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## **Accepted Abstracts**





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## Mitochondrial Dysfunction in the Mechanism of Neurodegeneration of Familial Form of Parkinson's Disease

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The mitochondria are not only the largest producer of cellular energy but regulator of the cell death calcium and redox signalling. Mitochondrial dysfunction shown to be a trigger for neurological and neurodegenerative disorders and mitochondrial diseases manifests themselves with wide-ranging neurological symptoms. Parkinson's Disease (PD) is a common neurodegenerative disease characterised by progressive loss of dopaminergic neurons, leading to dopamine depletion in the striatum. Alpha synuclein aggregations have been shown to be a pathological hallmark in histological staining of PD patients. Missense mutations, and duplications or triplications of the SNCA gene, which encodes  $\alpha$ -synuclein, lead to autosomal dominant early onset PD, that is clinically and pathologically similar to sporadic PD. Monomeric  $\alpha$ -synuclein exerts a role in the regulation of mitochondrial ATP synthase. During Parkinson's disease, the monomer aggregates to generate oligomers, and these aggregates maintain an interaction with the ATP synthase. However, the oligomeric structure is uniquely redox active and targeted oxidation in close proximity to ATP synthase induces its conversion to the Permeability Transition Pore (PTP), triggering mitochondrial swelling and ultimately cell death. Inhibition of the oligomer-induced oxidation event prevents the pathological induction of PTP. Human stem cell derived neurons with elevated intracellular  $\alpha$ -synuclein, and iPSC derived neurons bearing a SNCA triplication, generate  $\alpha$ -synuclein to directly induce ROS is a key point in triggering lipid peroxidation and feroptosis. These findings bring new insight into the mechanism of neurodegeneration, emphasizing the importance of mitochondrial dysfunction in PD.

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## Mental Distress and Associated Factors among College Students in Kemisie District, Ethiopia

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**Introduction:** Mental health problems such as distress affect society in a non-differential fashion. In recent decades, mental distress is becoming a common health problem among students. In this regard, there is limited information about the problem available in Ethiopia. Therefore, this study aimed to determine the prevalence and associated factors of mental distress among college students in Kemisie district, Ethiopia.

**Methods:** An institution-based cross-sectional study was conducted among 408 students from February 11 to 14 2020. A stratified sampling technique was used to select the study participants. Data were collected using a structured self-administered questionnaire. Self-reporting questionnaire (referred to as the SRQ-20) is a standardized questionnaire having 20-item questions and was used as a tool for mental distress. Appropriate descriptive statistics was done. A binary logistic regression model was used to identify factors associated with mental distress. An adjusted odds ratio with a 95% confidence interval was computed to determine the level of significance. A p value < 0.05 was used to declare the statistical significance of the variables.

**Results:** Prevalence of mental distress among students was 17.6% (95% CI 13.8–21.4%). Not having close friends (AOR = 3.61; 95% CI 1.61–8.14), attend religious programs (AOR = 0.23; 95% CI 0.14–0.53), conflict with friend (AOR = 3.07; 95% CI 1.44–6.33), not having pocket money (AOR = 2.72; 95% CI 1.27–25.80), ever use of Chat (AOR = 5.06; 95% CI 2.12–11.80), current use of Chat (AOR = 3.12; 95% CI 1.04–9.82), decreased grade than = anticipated (AOR = 3.20; 95% CI 1.436–7.16), and low and moderate social support (AOR = 3.34; 95% CI 1.41–7.92) and (AOR = 1.47; 95% CI 1.08–5.68), respectively were statistically significantly associated factors of mental distress.

**Conclusions:** The overall prevalence of mental distress among students in Kemisie district, Ethiopia was high. In Ethiopia, along with the current economic crisis and the absence of social support, the problem could be increased. Therefore, the mental health needs of the college students require attention with special emphasis on not having close friends, never attending religious programs, conflict with friends, absence of pocket money, students who use Khat, and those who have low social support.

