of <i>XRCC1</i> gene, rs1801320 of <i>RAD51</i> gene, and rs13181 of <i>ERCC2</i> gene and acute toxicity of radiation therapy after radical prostatectomy in patients with prostate cancer . . . . .	69
Overview and data management of gastropancreatic oncology biobank sample and data collection. . . . .	69
Detection of resistant <i>EGFR</i> T790M mutation from liquid biopsy samples of patients with advanced non-small cell lung cancer: comparison of qPCR and dPCR detection methods. . . . .	71
Histomics: Bridging Radiomics and Histopathology Towards Advancing Prognostication of Breast Cancer Metastasis . . . . .	71
Effects of promoter methylation and mutation on <i>BRCA1/2</i> expression in ovarian cancer. . . . .	74
Ultra-short cfDNA fragment detection during systemic therapy of advanced-stage colorectal cancer . . . . .	75

Comparison of variant calling tools for mutation analysis of <i>BRCA1</i> and <i>BRCA2</i> genes in patients with epithelial ovarian cancer . . . . .	76
Expression and heteromerization of adenosine A2A and dopamine D2 G protein-coupled receptors in neuroendocrine tumors of the lung . . . . .	76
Detection of viral proteins in locally advanced rectal cancer patient samples by mass spectrometry – predictive potential for response to neoadjuvant chemoradiotherapy. . . . .	77
Prognostic Value of Combined Hematological/Biochemical Indexes and Tumor Clinicopathologic Features in Colorectal Cancer Patients—A Pilot Single Center Study . . . . .	78
The Polymorphisms of Genes Encoding Antioxidant Enzymes Modulate the Risk for Testicular Germ Cell Tumor. . . . .	79
Complementarity of miR-203a-3p and ETS-1 sequences may influence aggressiveness of papillary thyroid carcinoma. . . . .	79
Characterization of nischarin expression in pancreatic ductal adenocarcinoma . . . . .	80
Expression profile of CD81 gene transcripts in colorectal cancer . . . . .	81
Genetic polymorphisms of enzymes involved in redox homeostasis can influence survival in smokers and overweight patients with prostate cancer . . . . .	81
Expression of long non-coding RNA HOTAIR in rectal cancer as a potential predictor of response to chemoradiotherapy . . . . .	82
Prognostic potential of redox status, SLFN11, and PD-L1 in colorectal cancer patients . . . . .	82
Interleukin-6, a potential plasma biomarker for diagnosis and prognosis of thyroid neoplasms . . . . .	83
The effect of tyrosine kinase inhibitors in high-grade glioma patient-derived cells . . . . .	84
The significance of interleukin-8 in hormonally dependent early breast cancer – association with the established parameters ER/PR and HER2 . . . . .	84
Variant rs745430558 in the <i>SMAD4</i> gene promoter as a biomarker for adenocarcinoma of the pancreas . . . . .	85
Effect of BET inhibitors on cancer stem cells sorted from primary oral cancer cell culture. . . . .	85
Precision medicine in gastrointestinal oncology – gemcitabine-based systemic chemotherapy in patients with advanced/metastatic pancreatic carcinoma . . . . .	86
Precision medicine in gastrointestinal oncology – therapeutic approach in patients with braf mutant metastatic colorectal cancer: a retrospective analysis. . . . .	86
Iron metabolism in the prognosis of epithelial ovarian cancer . . . . .	87
Can serum HER2 testing add prognostic value to routine tissue HER2 analysis for primary breast cancer patients? . . . . .	87
Prognostic significance of the localization of the primary tumor and HER2-receptor expression in KRAS wild-type metastatic colorectal cancer treated with anti-EGFR therapy . . . . .	88
Expression Profile of Sex Hormone Receptors in Head and Neck Cancer: Unraveling Gender Disparities. . . . .	88
Circulating cytokine changes in BRAFwt MM patients during anti-PD-1 therapy. . . . .	89
Prognostic significance of pathologically detected extramural venous invasion (EMVI) in rectal carcinoma . . . . .	90
Genomic instability as a prognostic marker in malignant brain cancer . . . . .	90
Head and neck cancer: single- and two-stage reconstruction . . . . .	91
Simultaneous <i>EGFR</i> L858R and T790M mutations in treatment-naïve metastatic lung adenocarcinoma: a case study and therapeutic implications . . . . .	91

