compare it with controls. To assess whether the duration of diabetes influences the change in pH. To find any correlation between blood glucose and salivary pH.

Materials : 80 diabetic individuals and 54 age matched controls were tested for salivary ph before and after oral challenge of vitamin-C using a standard ph strip. Their fasting blood glucose level, the type of diabetes and the duration of diabetes along with their clinical manifestation were recorded. The data were evaluated and analyzed and their significance determined using the appropriate 'T' test.

Results : The resting salivary ph of the diabetic and the control were almost same. The magnitude of change in salivary ph following an acid challenge in diabetic were significantly less ($P<0.001$) compared to that of the controls. Longer the duration of diabetes lesser is the salivary ph change.

Conclusion : There is a significant decrease in salivary ph change following an oral vitamin-C challenge in diabetics indicating an autonomic blunting. Estimation of salivary ph is a simple, effective, non-invasive method in identifying early neuronal impairment in diabetes mellitus.

Abs.NS.01

Eustress in Education : Analysis of Perceived Stress Score (PSS) & Blood Pressure Before and After Examination in Medical Students

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Objective : Stress is widely perceived as a detrimental phenomenon causing bad effects on the individuals. Students are subjected to periodical examinations which often lead to stress responses. Overwhelming evidence in the literature suggest that the examination stress is bad. However, Hans Selye had suggested that there were two types of stress responses, namely, Distress and eustress. In this study we analyze the results of Perceived Stress Score (PSS) and the Blood Pressure variations among First year medical students were evaluated.

Method : One hundred (50 male & 50 female) first year Medical Students, one month before and immediately after the examination were given the PSS sheets. Their Blood pressure also was recorded on both occasions. The results were analysed by applying Student's 't' test.

Results : We report the increased PSS score in all students during post-examination period ($P<0.01$). The number of students in low stress group was highest (77) before the examination and in moderately stressed group it was 20. But post examination period, the low stress group had only 24 students, while moderately stressed group showed an increase to 65. There was an increase in BP also.

Conclusion : From the results, it is evident that there was some stress during the examinations, which is in agreement with the previous reports. But we in this study suggest that the examinations causing mild to moderate stress will condition the students and the efficacy of General adaptation Syndrome will be improved in such subjects. Therefore we suggest that the examination stress (within limits) may be considered as eustress.

Abs.NS.02

Assessment of WHO-5 Well Being Index in 1st MBBS Medical Students

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Objective : Psychological distress is common among medical students but goes unrecognized and untreated. This study was undertaken to assess the psychological status of students at the beginning of medical education & profession so that they can be followed regularly to relive their psychological depression. The WHO-5 Well-Being Index (WHO-5) is a short self-report instrument that appears suitable for this purpose.

Method : WHO-5 Well-being Index Questionnaire was filled by 134 medical students in the first week of their entry in Medical College to assess the subjective quality of life. The core items of subjective quality of life belong to the dimension of psychological well-being (positive mood, vitality and interest in things) which include positively worded items only.

Results : According to the WHO scoring system, 17% students were found to have poor well-being. Out of these, 7% students were having score below or equal to 13 & 10% students answered score 0 or 1for one or more question. All these students were in need to undergo Major Depression Inventory Score for further evaluation.

Conclusion : Distress can have important repercussions for the student and their professional development. Despite these serious consequences, few distressed students seek help. These facts highlight the compelling need for medical schools to identify student well being which reflects their future course progress.

Abs.NS.03

An Assessment of the Mental Status of Doctors Preparing for PG Entrance Examination

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Objective : To assess the mental status of doctors preparing for PG entrance examination.

Method : A cross sectional study involving 75 participants (34 males & 41 females) with a mean age of 25 years selected from a PG coaching centre in Chennai. DASS (Depression Anxiety Stress Scale) which is a 42 item self administered questionnaire was used to assess the symptoms of depression, anxiety & stress in doctors preparing for PG entrance exam.

Results : Among the total 75 participants, 47(62.6%) showed symptoms of depression, anxiety and or stress. Among 47 who showed symptoms, 33(70.2%) showed symptoms of depression, 27(57.4%) showed symptoms of anxiety and 34(72.3%) showed symptoms of stress. 17(36.1%) participants showed symptoms of all three. Among 34 males, 18(52.9%) and among 41 females, 30(73.1%)

showed symptoms of depression, anxiety and or stress.

Among 47 participants who were either depressed, anxious and or stressed, 25(53.2%) had problems like monetary, personal or family problems interfering with their PG preparation, 30(63.8%) were upset that their friends have already got PG seat and 37(78.7%) were upset that they have not yet settled in life.

Conclusion : Significant number of the participants showed symptoms of depression, anxiety and or stress with higher prevalence among females. All the participants who showed symptoms were unemployed, preparing for more than one year and were upset that they had not yet settled in their life which could be the probable causes.

Abs.NS.04

Post-prandial Somnolence : Myths & Realities

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Objective : There are many concepts regarding why we feel sleepy after a heavy meal pervading among the general educated public as well as the medical fraternity. Most of them are wrong notions as evident in the contradictions obvious in common medical text books but then what are the real possible reasons for this Post Prandial Somnolence ?

This review of freely available literature on the internet is a small step to look into the various neural and hormonal factors leading to sleepy post lunch sessions.

Method : Certain key words were searched for on the internet and full free articles were downloaded and analyzed and reviewed.

Results : Sleepiness after meals is commonly attributed to redistribution of cerebral blood flow to the Intestinal tract. Though there is an increase in Intestinal blood flow there is no mechanism possible for diversion of blood from brain due to the strict autoregulation mechanisms. However there is a possibility of overall increase in parasympathetic system stimulation leading to the post meal lassitude. There are also studies which suggest an increase in levels of serotonin due to Tryptophan release after heavy meals causing the sleepiness. Studies also indicate the contrary and reveal a possibility of direct brain stimulation via the Arcuate nucleus and related sleep centers in the hypothalamus.

Conclusion : The results indicated that functional alterations in peripheral nerves as reflected by changes in nerve conduction parameters might be due to neuronal damage in hypothyroidism.

Abs.NS.05

Sleep Wake Pattern Analysis : Study of 131 Medical Students

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Objective : Sleep is part of the rhythm of life, without a good sleep the body loses the ability to revitalize, the mind is less adapt and once mood is altered. The sleep wake cycle of the students are characterized by delayed onset, partial sleep deprivation and poor sleep quality. Like other circadian rhythms the sleep wake cycle is influence by endogenous and environmental factor. The aim of the present study is to know sleep wake pattern in medical student, role of residence and individual characterization on sleep wake cycle.

Method : The data were collected from first year medical students of the Smt. NHL Municipal Medical College. All the students answered the Portuguese version of the Horne & Östberg Morningness and Eveningness questionnaire, the Pittsburgh sleep quality index (PSQI) and kept a sleep diary for two weeks.

Results : We analyzed 131 students, 51 residing at hostel and 80 residing at home, with mean PSQI 6.55 and 7.48 respectively (PSQI >5 = poor sleep quality). Sleep diary analysis of morning and evening type group shows delayed sleep onset in later group (23.45±1.14 vs. 1.15±0.50 hrs). We also found reduced sleep duration during weekdays and extended sleep duration during weekends.

Conclusion : We found poor sleep quality in medical student irrespective of residence. Poor sleep quality and sleep deprivation is more pronounced in evening type of the students.

Keywords : sleep wake cycle, sleep quality, sleep deprivation, residence

Abs.NS.06

Role of Depression in Waning Academic Performance of Medical Students

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Objective : The aim of our study was to know the impact of depression on the academic performance of students of Saraswathi Institute of Medical Sciences, Hapur.

Method : 300 medical students were surveyed using Beck's Depression Inventory (BDI), done just before their professional examinations. Depending upon the total BDI score, the students were graded into normal (BDI score <15) and those suffering from mild (15-22), moderate (23-27) and severe (>27) depression. Academic performance was reported as a ratio scale ranging from 0-100. Pearsons r correlation analysis was utilized to assess the relationship between self-reported BDI score and academic performance. A one-way ANOVA was done between academic performance and BDI score for the three groups.

Results : The prevalence of depression observed was very high in medical students (0.33). A highly significant negative correlation was noted between depression and academic performance ($r = -0.475$, $P<0.001$). There appeared an escalating trend of correlation with increasing severity of depression, with a slight drift in pattern shown by the variables of moderate depression [Mild (69) $r = -0.607$, $P<0.001$; Moderate (19) $r = -0.510$, $P<0.05$; Severe (12) $r = -0.655$, $P<0.05$]. The ANOVA showed significant difference for academic

performance (F=3.022, P<0.05) and highly significant for BDI score (F=120.813, P<0.001).