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#### Tetanus Toxoid Immunization Coverage and Associated Factors Among Postnatal Mothers in Debre Markos Town, Ethiopia

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**Statement of the Problem:** Mothers and newborns are at a high risk of gaining tetanus during the birth process, where maternal tetanus infections are associated with the unhygienic delivery procedure, after abortion and miscarriage. Pregnant women will reduce the risk of neonatal tetanus infection by receiving two doses of maternal tetanus toxoid vaccine. However, in Ethiopia, low levels of immunization coverage, mostly due to missed opportunities, are a concern. The purpose of this study is to assess tetanus toxoid immunization coverage and associated factors among postnatal mothers in Debre Markos, Ethiopia.

Methodology & Materials: A community-based cross-sectional study was conducted among 505 mothers who had given birth in the last 12 months. A two-stage stratified sampling technique was applied and participants were selected using a systematic random sampling technique. Data were entered into Epi-Data manager version 4.6.0 and analyzed using Statistical Package for Social Science version 25 software. Bivariable and multivariable logistic regression analysis was performed. Adjusted odds ratios at 95% CI were used to identify factors associated with tetanus toxoid utilization.

**Findings:** The total tetanus vaccine intake (TT+2) doses were found 71.2 %. Mothers who were attended primary school [AOR: 0.07,95% CI: (0.01-0.6)], mothers whose husbands had secondary education [AOR: 0.26, 95% CI: (0.08-0.84)], mothers attended 2-3 for antenatal care(ANC) visit [AOR: 0.05,95% CI: (0.01-0.3)], good quality service [AOR: 2.8, 95% CI: (1.05-7.5)], appropriate behavior of health workers [AOR: 6.2, 95% CI: (2.2-18.7)] and who visited with health extension workers [AOR: 7.6, 95% CI: (2.3-25.3)] were significantly associated with TT vaccine utilization.

**Conclusion & Significance:** Only three out of four pregnant women received the current TT vaccine during their previous pregnancy. The most influencing factors in TT vaccine utilization were mothers and her husband's low educational level, ANC visit during pregnancy, standard of health care service, health care provider's behavior and mothers visited with health extension staff.

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## Herbal Nano Particulate Drug Delivery System for Nose to Brain Targeting in the Management of Alzheimer Disease

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Alzheimer's Disease (AD) is the most common form of progressive neurodegenerative disorder and primarily affects the elderly population (50%-60% of the 65-year-old age group). More than 46 million of the global population currently suffers from AD and this is expected to double by 2030. AD is a major medical and social problem for developing societies. The etiology of AD involves cognitive dysfunction, primarily memory loss, and in later stages it causes language deficits, depression, and behavioural problems including agitation, mood disturbances, and psychosis. In the present investigation, Thymoquinone (THQ) encapsulated CS NPs were prepared successfully. A physical evaluation and electron microscope screening supported the suitability for intranasal administration. The scintigraphic study in rats demonstrated that intranasal administration delivers THQ to the brain rapidly and more effectively than previous methods. The accumula-tion of Thymoquinone nanoparticles (THQ-NP) formulation within interstitial spaces and transport of the drug to the brain may be due the nanometric size range and the stretching of tight junctions within the nasal mucosa. The finding also supported the formulation's Cerebro Spinal Fluid (CSF) penetrating potential. The UPLC/MS/MS bioanalytical method was also used to validate the distribution of THQ in brain and blood after Intranasal (IN) and Intravenous (IV) administration. The brain concentration vs time profiles following different routes of administration were described by non-compartmental pharmacokinetics. Following IV administration, THQ attained a high concentration of 190.91±18.62 ng/ml in blood plasma whereas least concentration (10.94±1.75 ng/ml) was obtained after intranasal administration of THQ solution. The studies suggest intranasal delivery of THQ to be a promising approach for brain target ing as well as in reducing the systemic exposure. However, benefit-to-risk ratio and clinical intricacies need to be estab¬lished scientifically for its suitability in clinical practice in the management of Alzheimer symptoms.







Figure 2: Pharmacokinetic profile of different formulations in Brain

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#### Induction of Labour with an "Immature" Cervix in Pregnant Women with Preterm Rupture of Membranes

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**Relevance:** The causes of the Prenatal Rupture of the Membranes (PROM) are not fully understood. The significance of this pathology is determined by the high level of perinatal morbidity and mortality. The frequency of prenatal rupture of the membranes varies widely: from 2.7 to 19% of cases of full-term pregnancy.