Tracing the connection between trace metals and oxidative stress in malignant brain tumors and hydrocephalus . . .	92
Anti-cancer activity of newly synthesized derivatives of nicotinic acid on several monolayer and three-dimensional solid tumor models . . . . .	92
The effect of <i>Lactobacillus salivarius</i> on AKT-mTOR signaling pathway in normal, dysplastic, and oral cancer cell co-cultures . . . . .	93
Violacein enhances the cytotoxic effect of commonly used chemotherapeutics on rhabdomyosarcoma cells . . . . .	94
Anticancer effects of non-toxic repurposed drugs on hamster fibrosarcoma – fast applicable in oncology . . . . .	94
Potential of Tamoxifen-based Copper(II) Dichloride in Breast Cancer Therapy . . . . .	95
The mechanism of action of ruthenium compounds on ovarian tumor cells OVCAR-3. . . . .	95
Multidrug resistant non-small cell lung cancer cells present collateral sensitivity to platinum-based drugs. . . . .	98
Anoikis as a novel mode of shikonin derivatives anticancer action on C6 glioma cells . . . . .	98
Different mitochondrial response in A549 KRASG12S cells and MCF7 KRAS wild type cells to the treatment with mitochondrial superoxide radicals triggering agent 2-(1-Benzyl-4-piperidinylamino)-4-(4-chlorophenyl)-4-oxo-N-phenylbutyramide (BPCPh) . . . . .	99
Anticancer activity of diphenyltin(IV) compounds bearing carboxylato N-functionalized 2-quinolones . . . . .	100
Bismuth ferrite nanoparticles increase ROS production and p62 expression in A375 melanoma and HeLa cells. . . . .	100
Stimulation and inhibition of NF- $\kappa$ B by repurposed drugs – effects on hamster fibrosarcoma. . . . .	101
Targeting Tumor pH: The Role of Sodium Bicarbonate in Cancer Treatment . . . . .	101
Antitumor potential and impact on redox homeostasis of the essential oil of Black pepper ( <i>Piper nigrum L.</i> ) . . . . .	102
Antiparasitic drug Ivermectin, a potential anticancer drug. . . . .	103
Role of the SALL2 Transcription Factor in Epithelial-Mesenchymal Transition and its Implication in Tumor Malignancy in Colorectal Cancer . . . . .	103
Cytotoxic activity of extract of <i>Helichrysum plicatum</i> DC. on human cancer cells <i>in vitro</i> . . . . .	104
The role of ROS in MAPK-dependent autophagy involved in phorbol myristate acetate-induced macrophage differentiation of HL-60 leukemia cells . . . . .	104
Monitoring of the presence of EGFR-mutated DNA during EGFR-targeted therapy may assist in the prediction of treatment outcome . . . . .	105
Benefit of immunotherapy administration on overall survival of patients with NSCLC according to real world data analysis . . . . .	106
<b>INDEX</b> . . . . .	107

## ONCOLOGY INSIGHTS

### Aims and Scope

Oncology Insights is a yearly oncological open-access peer-reviewed journal that publishes new research from different areas of oncology. It strives to provide a platform for the exchange of cutting-edge research and knowledge in the field of oncology. This journal aims to advance the understanding, prevention, diagnosis and treatment through the dissemination of high-quality scientific discoveries.

The journal applies a fair and accurate peer review process, employing double-blind review methodologies. Acceptance of manuscripts is based on their scientific merit, originality, clarity, and contribution to the field.