Conclusion : Our study indicates that depression is an out surging problem in medical students and a major offender in decreasing their academic performance. Therefore apposite screening measures and vigilant intervention through drugs and psychotherapy is the need of the hour both to improve the welfare and future of our students.

Abs.NS.07

To Study The Usage Pattern of Mobile Phones and its Impact on Sleep and Social Behaviour in Adolescents

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Objective : A disturbing phenomenon in modern youths is the excessive use of mobile phones which have become indispensable as communication and entertainment tools. The impact of increased mobile use on behavioral factors like quality of sleep, attention span, inclination to socialize etc. is an unexplored area. These factors are an important component of the individual's quality of life and are likely to be negatively affected by the incessant usage of these devices.

Method : The study was conducted in the Department of Physiology, VMMC & Safdarjung Hospital on 100 students by administering a questionnaire regarding mobile phone usage, behavioral and sleep patterns.

Results : We observed that a major factor responsible for overuse were the cheap, unlimited calls & sms packages. Majority of the students preferred to use their phone rather than engaging in physical activity, socializing or studying. A significant number also reported checking their phones during classes and getting distracted. Daytime sleepiness was seen in 45% of the students which significantly correlated with incidence of nighttime disturbance due to incoming calls and messages. Many subjects also followed hazardous practices like talking with a low battery phone and while being charged. Spasm in the thumb and tingling around the ear, signifying overuse were also observed.

Conclusion : Our findings highlight the negative effects of excessive mobile use which are likely to have a significantly deleterious effect on sleep and social behavior during the crucial adolescent years.

Abs.NS.08

Effects of Long Term Exposure of Organic Solvents on Cognitive and Psychological Status of Occupationally Exposed Workers

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Objective : To assess the effect of prolonged occupational exposure to organic solvent mixtures on cognitive parameters and psychological status of workers employed in automotive spray paint industry.

Method : Study was carried on 150 subjects exposed to solvents and 150 controls without exposure to solvents, working/living in same area, matched for age and working conditions. They were subjected to HMMSE for cognitive performance and neuropsychiatric questionnaire for mental health in relation to duration of exposure. Subjects completed a standardised neuropsychological evaluation and psychiatric interview, structured interviews for histories of occupational exposure and personal habits under supervision of a psychiatrist.

Results : Controlling for age, education, vocabulary score and alcohol use, the painters had lower mean scores on test measures of motor, memory and reasoning ability. The differentiation of workers relating to duration of exposure (<10 years, 10-19 years, 20-29 years, >30 years) showed that cognitive and psychological parameters were significantly altered in workers with >10 years of exposure to toxic agents with most remarkable change after 30 years. The percentage of cases showing delusional ideas, hallucinations, depression, euphoria, apathy, disinhibition, motor disturbance, nighttime behaviours increased with duration of exposure. The neuropsychiatric symptoms of anxiety, agitation and irritability were significantly associated with duration of exposure.

Conclusion : The results of the study suggest neurotoxic effects of organic solvents used in paint and lacquer industry. Therefore, workers with unavoidable exposures should receive preemployment neuropsychological tests and periodical retesting for recognition of CNS effects at the earliest.

Abs.NS.09

Prevalence of Depression Among 1st Year Medical Students and it's Reflection on their Academic Performance

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Objective : Depression is a major public health problem due to their high prevalence rate, difficulty in treatment & its tendency to become chronic depression. Depression exerts a high impact on the life of patients & their families, significantly affecting their social & occupational lives as well as causing other functional impairment. Medical students face significantly higher pressure during early years of medical education and are at greater risk for developing depression.

Depression is known to affect individual's work performance and absenteeism. We assume that while considering depression among medical students, work performance can be correlated with their academic performance and attendance (absenteeism).

Method : Subjects were 1st year MBBS students from RMCH, Bareilly. 100 students participated in this study. Depression was assessed by using the "Hamilton Depression Rating Scale-17" with the cut-off value being taken as more than 7. The academic performance of these students was gauged by taking the percentage of class attendance & their mean performance score in the internal exams and Viva in all fist year subjects.

Results : The prevalence of depression among 1st year medical students was 31%, out of which 54% were male and 46% females – statistically insignificant (P>0.05). Relationship between HDRS score and attendance was highly significant (P<0.0001). Also Relationship between HDRS score and test scores was highly significant (P<0.0001).

Conclusion : Thus depression significantly affects the academic performance of the medical students. So, all the medical students should be screened for depression to give timely interventions. Also student's performance and attendance can be roughly used as index of depressive state.

Abs.NS.10

Cognitive Functions in Male BPO Employees

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Objective : To compare the cognitive functions of male BPO employees and general population.

Method : 50 males working in a BPO with regular shift changes and 50 males who do not work under shift changes from general population (GP), within the age group of 25 to 35 years, were selected. A battery of cognitive function tests assessing the subject's mental speed (Digit symbol Substitution test), sustained attention (Digit vigilance test), working memory (Stroop test) and Auditory verbal learning test was performed. The tests were administered in a fixed order, one right after the other, during a single session in a quiet room.

Results : Statistical test used-t test/Mann-Whitney test*. The mean for Digital symbol substitution test was general population (180.22±19.77) and BPO employees (197.18±39.7) P<0.001, Digit vigilance test GP (462.68±62.77) and BPO (459.36±73.4), Stroop test* GP (136.26±17.78) and BPO (170.34±43.8) P<0.001, Auditory verbal learning test- learning score* GP (37.40±4.61) and BPO (31.56±4.86) P<0.001, memory score GP (34.64±3.43) and BPO (30.8±3.28) P<0.001 and long term percentage retention GP (72±12) and BPO (71±19.6).

Conclusion : The males of general population were found to have better mental speed ,learning score, memory score (working memory) and also performed well in response inhibition task (Stroop test) when compared to male BPO employees. With respect to sustained attention the difference between the two groups was not statistically significant.

Abs.NS.11

Moderate Depression has Least Effect on the Autonomic Balance of the Body

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Objective : With the rapid development the society the persons are having feelings of sadness, loss, anger, or frustrations which interfere with everyday life for an extended period of time resulting in the appearance of various psychological problems, out of which depression is most common having a prevalance

of 15.1% in India. Severe depression causes various physiological abnormalities leading to various co-morbid conditions. But there is very little literature available about moderate depression; hence the present study is designed to study the effect of moderate depression on the autonomic system by galvanic skin response and cold pressor test.

Method : "We studied 50 male patients (to avoid gender difference) of moderate depression and 50 normal subjects of same age group at rest in supine position (to avoid posture effect). Galvanic skin response and cold pressor test were recorded and compared between these two groups."

Results : "Comparison of these two groups showed that the mean basal blood pressure though high in depressed patients but cold exposure does not increase the pressure significantly. The same result also found in GSR which is not significantly different in moderate depression patients than that from the normal subjects."

Conclusion : Though the major depression is associated with various co-morbid conditions but moderate depression hardly affects the autonomic system. Hence it is better to diagnose and treat the depression at moderate state.

Abs.NS.12

Adjustment Pattern and State Anxiety as Markers of Cortisol Response and Cognitive Performance During Academic Stress in Medical Students

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Objective : The perception of stress among medical students due to academics is variable. This perception of stress may depend to some extent on the individual's adjustment pattern as well as the nature of the situation.

This study was conducted to determine the influence of adjustment patterns and state anxiety on the stress perception (by serum cortisol assay) & cognitive performance during a mental task related to academics.

Method : 58 I M.B.B.S students of Bangalore Medical College, were recruited for this study. Venous blood samples were collected from these students on the day of their regular academic exam (written) between 8–9 a.m. Two questionnaires a) The Bell's Adjustment Inventory & b) State Trait Anxiety Inventory, State Form, were administered to these students before collecting the blood samples. A third questionnaire, 'Performance rating questionnaire' was administered after completing the exam. Serum cortisol assay from the blood samples thus collected was done by ELISA technique, following the standard protocol.

Results : Cortisol levels were significantly higher (P=0.000) in the poor adjustment group & high anxiety group (P=0.009). Regression analysis indicated that, adjustment had more significant influence (P=0.105) compared to anxiety (P=0.204) in changing the cortisol levels. Performance in the academic exam showed a better match between result expected and obtained among good adjustment compared to poor adjustment group of students.

Conclusion : Adjustment abilities & not State anxiety can be considered as marker of Cortisol response to academic stress (psychological stress) in medical students. Cortisol levels before facing a mental task determines the performance outcome of the task.

Abs.NS.13

A Study to Evaluate the Effect of Habitual Sleep Duration on Short Term Memory Amongst Medical Students

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Objective : Objective is to evaluate the effect of habitual sleep duration on short term memory amongst medical students.

