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ORAL PRESENTATIONS

OP-1

Social Anxiety Disorder, Internet Gaming Disorder and Sleep Disturbances Among Youth

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Introduction: Social anxiety disorder (SAD) and internet gaming disorder (IGD) have been receiving growing attention due to their increasing prevalence among youth. This study examined the associations among SAD, IGD, and sleep disturbances in youth, with particular emphasis on the potential role of sleep hygiene and disturbances in these associations.

Method: The sample comprised 70 youths aged 11-18 (M=14.49, SD=1.63), including 32 diagnosed with SAD, and 38 in a control group. Participants completed standardized assessments, including the Liebowitz Social Anxiety Scale, IGD Scale-Short Form, Sleep Disturbance Scale for Children, and Sleep Hygiene Index. Path analysis was conducted to evaluate direct and indirect associations, controlling for sociodemographic variables.

Results: Compared to controls, youth with SAD scored significantly higher on IGD symptoms, sleep disturbances, and poorer sleep hygiene ($p<0.001$ for all). Path analysis revealed that SAD status was directly associated with poorer sleep hygiene ($\beta=1.062$, $p<0.001$) and greater sleep disturbances ($\beta=0.637$, $p=0.003$). However, the direct effect of SAD on IGD was not significant ($\beta=0.239$, $p=0.271$). Indirect effects demonstrated that SAD was associated with IGD through both sleep hygiene and sleep disturbances ($\beta=0.286$, $p=0.005$).

Conclusion: These findings suggest that adolescents with SAD are at heightened risk for IGD, and sleep hygiene and disturbances play significant roles in this association. The results underscore the necessity of incorporating sleep-related factors into interventions aimed at addressing both SAD and IGD in youth.

Key words: Social anxiety disorder, internet gaming disorder, sleep disturbances, sleep hygiene, youth, path analysis

OP-2

Are Social Skills the Critical Link Between ADHD and Risky Internet Use?

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Introduction: Previous studies have linked attention-deficit/hyperactivity disorder (ADHD) with risky internet use (RIU), but the mechanisms behind this association are not fully understood. This research aims to investigate the role of social skills as a potential pathway between ADHD diagnosis and RIU, while accounting for demographic factors.

Method: The study included 142 children aged between 6-12 years, divided into two groups: a case group of 71 children diagnosed with ADHD and a control group of 71 children without ADHD. Both groups completed the scales assessing RIU use and social skills.

Results: A significant association was indicated between an ADHD diagnosis and social skills (β=1.685, $p<0.001$), as well as between social skills and RIU (β=-0.57, $p<0.001$). Furthermore, although the direct path between ADHD diagnosis and RIU was not significant (β=0.52, $p=0.080$), ADHD diagnosis was indirectly linked to higher levels of RIU through social skills (indirect path β=-0.966, $p<0.001$). The analysis accounted for potential confounders, including gender, birth timing, age of speech onset, household income, parental education levels, and the total number of siblings.

Conclusion: The study emphasizes the critical role of social skills in the association between ADHD and RIU, showing that social skills contribute significantly to RIU among children with ADHD. The observed non-significant path from ADHD to RIU, alongside the significant indirect path through social skills, highlights the importance of improving social skills in interventions aimed at reducing RIU in children with ADHD. These findings offer valuable guidance for clinicians in targeting social deficits to better support individuals at risk of RIU.

Key words: ADHD, social skills, risky internet use, children

OP-3

The Investigation of the Anti-Inflammatory and Immunomodulatory Effects of Işgın (*Rheum Ribes L.*) Extract

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Introduction: *Rheum ribes L.* is a perennial herb from the Polygonaceae family, native to mountainous regions of Türkiye and has shown anti-oxidant, anti-diabetic, anti-cancer, and anti-ulcer effects in various studies. However, its anti-inflammatory and immunomodulatory effects have not been fully elucidated. This study aims to demonstrate the anti-inflammatory and immunomodulatory effects of *Rheum ribes L.* extract in lipopolysaccharide (LPS)-Stimulated RAW264.7 Macrophages.