### Topics

Oncology Insights covers a wide spectrum of topics within the field of oncology, including but not limited to:

- Basic and Translational Research
- Clinical Oncology
- Radiation Oncology
- Surgical Oncology
- Pediatric Oncology
- Hematologic Oncology
- Palliative Care
- Epidemiology and Public Health
- Cancer Genetics
- Immunotherapy and Targeted Therapies
- Experimental Therapeutics
- Computational Biology and Artificial Intelligence

### About/Information

Oncology Insights welcomes various types of contributions including original research articles, review articles, case reports, case studies, clinical trials, registered reports, comments, brief communications, editorials, letters to the editor, perspectives, and conference papers from a wide range of disciplines related to cancer research.

Through encouraging interdisciplinary collaborations, the journal welcomes contributions that integrate oncology with related fields such as immunology, genetics, biochemistry, radiology, and other relevant disciplines. The journal places a special emphasis on publishing research that highlights emerging trends, novel technologies, and innovative approaches in cancer research and clinical practice.

Oncology Insights is intended for a diverse readership, including oncologists, researchers, clinicians, nurses, allied healthcare professionals, patients, patient advocates, policymakers, and all stakeholders involved in the prevention, diagnosis, and treatment of cancer. It adopts a global perspective, encompassing research from diverse regions addressing oncological challenges that may vary across different populations.

The journal is committed to upholding the highest ethical standards in research and publication provided by established international guidelines.

Periodically, Oncology Insights may publish special issues focusing on specific topics to highlight particular areas of interest or emerging needs.

Authors are provided with clear and comprehensive guidelines for manuscript preparation, including structure, formatting, and other specific requirements.



Esteemed colleagues,

It is a rare honor and privilege in a scientist's career to shape joint efforts and dedication of a group of scientific enthusiasts into a tangible outcome - ***Oncology Insights, the Official Journal of the Serbian Association for Cancer Research*** (srp. Srpsko društvo istraživača raka, SDIR).

The first volume of Oncology Insights has been derived from years of scientific contributions of many individuals and institutions who have selflessly devoted their expertise, ideas and time to establish the SDIR society that today resonates with integrity and charm. In the future, we will strive to maintain those standards, always aiming higher. Thus, we encourage researchers, physicians, nurses, laboratory technicians, as well as patients, survivors, caregivers, and patient advocates to offer their valuable expert insights that will stimulate future progress of oncology in Serbia and worldwide.

Over the last 20 years, we have witnessed remarkable progress in the field of cancer research. Oncology Insights aims to play an integral role in supporting that progress by providing a platform for sharing cutting-edge research, creating a space for new collaborations, partnering established researchers with young investigators, and serving as a home for oncology professionals of various specialties dedicating their careers to this challenging research field.

Oncology Insights pledges to evolve, adapt, reinvent, redefine, and reshape its content to serve its members and inevitable advances in the field. We hope you will be a part of its success story by providing evidence-based, unbiased multidisciplinary content, feeling both an honor and a duty to treat cancer research with the same care, passion, and dedication which individuals with cancer deserve and expect.

Please tune all your senses to enjoy the intellectual feast spread through the pages of this inaugural journal volume. The future of Oncology Insights will be shaped by you.

With kind regards,



Milena Čavić, SDIR President  
Editor-in-Chief  
Oncology Insights  
Official Journal of the Serbian Association for Cancer Research