Method : After acquiring approval from institutional ethics committee, subjects voluntarily signed the consent form, then each of them was given a questionnaire citing the information on age, sex, sleep duration and family and past history of dementic disorders. subjects were categorised into four groups (4-6 hrs, 6-8 hrs, 8-10 hrs, more than 10 hrs) then each subject was tested under 5 experimental tests-1) Auditory free recall test 2) Pictorial free recall test 3) Simple reaction time 4) Rey-osterrieth complex figure test 5) Object test.

Results :

1. In auditory free recall test and Rey - osterrieth complex figure test no significant difference was observed between males and females whereas significant difference was observed in reaction time – i.e. in females reaction is higher as compared to males.
2. As compared to Pictorial free recall test, Auditory free recall test score decreases with increased sleep duration.
3. A compared to visual reaction time, auditory reaction time score increases with increased sleep duration

Conclusion : We conclude that as compared to Pictorial free recall score, Auditory free recall scores decreases with increased sleep duration, this result is probably due to overcompensation by the prefrontal regions, leading to compensatory activity in the parietal lobes (Drummond & Brown 2001).

Abs.NS.14

Neural Correlates of Priming in Face Word Stroop Task Using Functional Imaging

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Objective : Priming is the process in which the processing of one stimulus is facilitated or delayed by previously presented stimulus. Episodic retrieval and distractor inhibition are the two competing theories explaining priming effect. We studied neural substrates during priming.

Method : Event related fMRI was done on 20 normal healthy right handed male subjects while they are performing on Face-word stroop task with correct and incorrect precues. Readily identified Actors and Politicians faces were used as target stimuli. The distractors were words ACTOR and POLITICIAN written over the faces. The precues were also ACTORS and POLITICIAN presented for 500 ms before the onset of stimulus.

Results : Behavioural results showed significant stroop effect. The precues, which correctly predicted the target stimuli resulted in a significant decrease ($P<0.05$) in reaction time (positive priming effect). During incorrect cues there was no change in the reaction time as compared to no cue trials (Face target with no cue; Mean RT = 762.1±86.3 ms, Correct cues mean RT = 680.5±80 ms, Incorrect cues RT = 754.2±83.3 ms). Correct cues had positive priming effect and there was a significant increase in the activation of bilateral Anterior Cingulate Cortex and left superior parietal gyrus. The incorrect cues were associated with increase in the activation of bilateral Anterior Cingulate Cortex and left medial frontal and middle frontal areas.

Conclusion : Our results suggest distractor inhibition rather than episodic retrieval a possible mechanism behind priming.

Abs.NS.15

Changes in Sleep/Wake Patterns With Age in Teenagers and its Effect on their Mood and Academic Performance

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Introduction : Delayed sleep with delayed awakening is very common in teenage. Early morning school timing forces them to get up early leading to sleep curtailment.

Objective : To evaluate the changes in sleep pattern with age in teenagers and its affect on their mood and performance.

Method : In present cross sectional study, 835 students of age 11 to 15 years were evaluated for their mood along with sleep pattern, sleep duration, napping and quality of sleep separately on weekdays & weekends. Daytime sleepiness was scored using the Epworth Sleepiness Scale & performance, from their percentages in respective subjects during the academic session.

Results : On agewise comparison it was found that higher the age, the later was the bedtime leading to reduced sleep duration and increased daytime sleepiness on school days. Sleep schedule varied significantly on weekdays and weekend amongst all age groups. Bedtime was delayed by about 30min; wake-up time by more than 2hrs and total sleep duration by about 1hr30min across all age groups ($P<0.001$) on weekends. Elder students with reduced sleep duration had poor performance in English ($P=0.001$) and Mathematics ($P=0.011$). With increasing age, increased frequency of mood changes was observed (48.5% depressed, 39.5% anxious and 19.5% being hopeless in the age group of 11yrs which increased to 67.7%, 56.6% & 40.4% respectively, in the age of 15yrs).

Conclusion : Adolescents get inadequate sleep (<8 hrs) on week days due to shifted sleep pattern along with early morning school schedules. Sleep deprivation worsens up with advancing age affecting their mood and performance. Present study is a small step for creating awareness about the importance of regular sleep habits.

Abs.NS.16

Relationship Between General Intelligence, Emotional Intelligence, Stress Levels and Stress Reactivity

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Objective : To study the role of General intelligence (IQ) and Emotional intelligence (EQ) on acute stress reactivity.

Method : The study was conducted on 34 healthy male student volunteers in stress physiology lab of the institute. Acute stress was induced in each subject by playing a pre-decided stressful computer game. Acute stress reactivity was assessed by measuring galvanic skin response (GSR), heart rate (HR), and salivary cortisol levels. General intelligence (IQ) and Emotional intelligence (EQ), acute stress score and chronic stress score were measured by standard scale. On the basis of median value of IQ and EQ score as cutoff, subjects were categorized into the four groups. Group differences and correlations among various parameters were done to find any association.

Results : Computer game served as model for acute psychological lab stressor and was associated with a significant increase in physiological (GSR and Heart rate) markers of stress. High level of Emotional intelligence was associated inversely with acute and chronic stress level. Mild correlation was found between acute and chronic stress level. Among different types of IQ-EQ groups, salivary cortisol especially post stressor salivary cortisol level and chronic stress level was differentiating factor. Level of general intelligence showed no relation to psychological stress level and acute stress reactivity. Acute stress reactivity was similar in different types of IQ-EQ group.

Conclusion : Emotional intelligence as a faculty of brain is better suited to handle day to day acute stress and chronic perceived stress. On the contrary general intelligence has shown no relation with stress level. Salivary cortisol, biochemical marker of stress can be used to differentiate among different types of IQ-EQ group.

Abs.NS.17

Stress in Doctors Working in Government Sector in Tamil Nadu

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Objective : The aim of this study is to identify the effect of demographic factors on job stress and to determine the sources of stress among doctors working in government sector.

Method : A cross - sectional 30 items questionnaire based study was carried out among doctors (N=75) working in Primary, Secondary & Tertiary care hospitals in Government sector in Tamil Nadu.

Results : Statistical analysis was done using chi-square test, ANOVA and correlation of coefficients. It is found that 68% (N=51) of doctors are less prone & 32% (N=24) more prone to stress. There is no significant association (P<0.05) between age, sex, years of service, working place with stress levels. Mean difference in Superior Colleague relation factors with years of experience (P=0.046) and Bureaucratic constraints factors (P=0.047) and Doctor Patient relationship (P=0.010) with working place are significant. Mean stress score is high among Doctors working in Secondary care Hospitals followed by Primary care and Tertiary Care Hospitals. There is strong correlation between all stressor factors with stress. Performance pressure being highest stressor factor followed by work family conflicts, job/career related factors, bureaucratic constraints, superior/colleague relations and doctor patient relations in decreasing order.

Conclusion : About 1/3rd doctors working in Government sector are more prone to stress with more doctors being Secondary and Primary care providers who are in first line of Health Care in urban and rural areas. So it is of utmost importance to address their areas of concerns to make our society disease free and healthy one.

Abs.NS.18

Correlation of Intelligence Quotient and P300

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Objective : Twenty normal subjects were examined to establish a correlation between auditory cognitive evoked potential (P300) and Intelligence quotient (IQ).

Method : All the subjects were between 18 and 21 years of age. Institutional Ethical clearance was obtained. P300 was recorded with the help of EBNeuro machine. IQ was estimated using two standard tests, Wechsler Adult Performance Scale (WAPIS) and Verbal Adult Intelligence scale (VAIS).

Results : The mean IQ calculated by WAPIS – IQ (Performance) was 108.80±18.12 and mean IQ by VAIS–IQ (Verbal) was 108.40±22.99. The mean P300 amplitude was Cz – 11.36±7.54 µv, Pz – 12.17±6.61 µv and Fz- 9.08±5.7 ìv. Positive correlation of IQ (P) with P300 amplitude at Pz was statistically significant (P<0.05). IQ (P) did not show statistically significant correlation with P300 amplitude at Fz or Cz. IQ (V) did not demonstrate any statistically significant correlation with P300 amplitude at any electrode site. IQ (P) demonstrated a negative correlation with latency of P300 wave at Pz (P<0.05). Negative correlation of IQ (V) and P300 latency at Pz was also statistically significant (P<0.001).

Conclusion : It may be concluded that IQ shows a positive correlation with P300 amplitude and a negative correlation with P300 latency.