Method: Fresh *Rheum ribes L.* were dried at 40° C and extracted using 80% ethanol. Total flavonoid and phenolic contents were determined using quercetin and gallic acid standards. The Western blot method was used to determine nuclear factor-kappa B (NF-κB) activity and nitric oxide synthase (iNOS) levels in LPS-induced RAW 264.7 macrophage cells. The extract's effects on pro-inflammatory cytokines were evaluated using the ELISA method.
Results: The extract was found to contain 161 mg/g gallic acid equivalents of total phenols and 40 mg/g quercetin equivalents of total flavonoids. It exhibited cytotoxic effects on macrophage cells at doses above 75 µg/mL, while demonstrating significant proliferative effects at doses below this threshold. In the LPS-induced inflammation model, the extract notably starting from a dose of 5 µg/mL reduced IFN-γ and TNF-α levels at 60 µg/mL and 75 µg/mL doses, while suppressing the pro-inflammatory cytokine IL-1β. In LPS-induced macrophage cells, the Rheum ribes extract decreased NF-κB protein expression levels in a dose-dependent manner.

Conclusion: Rheum ribes has been identified as a promising agent for the suppression of inflammation. Its dose-dependent efficacy suggests significant potential as an alternative anti-inflammatory treatment.

Key words: Rhubarb, inflammation, immunomodulatory, *in vitro*, *Rheum ribes L.*

OP-4

Determination of Frequency and Risk Factors of Secondary Malignancy Development in Hematological Malignancies

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Introduction: The objective of the present study was to reveal the incidence of secondary malignancies (SMs) in patients with hematological malignancies, analyze the potential risk factors, and determine which factors are associated with the development of SMs.

Method: This retrospective single-center study included 299 patients diagnosed with hematological malignancies who were treated at the Hematology Clinic of Bezmialem Vakıf University Hospital between February 2012 and May 2024. Clinical and demographic parameters were compared between the study (n=51) and control (n=248) groups.

Results: Among the 299 patients with hematological malignancies, the median follow-up was 70 months [95% CI (46.7-93.2)], the median age 64 years (range 24-89), and 154 (51.50%) were female. Among these 51 cases of SM, the mean time to secondary malignancy development was 103.61 months [95% CI (88.7-118.4)]. Synchronous tumors were observed in 11 patients (21.6%), while 40 patients (78.4%) had metachronous tumors. In the multivariate logistic regression analyses, a family history of cancer [p<0.001, OR=21.90, 95% CI (7.30-65.64)], no relapse [p=0.02, OR=5.18, 95% CI (1.27-21.16)], and no radiotherapy [p=0.02, OR=2.44, 95% CI (1.15-5.20)] were associated with an increased risk of secondary cancer. No significant difference in overall survival was observed between the groups (p=0.18). The mean time to relapse for hematologic malignancies was 106.6 months [95% CI (98.8-114.4)]. SM patients had a longer time to relapse than controls (p=0.004).

Conclusion: These findings highlight the importance of early screening, long-term follow-up, and a multidisciplinary approach in the management of patients from the time of initial diagnosis.

Key words: Secondary malignancy, hematological malignancies, incidence, risk factors

OP-5

Correlation of GBP2 Expression with Histopathological and Clinical Findings in Prevalent Glomerulopathies

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Introduction: Glomerulopathies are major contributors to chronic kidney disease, including IgA nephropathy (IGAN), membranous glomerulonephritis (MGN), focal segmental glomerulosclerosis (FSGS), and diabetic nephropathy (DN). The immune system plays a pivotal role in glomerulopathy pathogenesis, yet mechanisms remain unclear. Studies highlight GBP2 protein's involvement, secreted from M1 macrophages; in DN, GBP2 inhibits NOTCH-1 signaling, enhancing macrophage accumulation; in Lupus Nephritis, GBP2 expression is linked to interferon pathways. This study explores the histopathological and clinical impact of GBP2 expression in prevalent glomerulopathies.