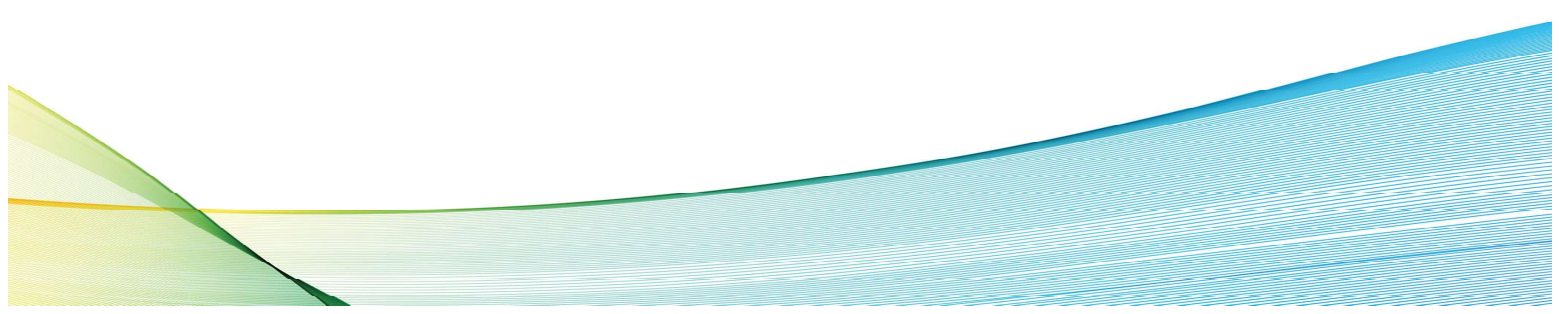
The first number of Oncology Insights includes  
**PROCEEDINGS BOOK of**  
**THE SIXTH CONGRESS OF THE SERBIAN ASSOCIATION FOR CANCER RESEARCH**  
with international participation



## **From Collaboration to Innovation in Cancer Research**

2nd – 4th October 2023  
Royal Inn Hotel, Belgrade

**SDIR-6 ORGANIZER**  
Srpsko društvo istraživača raka (SDIR)  
Serbian Association for Cancer Research (SACR)  
[www.sdir.ac.rs](http://www.sdir.ac.rs)



Dear colleagues,

We are very pleased to welcome you to the 6<sup>th</sup> Congress of the Serbian Association for Cancer Research (SDIR) with international participation "From Collaboration to Innovation in Cancer Research" which will be held on October 2-4 2023, at the Royal Inn Hotel, Kralja Petra 56, Belgrade, Serbia.

During the three-day congress, lectures will be given by distinguished Serbian and international researchers, covering the following topics:

- Tumour metabolism and biology
- Epigenetics and gene regulation in cancer
- Bioinformatics and artificial intelligence in cancer research
- Omics approaches in cancer research
- Therapy response and resistance
- Clinical and translational oncology
- Immunooncology
- New and challenging drug targets
- Pathways to innovation in cancer research

We are pleased to announce that our sixth congress is actively supported by the European Association for Cancer Research (EACR). National and regional cooperation is also important, and so representatives from our friend societies will be attending our congress.

The timing of the organisation of SDIR-6 is important for the establishment of our national society's journal *Oncology Insights*. The abstracts of the sixth congress will be published in the very first issue of the journal.

Advances and innovations in cancer research are based on growing scientific knowledge and collaboration. We believe you will enjoy the lively atmosphere of the congress and that fruitful scientific discussions will help you build new collaborations and develop new ideas.

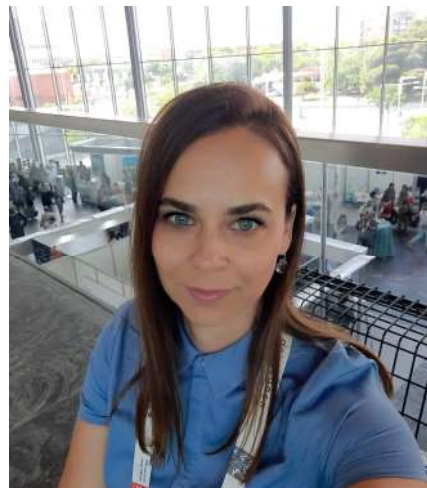
We look forward to welcoming you in Belgrade!