Abs.NS.19

Inter-hemispheric Transfer Time and Cortical Processing Time in Left Handed, Converted Left Handed and Right Handed Individuals

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Objectives : The ability to react to sensory stimuli and make proper judgments is very important for drivers of public transport vehicles and doctors. We have tried to evaluate the effect of handedness on few of the important higher nervous functions. The study was carried out to determine reaction times, inter-hemispheric transfer time (HTT) and cortical processing time (CPT) in left handed (LH), converted left handed (CLH) and right handed (RH) subjects.

Materials and methods : The study was carried out on 10 age and sex matched LH, RH and CLH (7) student of a medical school. Simple visual (SVRT), auditory (SART) and somatosensory reaction time (SSRT); and choice visual (CVRT) and choice somatosensory reaction times (CSRT) were recorded in two hands separately, using BIOPAC STUDENT LAB. CPT is calculated by deducting the simple reaction time from the choice reaction time. Students' *t* test for paired observations was used for analysis.

Results : The HTT in LH, CLH and RH subjects were around 5 milliseconds which show that there were no differences among the three groups.

The average CPTs for somatosensory stimulus were 66, 48 and 56 ms in LH, CLH and RH subjects respectively and for visual stimulus were 127, 127 and 166 ms. The SVRT, SART, SSRT in dominant hand of LH and RH subjects were 250, 242, 252, 243, 249 and 251 ms respectively.

Conclusions : The study demonstrated that the time taken for inter-hemispheric transfer of information is not dependent on handedness and dominant hand has a better reaction time.

Abs.NS.20

Prepulse Inhibition During Automatic and Selective Attention

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Objective : Prepulse Inhibition (PPI) is a pre-attentive and automatic inhibitory mechanism, elicited by the prepulse, acting to reduce the impact of the subsequent startling stimulus, thereby preserving the processing of the initial stimulus. We studied the effect of automatic and selective attention on PPI with and without a prepulse.

Method : The study was conducted on 10 male healthy volunteers (Age : 25.1±2.33 yrs). Solid gel Ag-AgCl electrodes were placed under the eye. EMG was recorded bipolarly from the orbicularis oculi muscle, using 10 Hz-5 kHz band pass and notch filter during different attentional modulation conditions.

Results : There was a significant reduction in PPI amplitudes from baseline value (78.8±47.69 μVs) in case of passive (18.7±17.69 μVs; P<0.001) and active (19±15.96 μVs; P<0.001) attention paradigms. In interblock comparisons, Passive attention 240 ms vs Active attention 120 ms showed significant difference. Area under the curve during PPI showed significant difference during 60 ms Active attention [62.08 (20.77–71.31); P<0.01], 240 ms Active attention [74.95 (18.06–137.6); P<0.001], 60 ms Missing and 120 ms Missing. 120 ms Deviant vs 240 ms Active showed significant reduction during interblock comparisons. Latency of onset decreased significantly during Passive attention vs baseline values [261(249.8–265.1); P<0.01]; 240 ms Passive vs 120 ms Active; 240 ms Passive and 240 ms Active.

Conclusion : This study suggests that attentional modulation of PPI is present as evident from the reduced amplitudes, areas and latencies under different conditions of automatic and selective attention.

Abs.NS.21

Does Night Duty Affect the Simple Reaction Time in Resident Doctors ?

Namrata S. Loya

Objectives : (1) To compare reaction time of clinical residents before night duty with nonclinical residents. (2) To compare reaction time among clinical residents before and after their night duty.

Methodology : Auditory reaction time (ART) and Visual reaction time (VRT) were studied in 50 clinical resident doctors (cases) and 50 nonclinical resident doctors (controls) in age group of 24-32 years with 'Response Analyser' reaction time apparatus. The readings were taken in controls after their sound sleep. In cases, the readings were taken before and after their night duty. Subjects were presented to two auditory stimuli (i.e. low frequency and high frequency sound) and two visual stimuli (i.e. green and red lights). The difference of ART and VRT in cases before their night duty was compared with controls. Similarly results of ART and VRT were compared in cases before and after their night duty. Statistical analysis was done by using student's t test.

Results : ART and VRT in cases before night duty were almost similar to those of the controls (statistically non-significant, P>0.05). But ART and VRT were statistically significant in cases when compared before and after their night duty.

Discussion : Cases are exposed to night duty followed by day duty. So there is reduced sleep time. This might be the factor affecting their reaction time.

Conclusion : Sleep deprivation results in significant neurobehavioral impairments in healthy young adults.

Abs.NS.22

Effect of Dietary Choline Supplementation on Spatial Learning in a Rat Model of Ischemic Brain Injury

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Objective : To assess the effect of dietary choline on spatial learning in rats with ischemic brain injury.

Method : Study was carried out on three groups of 7-10 months old male Wistar rats; normal control (n=5), ischemic brain injury (n=6) & ischemic brain injury followed by choline supplementation (n=6). Partial global brain ischemia and injury was induced surgically by ligating common carotid arteries on both the sides. Choline was orally supplemented (195 mg/rat/day) for 15 days following surgery. Assessments for spatial learning were tested for all groups using T-maze and passive avoidance.

Results : Results from T – maze study, showed a significant increase in total number of alternations and percentage correct response and a decrease in percentage bias in rats supplemented with choline post brain-injury compared to age matched brain-injury induced rats. In passive avoidance test, rats supplemented with choline post brain-injury significantly retained the foot shock memory after 48 hours and also after 30 days compared to age matched brain-injury induced rats.

Conclusion : Dietary choline supplementation enhances spatial learning and retention of memory in rats subjected to ischemic brain injury, indicating that it minimizes the impact of ischemic stroke related neural injury in the hippocampus.

Abs.NS.23

Stress Induces Behavioral & Cognitive Impairment – Can Music Therapy Be A Treatment – Experimental Evidence

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Objective : To compare the effect of classical instrumental Indian music and western music on memory of stress induced young rats.

Method : The rats of age 30 days are stressed by Tube stress for duration of 1 hour per day for 10 days followed by instrumental music therapy. 4 Comparative groups with 6 rats in each group are studied.

1. Normal control.
2. Stress control.
3. Stressed and then treated with instrumental Indian music therapy.
4. Stressed and then treated with instrumental Western music therapy.

Then, rats were tested for behavioral & cognitive changes by Elevated plus maze, Passive avoidance & Morris water maze test, along with age matched control rats.

Results : Stressed rats showed significantly impaired behavioural and cognitive functions, compared to their age matched controls. However, significant ($P<0.005$) improvement is observed after the treatment with Indian instrumental classical music among stress induced rats.

Conclusion : In reliving the negative effects of stress induced behavioral & cognitive impairments, the Indian instrumental classical

music is one of the very cost effective and easily reachable remedy.

Abs.NS.24

The Effect of Noradrenergic Agonist on Prefrontal Cortical Regulation of Spatial Working Memory

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Objective : Exposure to hypobaric hypoxia leads to cognitive dysfunctions. Prefrontal cortex (PFC), which plays a key role in the executive attention and working memory, is particularly vulnerable to hypoxic damage. Noradrenergic neurotransmission alteration has been reported after exposure to hypobaric hypoxia. However, our current understanding of the mechanistic details pertaining to the role of the noradrenergic system in PFC dependent functions at high altitude remains largely unclear. Therefore, the present study was designed to understand the role of noradrenergic neurotransmission in cognitive deficits following exposure to hypobaric hypoxia and to test the therapeutic efficacy of alpha-2 noradrenergic agonist as a countermeasure.

Methods : Eighteen male Sprague-Dawley rats were trained for two weeks on Delayed Alternation Task (DAT) using T-Maze after which they were submitted to chronic hypobaric hypoxia exposure at a simulated altitude of 25,000 ft (atmospheric pressure equivalents to 282 mmHg, PO2 59 mmHg) in animal decompression chamber for 7 days. Rats received daily intramuscular treatment of guanfacine hydrochloride at a dosage of 1 mg/kg body weight during exposure. Subsequent to exposure, performance of the animals was tested in T Maze. Following behavioral study animals were sacrificed and neurotramitters were estimated in the different brain regions.

Results : Results revealed spatial working memory impaired significantly during the hypobaric hypoxia and drug treatment during the hypoxic exposure ameliorated these memory deficits. There was alteration in levels of norepinephrin in hypoxia exposed rats.

Conclusion : These results suggested that alpha 2 noradrenergic administration ameliorates spatial working memory deficits associated with altered noradrenergic neurotransmission induced by hypobaric hypoxia.

Abs.NS.25

Diurnal Changes in Skeletal Muscle Temperature and Brain Temperature During Different Sleep-wakefulness Stages in Normal and Rem Sleep Deprived Rats

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Objective : Sleep is divided into two types: rapid eye movement (REM) sleep and non-REM sleep. Sleep is manifested with vivid electrophysical, chemical and physiological changes. There is marked muscle atonia during REM sleep. However, the physiological significance of muscle atonia is not understood. We studied muscle and brain

temperature during sleep-wakefulness cycle for 24 h in normal and sleep deprived rats.