Method: One Hundred Fifty-two kidney biopsies (71 males, 81 females) diagnosed with IGAN (46), MGN (34), FSGS (42), and DN (30) at Bezmialem Vakıf University Hospital were included (2014-2023). GBP2 immunohistochemistry was performed on paraffinized sections using a 1:25 antibody and DAB detection. GBP2-stained immunocytes were counted in three high-power fields, and an H score was calculated. The analysis was performed by Kruskal-Wallis tests to assess correlations between GBP2 expression, and histopathological (glomerulosclerosis, atrophy, fibrosis), clinical (proteinuria, hematuria, creatinine doubling time, GFR, glucose), comorbidities, and demographic data.

Results: Over a mean follow-up of 26.1 months, immune cell count was highest in DN (4), IGAN (2), and lowest in MGN, and FSGS (1). DN exhibited the highest H score (8.9), followed by IGAN (6.4), MGN (3.9), and FSGS (3.1). Immune cell count and H score were found to be significantly different among the four groups ($p=0.0017$; $p=0.0026$). GBP2 expression correlated positively with hematuria ($p=0.021$), systolic blood pressure ($p=0.006$), and global sclerosis ($p=0.019$), but negatively with follow-up duration ($p=0.033$) and creatinine doubling time in DN ($p=0.034$). No significant correlation with proteinuria response was found ($p=0.9$).

Conclusion: GBP2 expression varies across glomerulopathies and was found positively correlated with hematuria, systolic blood pressure, and global sclerosis. It showed a negative correlation with follow-up duration. In DN, GBP2 expression showed a shortening effect on the creatinine doubling time. GBP2 expression is found to not significantly influence the proteinuria response.

Key words: Glomerulonephritis, immunohistochemistry, GBP2

OP-6

Investigation of the Anti-cancer and Immunmodulatory Effects of Bee Venom in Colorectal Cancer

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Introduction: Bee venom (apitoxin) has demonstrated multiple biological effects like inhibition of cell proliferation in cancers. This study aimed to investigate specific anti-cancer properties of apitoxin on the cell-mediated immuneresponses utilizing co-culture models with Jurkat-T cells and LoVo colorectal cancer cells to elucidate the mechanisms through which it exerts its immunomodulatory action on cytotoxic T-cells.

Method: Total phenolic and flavonoid contents of apitoxin were quantified using gallic-acid and quercetin equivalents, respectively. Cell viability assays (MTT and WST-1) were conducted on Lovo-Luc and Jurkat-T cells. Cytokine levels in direct co-culture environments of Lovo-Luc cells and CD3-CD28 antibody-activated Jurkat-T cells, treated with apitoxin, were measured using ELISA. An activated model was established in Jurkat-T cells using antiCD3/CD28 antibodies, and its confirmation was achieved by measuring nitric oxide levels in cell culture medium with Griess reagent.

Results: Total phenolic content of dry apitoxin was found to be 12.5 mg GAEeq/100 mg, and total flavonoid content was 6 mg Queeq/100 mg. Dose of 50 µg/mL, apitoxin killed 50% of LoVo colorectal cancer cells. It exhibited cytotoxic activity on Jurkat-T-cells at doses above 2 µg/mL. Activated T-cells pre-treated with 1 µg/mL of apitoxin exhibited a higher cytotoxic effect on LoVo-cells compared to the untreated control group. Apitoxin with co-cultured supernatants increased significantly levels of proinflammatory cytokines IFN-γ ($p<0.001$), TNF-α ($p<0.001$), and IL-1β ($p<0.05$) at higher doses. Conversely, the anti-inflammatory effect was observed with a lower dose of 0.5 µg/mL ($p<0.05$).