Childbirth in this case does not always end favorably for the fetus and mother:

1. The danger of the development of purulent-septic complications in the mother with a long anhydrous period and intrauterine infection.

2. A long anhydrous period leads to anomalies of labor.

3. Delivery may be in effective, which leads to an increase in the frequency of surgical interventions.

The aim of our study was to study the condition of the birth canal in pregnant women with PROM by assessing the readiness of the cervix according to the bishop scale.

#### **Research objectives:**

1. Assessment of the condition of the cervix according to the bishop scale.

2. To study the readiness of the birth canal to choose the tactics of delivery.

**Material and research methods:** To solve the tasks, a comprehensive examination of 52 pregnant women was admitted to the Bukhara Perinatal Center for the period of 2019 and childbirth in which was complicated by PROM. According to the standard of management of patients with PROM, the birth canal of pregnant women was examined after 24 hours in the absence of labour in order to resolve the issue of the advisability of inducing labor.

**Results and discussion:** Evaluation was carried out according to 5 criteria. It was revealed that 62% of the examined pregnant women had disclosure, length, consistency, position of the cervix and the condition of the pre-existing part of the fetus with scores of up to 5, which was assessed as "immature neck" of uterine. And in 38% of women, the birth canal was assessed as a "mature neck". Accordingly, the tactics of further conduct was chosen according to the protocol. In pregnant women with an immature neck, the induction of labor by Glanding E2 3 mg, 1 tablet intravaginally after the informed consent of the pregnant woman and relatives is proposed. The birth canal is reevaluated after 8 hours to clarify the need for continued induction. In pregnant women with a "mature" cervix, deliveries were carried out expectantly before playing out regular labor or a consultation of doctors resolved the issue of stimulation of birth with oxytocin.

**Conclusion:** Intravaginal administration of a synthetic analogue of prostaglandin E2 at a dose of 3 mg is a highly effective method of labor induction in women with a full term of pregnancy and helps to reduce the duration of the anhydrous period, the frequency of labor force abnormalities and operative delivery compared to Glandin E2 used.

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#### Correlation between Plasma S1p and the Occurrence and Severity of Coronary Heart Disease in Postmenopausal Women

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**Objective:** Sphingosine-1-phosphate (S1P) is a bioactive sphingosine with antiatherosclerotic effects. The incidence of coronary heart disease (CHD) increased significantly among women after menopause. We explored the relationship between plasma S1P levels and the occurrence and severity of CHD in postmenopausal women.

**Methods:** Postmenopausal women admitted to our hospital for coronary angiography because of chest pain-like symptoms were included in our study. By 1:1 age matching (age difference  $\leq$ 5 years), 166 women in the CHD group and control group were enrolled. The plasma S1P concentration was determined, and the Gensini score was calculated to decide the severity of CHD.

**Results:** Plasma S1P levels were significantly lower in the CHD group of postmenopausal women (p < 0.001). S1P (OR = 0.952, 95% CI = 0.934-0.970) was an independent predictor of the occurrence of CHD in postmenopausal women. The area under the curve (AUC) for S1P to predict the occurrence of CHD was 0.653 (95% CI = 0.595-0.712), and the cutoff value was 96.89 ng/ mL. The plasma S1P level was the lowest in the high tertile group of the Gensini score (p < 0.001). And the plasma S1P (OR = 0.948, 95% CI = 0.926-0.970) was an independent predictor of a high Gensini score in postmenopausal women with CHD.

**Conclusion:** Plasma S1P is an independent risk factor of the occurrence and severity of CHD in postmenopausal women. The occurrence and aggravation of CHD in postmenopausal women may be related to levels of S1P.



FIG. 1. ROC curve of S1P for the prediction of CHD. The AUC of S1P was 0.653 (95% CI, 0.595-0.712, P < 0.001); the cutoff point was 96.89 ng/mL, with a sensitivity of 78.25% and a specificity of 48.8% AUC, area under the curve; CHD, coronary heart disease; ROC, receiver operating characteristic; S1P, sphingenise1-phosphate.

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