Method : Under sodium pentobarbitone anesthesia (40 mg/kg BW), adult male Wistar rats were chronically implanted with electroencephalogram, electrooculogram and electromyogram electrodes for recording S-W parameters. Thermocouples in the neck muscle (dorsal nuchal muscles) and deep brain (near preoptic area) were implanted to assess skeletal muscle temperature and brain temperature respectively.

Results : Changes in muscle temperature were higher in dark phase as compared to light phase. There was a decrease in muscle temperature during sleep as compared to wakefulness and quite wakefulness stages. The decrease in muscle temperature was more in REM sleep as compared to non-REM sleep. During recovery from 24 h REM sleep deprivation muscle temperature decreased further during REM sleep. Conversely, brain temperature increased during REM sleep and it rises further during recovery from REM sleep deprivation.

Conclusion : These results suggest circadian variation in muscle temperature for the first time. REM sleep induced cooling of muscle may be serving some physiological function.

Abs.NS.26

Orexin 2 Receptor Blockade Increases Sleep in Rats

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Several studies suggest involvement of the orexin system in sleep-wakefulness regulation. The action of orexin is mediated by orexin –1 receptor (OX1R) and orexin –2 receptor (OX2R) which is widely distributed in the brain. Modulation of the orexin receptor activation by the appropriate antagonists has been proven to be an effective treatment modality for insomnia. The TCS-OX2-29 is a newly discovered drug, having a potent selective OX2R antagonist activity. In the present study TCS-OX2-29 was injected intracerebroventricullarly (ICV, 40 nmoles) in rats to examine its effects on sleep-wakefulness. Under sodium pentobarbitone anesthesia (40 mg/kg BW), twelve male Wistar rats were chronically implanted with electroencephalogram, electrooculogram and electromyogram electrodes for recording sleep-wakefulness parameters and a unilateral guide cannula for microinjection of drug into the lateral ventricle. After control recording of sleep-wakefulness for 6 h (12:00-18:00) animals were divided into drug (n=6) and vehicle (n=6) injection group. The drug/saline was injected at 12:00 h and sleep-wakefulness was recorded for the 6h post injection. Significant increases in slow wave sleep (SWS) as well as rapid eye movements (REM) sleep was observed by ICV injection. The effects of drug on REM sleep started from 2 h of injection and were maximum during 2 h to 4 h post injection. The increase in REM sleep resulted primarily due to increase in their episode number. SWS was higher from 2h to 6 h post injection. Rats injected with saline vehicle did not change their sleep compared to their baseline recording. The results of ICV injection of TCS-OX2-29 produced long lasting increase in sleep.

Abs.NS.27

Effect of Dehydroepiandrosterone (DHEA) Treatment on Glial Glutamate Transporter Expression and Glial Fibrillary Acidic Protein in Experimental Model of Post-Traumatic Epilepsy in Rat Brain

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Objective : Neuroactive steroid (such as DHEA) exerts a significant influence on epileptogenic process. DHEA has an antiepileptic action and affects GABA/ glutamate receptors. The two high-affinity sodium-dependent glial transporters [glutamate transporter 1 (GLT-1) and glutamate aspartate transporter (GLAST)] mediate the bulk of glutamate transport. We studied the expression of GLT-1 and GLAST genes and in situ localization of GFAP in the iron-induced epileptogenic focus with a view to look into the mechanism by which DHEA may influence the epileptogenic process.

Method : DHEA (30 mg/kg/day i.p) was administered for 7, 14, 21 days to iron-induced epileptic rats. Development of epileptiform activity was monitered electroencephalographically. Expression of mRNA GLT1, GLAST genes, and localization of GFAP were studied in the cortical epileptogenic focus and also in the hippocampus by RT PCR and immunohistology.

Results : DHEA treatment prevented epileptiform electrophysiological activity, and augmented the mRNA expression of GLT-1, GLAST and GFAP in the cortical focus epileptogenic tissue and in the hippocampus to which cortical focal epileptic activity spreads.

Conclusion : Our study demonstrated that DHEA suppression of iron-induced experimental seizure activity, is mediated by augmentation of mRNA expression of GLT-1 and GLAST and reduction of GFAP.

Abs.NS.28

Bilateral Lesion of Basolateral Amygdala Increases Alcohol Intake in Male Wistar Albino Rats

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Objective : To elucidate the effect of bilateral lesions of basolateral amygdala (BLA) on alcohol intake in male wistar albino rats.

Method : Eighteen Male Wistar rats were divided into three groups :

Group I-Control, Group II-Sham control, Group III-Experimental control (n=6 each). They were provided adlibitum food and alcohol at the concentration of 10%. Alcohol intake in these rats measured daily for 7 days before the lesion and 21 days after the lesion; leaving 2 days for postsurgical recuperation. Alcohol intake is expressed as grams of alcohol per 100 gm of body weight.

Results : The data was analyzed by applying Non parametric Mann Whitney 'U' test.

Bilateral lesions of BLA showed significant increase in alcohol intake in the post-operative period of week 1,week 2 and week 3 when compared to pre-operative period ($P<0.01$). The consumption of alcohol in lesioned animals was significantly more when compared to control and sham lesioned groups.

Conclusion : The results suggest that amygdaloid nucleus may have active role in the consumption of addictive beverage like alcohol in the Wistar rats.

Abs.NS.29

Modulation of Visual System Development By Prenatal Auditory Stimulation in Chicks (*Gallus Domesticus*)

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Objective : To study the effect of prenatal auditory stimulation on behavioral and morphological development of the visual cortex.

Method : Fertilized eggs were incubated with exposure to either species-specific (SS) calls or no sound from day 10 of incubation (E 10). Critical period for visual system development was determined by giving the SS call either from E10-hatching (Sp.Sp) or from E10-E16 (SGA) or from E17-hatching (SGB). At posthatch days 1, 2 and 3, auditory and visual preference of the chicks to their mother was recorded. The effect auditory stimulation on synaptic plasticity of the visual system was studied by measuring synaptophysin levels in the visual cortex.

Results : In both the preference tests, a significant increase in number of responders ($P<0.05$), decreasing latency to enter the approach areas ($P<0.001$) and an increase in total time spent in chicken mother area ($P<0.001$) was observed in the stimulated groups compared to control. The expression of synaptophysin increased significantly ($P<0.001$) in the stimulated chicks as compared to the control in auditory cortex. However, in the visual cortex, control and SGA showed lesser synaptophysin ($P<0.001$) as compared to SGB and Sp.Sp. A significant difference in synaptophysin was observed in between left and right hemisphere ($P<0.05$) and also between male and females ($P<0.05$) in all the groups.

Conclusion : The results of the present study indicate facilitation of behavioral and morphological development of the visual system following prenatal auditory stimulation only when given during critical period in chicks.

Abs.NS.30

Role of Nucleus Accumbens in Consummatory Behaviour

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Objective : To study the Role of Nucleus accumbens (NAcc) in food, water, alcohol

intake with body weight changes.

Method : Male Wistar rats (Total 54), 3-4 months old, were divided into three groups, (Control, sham lesion and NAcc lesion groups) each group were divided into three sub groups (water, alcohol and water & alcohol groups; n=6 each). They were anaesthetised with ketamine and xylazine. The rats were subjected to bilateral electrolytic lesion of Nucleus accumbens by applying the stereotaxic technique and using lesion maker assembly. Lesions were produced by passing 2mA DC current for 20 seconds. The consumption of 10% ethanol, water and food by each animal were measured every day. Pre lesion recordings were done for 7 days and post lesion for 21 days. For the confirmation of site of lesion, histological study was done.

Results : Comparison of the data of various groups and the pre lesion and post lesion done by Mann Whitney "U" test, revealed the following – Significant changes were observed in water intake between control vs NAcc lesioned group ($P \leq 0.005$) and sham lesion Vs experimental group ($P \leq 0.007$), alcohol intake was also increased in lesioned groups (Vs Control, $P \leq 0.002$, Vs sham lesion $P \leq 0.002$). Pre Lesion- post lesion of the NAcc significantly increased alcohol preference ($P \leq 0.002$) and water intake ($P \leq 0.026$) but there were no significant changes in food intake.

Conclusion : Nucleus accumbens appears to have role in the water and alcohol intake, but no significant role in food intake. Present study suggested that NAcc alone may not have role in alcohol addiction but may have role in mesocorticolimbic reward circuit.