Conclusion: Apitoxin has been shown to enhance anti-cancer effects of T-cells against cancercells in a dose-dependent manner, highlighting its potential as a low-side-effect natural agent capable of boosting the anti-cancer activity of immune cells and serving as an adjuvant in next-generation therapies such as adoptive T-cell therapy.

Key words: Bee venom, immunmodulatory effect, immunotherapy, colon cancer

OP-7

Evaluation of the Triglyceride-glucose Index (TyG) as a Potential Biomarker for Tongue Squamous Cell Carcinoma

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Introduction: The triglyceride-glucose index (TyG) is an established marker of insulin resistance, which has been associated with the development and progression of several cancers. This study aimed to evaluate the TyG index as a potential biomarker for tongue squamous cell carcinoma and hypothesized that elevated TyG index values are associated with this cancer type.

Method: A retrospective cohort study was conducted, including 28 patients diagnosed with tongue squamous cell carcinoma (group 1) and 28 healthy controls (group 2). The TyG index was calculated using the formula: TyG index = ln [(fasting triglycerides (mg/dL) × fasting plasma glucose (mg/dL))/2]. Here "ln" refers to the natural logarithm, which is a logarithm with a base of Euler's number (e=2.71828). This ensures the accurate transformation of triglyceride and glucose values into a dimensionless index that can be used for further statistical analysis. The effect of TyG Index on tongue cancer was investigated using the parameters such as sex, age, and body mass index. Differences in TyG index values between groups were analyzed using Student's t-test.

Results: The TyG index was significantly higher in group 1 (9.21±0.46) compared to group 2 (8.48±0.38) ($p<0.001$). This suggests a strong association between elevated TyG index values and the presence of tongue squamous cell carcinoma.

Conclusion: The TyG index may serve as a promising, cost-effective, and easily accessible disease monitoring method for tongue squamous cell carcinoma. Further studies are warranted to validate these findings and explore the clinical utility of the TyG index in early detection and disease monitoring.

Key words: Triglyceride-glucose index, tongue squamous cell carcinoma, insulin resistance, biomarker

OP-8

Development of Pyruvate Kinase Enzyme Activity Measurement Kit Control Material

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Introduction: Pyruvate kinase (PK) is a key enzyme in the glycolytic pathway. Its activity is associated with various pathological conditions, making accurate measurement essential for diagnostics and biomarker development. This study aims to develop a control material for PK enzyme activity assays by evaluating the stability of lyophilized serum, whole blood, and plasma samples.

Method: Commercially purchased bovine serum and whole blood were included in this study Initially, PK enzyme activity of samples was measured. Following this, whole blood was centrifuged to separate the plasma, and then the cellular components were washed three times. The resulting hemolysate was diluted with CPDA, distilled water, and sucrose at 1/2 and 1/10 ratios, and the samples were lyophilized. After lyophilization, the samples were reconstituted using the same solutions, and PK enzyme activities were monitored at different time intervals.

Results: After lyophilization, the PK enzyme activities of bovine whole blood remained stable for 9 days at a 1/2 dilution ratio, with some samples maintaining stability until day 30. However, at a 1/10 dilution ratio, stability loss was observed. In bovine serum samples, undiluted samples, and those diluted at a 1/2 ratio remained stable up to day 30, while stability loss was observed at a 1/10 dilution ratio.

Conclusion: Based on the results, it was observed that bovine whole blood and serum materials remain stable for extended periods at a 1/2 dilution, making them suitable for use as control materials. However, at a 1/10 dilution the results did not demonstrate sufficient stability to develop control materials.

Key words: Pyruvate kinase enzyme activity, lyophilization, control material

OP-9

Examining the Impact of Minocycline on Facial Nerve Regeneration in Rats Using LC-MS/MS Metabolomic Analysis

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Objectives: Facial nerve injuries, caused by trauma or disease, present significant socio-economic challenges and often result in prolonged treatment with poor outcomes. Minocycline, a tetracycline with anti-inflammatory and neuroprotective effects, shows potential for promoting nerve regeneration, but its local effects on the facial nerve remain unexplored. Untargeted metabolomics using LC-MS/MS is a powerful approach for studying metabolic changes and gaining insights into nerve regeneration. This study aimed to evaluate minocycline's effects on facial nerve regeneration and explore the impact of different local doses using LC-MS/MS to better understand facial nerve injuries.