Kind regards,

on behalf of the SDIR-6 Organizing Committee



Prof. dr Katarina Zeljić  
Faculty of Biology, University of Belgrade  
President of the SDIR-6 Organizing Committee



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## P30

**Prognostic significance of pathologically detected extramural venous invasion (EMVI) in rectal carcinoma**

Mladen Đurić<sup>1,4</sup>, Bojana Kožik<sup>2</sup>, Tijana Vasiljević<sup>3,4</sup>, Aleksandar Đermanović<sup>1</sup>, Nevena Stanulović<sup>3,4</sup>

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**Background:** Rectal carcinoma (RC), a common malignancy of the gastrointestinal tract, remains a great clinical challenge due to the increased risk of local and/or systemic recurrence. The mechanism of primary tumor progression and dissemination may be the crucial prognostic factor. Direct vascular spread, especially venous invasion, has been previously recognized and validated as an important predictor of adverse prognosis. Extramural venous invasion (EMVI) is characterized by the presence of tumor cells within veins outside the bowel wall and is strongly associated with poor survival, increased risk of local recurrence, systemic recurrence, and death. The aim of this study is to examine the prognostic value of pathologically detected EMVI and its relationship with other available clinicopathological parameters of patients with RC. **Patients and Methods:** This retrospective study included 100 untreated and non-metastatic RC patients (50 EMVI+ and 50 EMVI-) who underwent curative resection between January 2016 and June 2018 and were followed for the next five years (median follow-up of 71.1 months). The presence of EMVI was assessed on standard hematoxylin and eosin-stained histological sections of postoperative tumor specimens samples, confirmed by a consultant pathologist in arbitrary cases, and in accordance with validated College of American Pathologist (CAP) guidelines. **Results:** The presence of EMVI within a selected cohort of RC patients significantly associated with female gender ( $p=0.039$ ), T4 stage ( $p<0.001$ ), N2 stage ( $p<0.001$ ), less number ( $n\leq 3$ ) of involved lymph nodes ( $p<0.001$ ), excessive lymphatic infiltration ( $p=0.044$ ), presence of perineural invasion ( $p=0.002$ ), positive circumferential margin (CRM) ( $p=0.003$ ), and TNMIII stage ( $p<0.001$ ). In addition, within EMVI+ patients, metastases, dominantly in the liver (13/19, 68%), and death outcomes were more frequent events ( $p=0.013$  and  $p=0.032$ , respectively), while survival analyses revealed that EMVI+ patients had significantly shorter overall survival (OS,  $p=0.035$ ) and disease-free survival (DFS,  $p=0.030$ ). **Conclusion:** Obtained results strongly suggest that the EMVI type of vascular invasion, considered independently of classical stage parameters and separately from lymphatic invasion, has the potential to be a reliable predictor of the course and outcome of the disease, which should be confirmed on a larger cohort of patients with RC. **Keywords:** Extramural Venous Invasion (EMVI), Predictive Medicine, Rectal Cancer

## P31

**Genomic instability as a prognostic marker in malignant brain cancer**

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**Introduction:** Glioblastoma and Astrocytoma are diffuse malignant brain tumors and characterized as the most aggressive and invasive brain cancers. Glioblastoma IDH wild-type is a primary brain tumour that develops de novo, and Astrocytoma IDH mutant is a secondary tumour which arises by progression from lower tumour grades. They are characterized by poor survival, resistance to therapy and poor prognosis which develops as a consequence of genomic instability. Genomic instability also contributes to tumour heterogeneity and provides the genomic diversity necessary for selection. **Materials and methods:** 31 patients with Glioblastoma IDH wild-type and Astrocytoma IDH mutant, grade 3 and 4, were analysed for the presence of genomic instability using AP-PCR, DNA profiling method. Comparing DNA profiles between tumour tissue and normal tissue (blood) of the same patient, we detected qualitative and quantitative changes. Qualitative changes are detected as the presence and absence of bands and are the manifestation of microsatellite instability (MIN). Quantitative changes are the representation of chromosomal instability (CIN) and are detected as differences in the intensity of bands. Survival analyses were performed using Kaplan & Maier test for survival data in relation to different histological tumour type and genomic instability. Statistical differences were considered significant for  $p\leq 0,05$ . **Results:** Patients with Glioblastoma IDH wild-type have significantly shorter survival compared to other histological types ( $p=0,025$ ). For each histological type that we analysed and each type of instability,