Abs.NS.31

The Antinociceptive Effect of an Anticonvulsant in Comparison With Conventional Nonopioid Analgesic in Rat Pain Models of Short (Acute) and Long Duration (Chronic) Stimuli

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Objective : The antinociceptive effect of an anticonvulsant in comparison with conventional nonopioid analgesic in rat pain models of short (acute) and long duration (chronic) stimuli.

Method : This study determined the analgesic effect of Gabapentin (A novel anticonvulsant) in rats in different types of acute & chronic (inflammatory) nociceptive tests like Tail flick (Short duration stimuli-phasic pain model) and Formalin test (long duration stimuli- tonic pain model) having characteristic 2 phases, 1^{st} phase i.e. early phase reflect acute while 2^{nd} phase i.e. late phase denoting chronic inflammatory pain and compared its potency with a conventional non opioid analgesic Diclofenac.

Results : Per oral administration of Gabapentin produced significant antinociceptive effect in late phase of formalin test but not or negligible suppress the pain in tail flick test and also in early phase of formalin test while control drug diclofenac produced significant reduction of pain in tail flick as well as in both phases of formalin test.

Conclusion : As tail flick and early phase of formalin test reflects acute pain while second phase of formalin test reflects chronic

inflammatory pain, the results showing that Gabapentin could be effective and significantly suppress the pain in various clinical condition associated with chronic inflammatory pain as Gabapentin has been found significantly effective only in second phase of formalin test in our study

Abs.NS.32

Enriched Environment Restores Stress-induced Behavioral Depression, Hippocampal Atrophy and Cognitive Deficits

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Objective : Role of enriched environment on chronic immobilization stress-induced behavioral depression, altered hippocampal volumes and learning and memory impairment.

Method : Adult male Wistar rats were subjected to immobilization stress (2 hr/day, 10 am – 12 noon) for 10 consecutive days. Stressed animals were then subjected to 14 days of enriched environment (EE) for 6 hours per day. We assessed behavioral depression in these animals using sucrose preference (SPT) and force swim tests (FST). Dentate gyrus (DG) and hippocampal volumes were assessed using unbiased stereology and spatial learning was assessed in partially baited radial arm maze (RAM) task.

Results : Exposure to enriched environment completely ameliorated anhedonia and behavioral despair in the sucrose preference and forced swim tests respectively. Stressed animals showed significantly reduced DG and hippocampal volumes which was partially restored by EE. The stressed animals showed a severe learning deficit in the partially baited radial arm maze task. Interestingly, when these animals were subjected to enrichment, there was a complete recovery of both learning as well as memory.

Conclusion : Our study demonstrates that exposure to enriched environment restores behavioral deficits and structural changes in chronically stressed rats. This study shows the importance of non-pharmacological approaches like positive environmental stimuli and rehabilitation in the treatment of psychiatric and stress-related cognitive dysfunctions.

Abs.NS.33

Caffeine Improves T-maze Performance After 24 Hr Sleep Deprivation

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Objective : We are studying the effect of caffeine as a countermeasure to reduce the cognitive decline during sleep deprivation. The present study was undertaken to evaluate the effect of acute caffeine treatment on neurobehaviour in normal and sleep deprived conditions with rat as the animal model.

Method : Spontaneous motor activity in open field, anxiety in elevated plus maze (EPM) and Delayed Alternation Task (DAT) learning for working memory in T-maze were measured in male sprague dawley rats (body weight 280–300 g) using ANY-maze software in four groups (control, control + caffeine treated, 24 hr sleep deprived and caffeine treated+sleep deprived, n=6 each). Caffeine was administered in a dose of 10 mg/kg body weight as i.p. injection.

Results : The result showed that caffeine treatment did not alter T-maze learning for DAT and anxiety measures in elevated plus maze in normal rats but it improved T-maze performance scores in sleep deprived rats compared to saline treated sleep deprived rats. Spontaneous motor activity in open field increased significantly in both caffeine treated groups (normal and sleep deprived). Anxiety parameters in EPM increased in sleep deprived group as well as caffeine treated sleep deprived group.

Conclusion : The results suggest that caffeine treatment in the mentioned dose does not alter anxiety level but improves working memory performance and spontaneous motor activity after 24 hr sleep deprivation.

Abs.NS.34

Effect of Glutamate Microinjection in the Medial Preoptic Area on Brain and Body Temperature in Rats

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Objective : The preoptic area is the key neural structure involved in thermoregulation. It has glutamatergic receptors. However the role of glutamate in thermoregulation is not known.

Method : In the present study the role of the l-glutamate microinjection in the medial preoptic area on brain and body temperature was studied on 10 freely-moving male rats. L-glutamate was microinjected via chronically implanted guide cannula at the medial preoptic area. The body temperature was recorded telemetrically by a preimplanted peritoneal transmitter. Brain temperature was recorded by an implanted K-type thermocouple near the hypothalamus.

Results : L-glutamate microinjection (40 ng/ 200 nl saline) at the medial preoptic area caused an increase in body temperature (1.4°C) as well as brain temperature (1.62°C). Vehicle (saline) injection into the medial preoptic area produced increase in body and brain temperature, which was significantly lower than the effect produced by l-glutamate.

Conclusion : So, from the results of the present study it is suggested that glutamate injection at the medial preoptic area increases brain and body temperature. The rise in temperature may be due to increased non-shivering thermogenesis which needs further exploration.

Abs.NS.35

Chronic Exposure to Magnetic Field Reduces Pain in Complete Spinal Cord Injured Rats

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Objective : To see the effect of chronic magnetic field (MF) exposure on spinal cord injury (SCI) induced pain.

Method : Adult male Wistar rats were divided into Sham, SCI and SCI+MF groups. Under deep anesthesia, laminectomy was performed in Sham group followed by complete transection of spinal cord (SC, T13) level for SCI group while MF exposure (50Hz, 17.96μT for 2 h/d) was started post-SCI day1 in SCI+MF group. Latencies of tail flick (TFL) to noxious and non-noxious stimuli, withdrawal latency of hind paw (HPL), threshold of tail flick (TTF), simple vocalization (SV), vocalization after discharge (VAD), acetone test (AT), BBB score, urinary bladder control (UBC), H-reflex, nociceptive flexion reflex (NFR) and estimation of 5-HT, glutamate, GABA were done.

Results : TFLs, TTF and HPL decreased significantly (wk2-8 and wk4-8, respectively) in SCI group which was attenuated by MF exposure at post-SCI wk6 onwards while SV and VAD did not elicit in any group. BBB score was improved significantly by MF exposure and their UBC was achieved faster than SCI group. Threshold and amplitude of H-reflex and M-response were improved significantly by MF exposure versus SCI group. Similarly threshold, latency, amplitude and duration of NFR were also recovered by MF exposure. The concentration of 5-HT, glutamate and GABA was recovered significantly by MF exposure at different SC segments. The lesion volume of SC was reduced significantly by MF exposure versus SCI group.

Conclusion : Our results suggested the beneficial effect of MF exposure in complete SCI as shown by behavioral, electrophysiological, histology and neurotransmitters data.

Abs.NS.36

Recovery in Spinal Cord Transected Rats Following Implantation of Superparamagnetic Nanoparticles and Magnetic Field Exposure

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Objective : To study the effect of implantation of superparamagnetic nanoparticles and magnetic field (MF) exposure on the feeding, locomotor behaviour and axonal regeneration in complete spinal cord (SC) transected rats.

Method : Adult male rats with complete transection of SC at T13 were either exposed directly to MF (24 h after injury, 50 Hz, 17.96 μT, 2h/d for 5wks) or implanted with NP (25μg/ml) before exposing to MF. Post-injury feeding behavior, body weight and locomotor function (rotarod test) were recorded. At the end of the study saggital sections of SC were either stained with cresyl-violet (CV) to measure total damage area or for GAP-43 immunoreactivity.

Results : Post-injury food and water intake and change in body weight decreased in all the groups and remained at a lower level till the observation period. However, a statistically

significant increase in these parameters were observed from the first week itself in NP+MF group when compared to only MF ($P<0.01$) or SCI ($P<0.001$) group. The time of stay on rotarod was significantly higher in NP+MF group ($P<0.001$) from 1st week. The spontaneity in urinary bladder function was also attained earlier in NP+MF (11 days) as well as in MF (14 days) groups. A statistically significant ($P<0.0001$) attenuation of total area of tissue damage and enhanced expression of GAP-43 was observed in NP+MF group.

Conclusion : The observations suggest that functional recovery in locomotor and feeding behaviour may be due to decrease in damaged tissue and facilitation in axonal regeneration.

Abs.NS.37

Comparison of Axial Length and Radius of Curvature of Cornea between Myopes and Emmetropes in Indian Population

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Objective : Increase in Axial Length and decrease in radius of Curvature of Cornea are considered as the two most significant factors associated with Myopia, although there are conflicting opinions about the role of cornea in the appearance in Myopia. Our study was designed to determine the extent to which these characteristics contribute to degree of myopia.