Method: Right facial nerve paralysis was induced in 26 Wistar Albino rats, divided into three groups: Control, 40 µg minocycline, and 100 µg minocycline. Nerve transection, suturing, and minocycline administration were performed, followed by metabolomic profiling using LC-MS/MS to identify metabolites involved in regeneration. Histological analysis included tissue staining (H&E, methylene blue, modified Gomori's), and nerve fiber content evaluation using Image-J, with statistical analysis via SPSS.

Results: Key metabolites such as creatine, which aids neural repair and reduces neuro-inflammation, showed a significant difference in metabolism between the control and 100 µg minocycline groups ($p<0.001$). Similarly, betaine, a methyl-donor amino acid, also exhibited a significant difference ($p<0.05$). Histological analysis revealed prominent edema and vacuolar changes in group A, while groups B and C had well-preserved histology with minimal edema. There was no statistically significant difference in nerve fiber density between the groups (group A: 29 ± 1.22, group B: 29.60 ± 1.63, group C: 29.42 ± 1.48, $p>0.05$).

Conclusions: 100 µg of minocycline was found to be effective on nerve regeneration by enhancing levels of creatine and betaine in the facial nerve tissues.

Key words: Facial nerve injury, nerve regeneration, minocycline, mass spectrometry, nerve transection

OP-10

The Effect of Adding Oral Resolvin to Patients Undergoing Transforaminal Epidural Steroid Injection for Lumbar Back Pain Treatment

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Introduction: Inflammatory lumbar back pain is a chronic condition often linked to lumbar disc herniation (LDH). While epidural steroid injections are commonly used, their efficacy is limited. Resolvin, derived from omega-3 fatty acids, has anti-inflammatory properties. This study investigates whether adding oral resolvin enhances the effectiveness of transforaminal epidural steroid injections.

Method: A randomized controlled study was conducted. Participants (n=30) were divided into two groups: the control group (group K, n=15) received only epidural steroids, while the study group (group C, n=15) received omega-3 supplementation, (OmePa® DHA Fish Oil) for six months alongside epidural steroids. Patients aged 18-75, classified as ASA I-III, and diagnosed with LDH, were treated with caudal and transforaminal epidural injections. Blood samples were collected pre-procedure, one month post-procedure, and six months post-procedure. Magnetic resonance imaging (MRI) scans were performed pre-procedure and six months post-procedure, and the disc herniation size was measured isovolumetrically using 3D Slicer. Primary outcomes were changes in disc herniation size (MRI); whereas secondary outcomes included numeric rating scale (NRS) pain scores, serum cytokine levels (IL-6, IL-17, IL-1β, TNF-α), and SF-36 Quality of Life Scale.

Results: NRS scores showed significant improvement in both groups at 1 week, 1 month, and 6 months ($p=0.001$; $p<0.01$). No significant differences were observed in cytokine levels (TNF-α, IL-6, IL-1β, IL-17) between groups ($p>0.05$). MRI measurements revealed significant reductions in disc herniation size in both groups (study group: $p<0.05$; control group: $p=0.005$; $p<0.01$), with no significant difference between groups. These findings represent preliminary results from nine patients in each group (total n=18). Further data collection and analysis are ongoing.

Conclusion: Patients receiving resolvin with epidural steroid injections showed greater improvement in NRS scores over six months, compared to the control group. However, MRI findings revealed no significant difference in disc herniation size reduction between the two groups.

Key words: Inflammatory lumbar back pain, transforaminal steroid injection, oral resolvin, magnetic resonance imaging, cytokine level