MIN, CIN and total genomic instability, two groups of patients were made – those with high and low instability. Patients with Glioblastoma IDH wild-type that have low total genomic instability have significantly shorter survival ( $p=0,045$ ) compared to other analysed types of brain cancer. Patients with Astrocytoma IDH mutant grade 4 who have high total genomic instability and high CIN have significantly shorter survival ( $p=0,018$ ,  $p=0,007$  respectively). **Conclusion:** Patients with Glioblastoma IDH wild-type have shorter survival which makes this tumour the most aggressive and malignant of all analysed tumours. Our results show that low genomic instability in Glioblastoma IDH wild-type and high genomic instability lead by high CIN in Astrocytoma IDH mutant, gradus 4 contribute to shorter survival, which makes genomic instability a potential good prognostic marker.

Keywords: Astrocytoma, DNA profiling, genomic instability, Glioblastoma, survival

P32

### Head and neck cancer: single- and two-stage reconstruction

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**Background:** In head and neck oncology, surgical treatment frequently results in microvascular reconstruction. Oncologic resection followed by immediate reconstruction is often associated with prolonged working and surgical duration, challenging a surgeon's concentration level and potentially worsening patient outcome. To improve the surgeon's performance and to reduce risk of potential complications, we implemented a two-stage procedure in patients with head and neck cancer. This study critically analyzed the surgical outcomes, organizational benefits, and investigated job satisfaction among affected health care professionals. **Patients and methods:** A retrospective data analysis of patients who had undergone microvascular reconstruction after oncologic head and neck surgery between 2010 and 2021 included 33 patients ( $n = 33$ ). Twenty patients underwent single-stage reconstruction (group 1,  $n = 20$ ) and 13 patients underwent two-stage reconstruction (group 2,  $n = 13$ ) with  $12.2 (\pm 7.4)$  days between surgeries. **Results:** The mean surgical duration, and mean start and end time of the reconstructive surgery component differed significantly ( $p = 0.002$ ). The mean total complication rate ( $p = 0.58$ ) did not differ significantly, although a trend toward higher demands for blood products was observed in group 1. There was no significant difference in five-year survival ( $p = 0.28$ ). A questionnaire on subjective work performance was answered by the affected health care professionals ( $n = 34$ ) and it revealed that 88% preferred long surgeries to be scheduled first and that 97% work most efficiently in the morning. **Conclusions:** Two-stage reconstruction is a suitable option in selected head and neck cancer patients offering the possibility of optimizing preoperative planning and organization. This may result in regular working hours, reduced surgeon fatigue, and improved job satisfaction without compromising patient outcomes or survival.

Keywords: head and neck cancer, head and neck reconstruction, mitigation strategies, patient safety, staged reconstruction, surgeon fatigue

P33

### Simultaneous EGFR L858R and T790M mutations in treatment-naïve metastatic lung adenocarcinoma: a case study and therapeutic implications

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**Background:** The use of epidermal growth factor receptor tyrosine kinase inhibitors (EGFR-TKIs) is now standard of care in the first-line treatment of patients with advanced adenocarcinoma of the lung who harbor *EGFR* mutations. Patients with the L858R mutation are candidates for first-generation (gefitinib, erlotinib) and second-generation (afatinib) EGFR-TKIs. While the introduction of EGFR-TKIs undoubtedly improves treatment outcomes for patients with *EGFR*-mutated lung adenocarcinoma, a large proportion of patients eventually develop resistance. The most common mechanism of acquired resistance is the occurrence of the T790M mutation in exon 20 of the *EGFR* gene. It has been shown that the T790M mutation can also occur as a primary mutation in patients who have not received EGFR-TKI therapy. This case study presents a rare case in which a patient was diagnosed with concurrent L858R and T790M mutation at the time of diagnosis. **Material and Methods:** This study presents a case of a non-smoking female patient diagnosed with stage IV lung adenocarcinoma at the age of 71 years. DNA isolation was performed from formalin-