Method : A total of 372 people {271 cases and 101 controls} with mean age of 29±3.12 years participated in the study. Objective refraction {without cycloplegia} and the corneal radius (CR) of curvature were determined using an Autokeratorefractometer. The axial length (AL) of the eye was measured by A-Scan biometry. The study population was then characterized according to these three variables to establish relationships among them.

Results : Student 't' test, Chi square test, Odd's ratio and Scatter Plot showed a strong correlation between Radius of Curvature of Cornea and the refractive state of the eye {myopia} but only medium level correlation between Axial length and refractive state of the eye {myopia}.

Conclusion : Although Axial length of the eye was thought to be the main morphological variable related to myopia our study showed that Changes in Radius of Curvature of Cornea is more strongly correlated with the refractive state of the eye than Axial length of the eye.

Abs.NS.38

A Comparative Study of Intraocular Pressure in Ametropic and Emmetropic Subjects in and Around Raichur City

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Objective : The present study is conducted to analyze the correlation between intraocular pressure and refractive status.

Method : A comparative study of intraocular pressure between ametropic and emmetropic eyes was conducted. By simple random method hundred refractive error (ametropic eyes) cases attending Ophthalmology OPD, age 40years and above were selected. They were-categorized into four groups.

1. High myopia (>-6D)
2. Moderate myopia (-3D to -6D)
3. Low myopia (<-3D)
4. Hypermetropia

Hundred controls (emmetropic eyes) were taken of same age group. Visual acuity measured by Snellen's chart, refractive error diagnosed by retinoscopy.

Intraocular pressure measured by two methods. By indentation method (using Schiotz's tonometer) and by applanation tonometer (using Perkin's tonorneter).

Results : Results were analyzed using SPSS soft wear (version 11). $P<0.05$ are considered as significant, $P<0.001$ considered as highly significant.

The results showed $P<0.001$ in high myopic eyes and $P<0.05$ in moderate myopic eyes.

Conclusion : Hence by this study we concluded that there is association between intraocular pressure and refractive status. As the degree of myopia increases, intraocular pressure increases.

The study supports the hypothesis that high myopia is one of the important risk factor for ocular hypertension.

Abs.NS.39

Biometric Parameters a Clue to Refractive and Accommodative Status of the Eye

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Objective : To study the various biometric parameters of the eye in relation with refractive errors and status accommodation of the eye.

Method : Total 90 patients between the age group of 12 to 35 were randomly included in the study. Spherical equivalent refraction (SER) was obtained by adding half of the cylindrical component to the spherical component. Categorization was done based on : Emmetropia $\geq \pm 0.5$ D, Myopia ≥ -0.5D and Hypermetropia as $\geq +0.5$ D. Nidek echo scan US 800 A-scan Biometer was used to measure the axial length (AL) and anterior chamber depth (ACD) and lens thickness(LT) both at rest and in accommodated state. Corneal radius of curvature (CRC) was measured using the H 135A Bausch and Lomb keratometer. Ratio of axial length and corneal curvature (AL/CRC) was also calculated.

Results : Amongst the total 90 subjects there were 34 myopes, 21 hypermetropes and 35 emmetropes. The mean AL of myopic subjects was 24.16 mm that of hyperopes and emmetropes was 21.65 mm and 22.11 mm respectively. Myopic eyes had a significantly longer AL, steeper corneas and higher AL/CRC. In response to accommodation AL, LT and ACD changes were maximum in myopic

subjects and minimum in hypermetropic subjects.

Conclusion : There is a significant association between AL, CRC and SER. A statistically significant correlation exists between AL/CRC ratio and SER. AL/CRC is a better parameter than AL alone in categorizing refractive errors. The inverse relationship between AL and CRC supports natural mechanism of emmetropization.

Abs.NS.40

Comparison of Resting Intraocular Pressure in Normal & Myopic Subjects

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Objective : Intraocular pressure within normal range maintains the shape of the eyeball. An increase in intraocular pressure results in visual impairment. Intraocular pressure (IOP) is reported to be influenced by various factors like age, gender, refractive error, hypertension & BMI. In the present study IOP between right and left eye in normal and myopic subjects, IOP in the corresponding eyes between two groups are compared.

Method : Twenty four normal & 25 myopic males in the age group of 20 to 40 years attending OPD of medical college hospitals were recruited for the study. Refractive error was determined by streak retinoscopy & trial lens set. IOP was measured by Goldmann's applanation tonometry in resting state. Applanation tonometry was done under topical anesthesia using a slit lamp with a cobalt blue filter. IOP was measured in right & left eyes independently at rest and expressed as mean±SD.

Results : IOP in right & left eye in normal subjects were 14.17±1.63 mmHg & 14.46±1.86 mmHg (P=0.001) the corresponding values in myopic subjects were 16.16±2.51 mmHg & 15.44±2.20 mmHg (P=0.001). IOP in right eye between normal & myopic subjects were 14.17±1.63 mmHg & 16.16±2.51 mmHg (P=0.001). The corresponding values for the left eye were 14.46±1.86 mmHg & 15.44±2.20 mmHg.

Conclusion :

1. Normal subjects had higher IOP in left eye & myopic subjects had higher IOP in right eye.
2. Myopic subjects had higher IOP in corresponding eyes when compared to normal subjects.
3. There was a difference in IOP between right & left eye in normal & myopic subjects.

Abs.NS.41

Correlation of Heart Rate Changes to Intra Ocular Pressure Changes After Isometric Leg Press Exercise Test in Young Adults

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Objective : To correlate the heart rate changes to intraocular pressure before and after leg press exercises.

Method : Healthy young male adults in the age group of 18-22 years were selected among MBBS phase I students of JSS Medical college. Sample size was 40. Heart rate and IOP were recorded at rest and after isometric leg press test.

Results : Leg press predictably raised Heart rate (from 74±8.9 to 89.5±7.4; $P<0.05$) & reduced IOP (from 15.1±1.91 to 11.6±1.95; $P<0.05$).

Conclusion : Isometric leg press exercise induces raise in heart rate and simultaneously lowers IOP which were significant. Hence may prove useful in glaucomatous patients

Abs.NS.42

Bereitshafts Potential in Parkinson's Disease During Deep Brain Stimulation of Subthalamic Nucleus

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Objective : To study the effect of deep brain stimulation of the subthalamic nucleus on Bereitschafts potential in patients of Parkinson's disease (PD) in "on" and "off" conditions.

Method : Four PD patients undergone deep brain stimulation surgery on bilateral subthalamic nucleus were studied. UPDRS score of each patient was also determined. Bereitshafts Potential (BP) were recorded to self-paced 100 right wrist extensions at Fz, Cz, Pz, C3 and C4 electrode sites using Neuropack 8 (Nihon Kohden) with EMG of extensor carpi radialis as trigger. BP were recorded in DBS "on" position (Condition A), with DBS "off" position (Condition B) and with DBS "on" condition (Condition C). Recording interval between each condition was kept 20 minutes. Offline analysis of BP was done to calculate Total area, Late area (–500 to 0 ms) and Early area (–1500 to –500 ms).

Results : Our study showed decreasing trend in late area of BP in condition B and condition C as compared to condition A at all electrode sites. There is significant decrease in late area at Cz electrode site in condition B as compared to condition A ($P<0.008$) and also significant decrease in late area at Cz electrode site in condition C as compared to condition A ($P<0.01$).

Conclusion : It has been shown in previous studies that amplitude of early BP component increases after dopamine administration in PD patients without any changes in late BP. Our study has shown that late area decreases when DBS is in "off" position and does not come back to previous values even after switching it "on" after 20 minutes. These are preliminary trends and we are continuing study in more subjects.

Abs.NS.43

Pure Tone Audiometry and Brainstem Evoked Response Audiometry in Hypertensive and Normotensive Males

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Objective : Declining hearing sensitivity is appreciated as a normal age related change. However, studies reveal that health variables other than age play significant role in hearing function over time. Hypertension is one such variable. The objective of this study was to assess whether the hypertension has an accelerating effect on age related reduction in hearing function in males in the age group of 40-60 years.

Method : Systolic and Diastolic blood pressure, Pure tone thresholds in frequency range 250-8000 Hz and Click evoked Brain stem Evoked Response Audiometry were measured in 30 known hypertensive (HT) (15-uncontrolled and 15-controlled subgroups) male subjects in the age group of 40-60 yr and 30 age and sex-matched normotensive (NT) controls.

Results : There was no significant difference in auditory thresholds at various frequencies between HT and NT group and also between uncontrolled HT and controlled HT subgroups. A significantly positive correlation between the systolic blood pressure and air conduction thresholds at 4000 Hz and 8000 Hz and bone conduction thresholds at 4000 Hz were noted in the case of uncontrolled HT subgroup. No significant correlation between the absolute wave latencies and inter peak latencies with systolic or diastolic blood pressure were found in both the controlled and uncontrolled hypertensives.

Conclusion : Current study demonstrates the potentially negative impact of uncontrolled hypertension on the auditory function over time in the age group of 40-60 years.

Abs.NS.44

Maximal Exercise Modulates Event Related Potentials and Reaction Time in Untrained Medical Students

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Objective : The present study was conducted to evaluate the effect of acute exercise of maximal intensity on measures of central information processing in medical students using reaction time (RT) and P300 component of event related potential (ERP).

Method : Twelve untrained, healthy male undergraduate medical students (mean±SD) (age 18.58±0.90 yrs; BMI 23.58±1.23 kg/m^2) volunteered for the study. Baseline recordings of simple auditory RT (ART), choice visual RT (VRT) & ERP using auditory "oddball" paradigm were taken. Subjects then performed maximal graded exercise test to exhaustion on a computer-based motorized treadmill. ART, VRT and ERP were recorded again after the heart rate returned to pre-exercise values.

Results : During maximum exercise, exhaustion time averaged 8.01±0.99 min. Maximum heart rate achieved by the subjects at peak exercise was 195.50±6.99 bpm and metabolic equivalent (METS) was 11.10±1.83. The P300 latencies decreased significantly after the exercise as compared to the baseline values (Cz P=0.026; Pz P=0.010; Fz P=0.033). Significant increase in post exercise P300 amplitudes (Cz P=0.045; Pz P=0.044; Fz P=0.046) was also seen. Post exercise ART & VRT, also were significantly less (P=0.001

and P=0.004 respectively) as compared to the pre exercise recordings.

Conclusion : The changes observed in RT and P300 latency and amplitude in the present study indicates that acute, exhaustive, maximal graded exercise induced faster cognitive information processing. This may be attributed to the exercise induced activation and enhanced alertness in untrained medical students.

Abs.NS.45

Does Diabetes Affect Brain Before Peripheral Neuropathy ?

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Objective : To study EEG changes in type 2 diabetes mellitus patients (DM-2) before overt peripheral neuropathy.

Method : Sural sensory nerve conduction and EEG were studied on thirty consenting DM-2 comparing with thirty age- and sex-matched healthy controls. The EEG was recorded using 16-channel system and transformed using Fast Fourier Transformation. The EEG values were log-transformed and compared using student's t-test.

Results : Although DM-2 did not show overt sural sensory neuropathy, electrophysiologically bilateral sural sensory nerve action potential (SNAP) amplitude and duration were significantly less in DM-2 as compared to healthy controls though their values were above the lower cut-off of reference values. In EEG, DM-2 had more beta power (P<0.05) at midline {Fz (24.77±11.58 vs. 12.26±11.55, P=0.001), Cz (33.04±19.41 vs. 17.65±19.51, P=0.001), and Pz (30.34±16.54 vs. 16.13±15.57, P=0.001)} and at other sites (Fp2, F8, F4, C4, T4, T6, P4, O2, Fp1, F7, F3, C3, T3, T5, P3, and O1) during eye-closed condition. Similar differences in beta power were seen in eye-opened condition. The delta power was more (P<0.05) in DM-2 during eye-closed condition at midline {Fz (64.64±34.54 vs. 47.37±22.47, P=0.015), Cz (73.87±45.07 vs. 51.73±25.58, P=0.007), and Pz (66.13±36.84 vs. 44.15±19.68, P=0.002)} and at other sites (Fp2, F8, C4, P4, O2, Fp1, F7, T3, T5, O1). Similar differences in delta power were seen in eye-opened condition. Alpha1 and alpha2 activities were more (P<0.05) at some sites during eye-opened condition.

Conclusion : DM-2 patients have more beta, delta, and other frequency bands indicative of central neuropathy that appears before overt peripheral neuropathy.

Abs.NS.46

Influence of Visual Angle on Parameters of Pattern Reversal Visual Evoked Potential

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Objective : To study the modifications of the

parameters of PR-VEP with changes in visual angle of the stimulating pattern.

Method : The stimulus configuration comprised of the pattern reversal method in which a black and white checker board is generated (full field) on a VEP Monitor (colour 14") by an electronic pattern regenerator inbuilt in an Evoked Potential Recorder. Five checkerboard patterns with different check sizes 15, 30, 90, 120 and 180 minutes of arc were used as the visual stimuli. The patterns reversed at a rate of 1.7 reversal/ sec.

Results : A total of 30 subjects were investigated for full field pattern reversal VEPs with visual stimuli as checkerboard patterns of 5 check sizes –15, 30, 90, 120 and 180 minutes of arc.The maximum P100 latency i.e. 107.48±5.46 msec. and the maximum P100 amplitude i.e. 10.87±3.30 µV was observed with checks of 15'. The N75 latency was shortest for 180' and the most prolonged i.e. 80.38±4.62 msec. for 15'. Likewise N145 latency was also found to be the longest with 146.81±8.49 msec for 15' checks but it was the shortest with 134.27±10.88 msec for 90' checks.

Conclusion : The variation in visual angle subtended by the checks of the checkerboard pattern significantly influences the latency and amplitude of the evoked response. Investigation of effect of altering the size of the stimulus in terms of visual angle indicates that most of the response in VEP is derived from central macular area of retina so the optimal check size for reliable interpretation is the one which preferably stimulates the fovea.

Abs.NS.47

Brain Auditory Evoked Potential in Anemic Children of Age Group 5-12 Years

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Objective : To study the effect of anemia on Brain auditory evoked potential of children aged 5-12 years.

Method : Twenty five newly diagnosed anemic children aged 5-12 years with hemoglobin less than 10 g% were taken as test group and 25 healthy age and sex matched children were taken as control group. Brain auditory evoked potential (BAEP) was recorded using Mark II polyrite (RMS, Chandigarh). BAEP was compared between control and test group using unpaired students 'T' test.

Results : Brain auditory evoked potential study shows that the latency of wave I and II of control group were 1.57±0.09 and 2.6±0.09 ms and that of test group were 1.71±0.26 and 2.8±0.28 respectively. There was a significant increase in the latency of wave I ($P<0.05$) and wave II ($P<0.01$) of the anemic children.

Conclusion : We conclude that anemia in children between age group of 5-12 years leads to increased latency of wave I and II showing defect in auditory pathway between auditory nerve and cochlear nucleus.

Abs.NS.48

EEG Coherence During Working Task in Patients With Mild Cognitive Impairment and Alzheimer's Disease

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Objective : Evaluation of EEG coherence for assessment of functional connectivity at rest and during working memory task in Mild Cognitive Impairment (MCI), Alzheimer's disease (AD) and age matched subjects.

Method : EEG was recorded from 19 electrode locations at rest and during two types of working memory tasks (word memory and picture memory) in Control (n=23), MCI (n=17) and AD (n=22). Coherence at each electrode location was compared with the rest of 18 channels for six frequency bands defined by Individual Alpha Frequency for each subject. The association of these bands with different cognitive domains is i.e. Theta with working memory, Lower alpha1 with attention, Lower alpha2 with Expectancy/ alertness, Upper alpha with semantic memory, Beta with readiness/attention and Gamma with binding has been reported.

Results : At rest EEG coherence was found to be higher in MCI as compared to control and AD in all regions and for all the bands. In AD patients coherence was lower as compared to Control and MCI in all regions and for all the bands at rest. Word memory EEG coherence was higher in MCI as compared to control in Theta and Gamma bands in frontal region, while it was lower in Lalpha1, Lalpha2 and Beta bands in all regions except central region. In AD EEG coherence was lower as compared to control and MCI in all regions and in all bands in word memory. EEG coherence during picture memory was higher in MCI as compared to control in Theta and Beta bands in frontal and occipital regions, while it was lower in Lower alpha1, Lower alpha2, Upper alpha and Gamma bands in frontal and central regions. In AD EEG coherence was lower as compared to Control and MCI in most of the regions and in all bands in picture memory.

Conclusion : The EEG coherence can be interpreted as a quantitative measure of the degree of connectivity between different brain regions and higher coherence is generally presumed to reflect greater function linkage. In the present study MCI patients were found to have higher degree of functional connectivity during working memory task compared with controls at rest and during task. These finding suggested that in MCI patients with objective memory disturbance, working memory may be associated with activation of compensatory mechanisms as a result of which higher than normal coherence is achieved for the same task. In AD, however, lower coherence signifies compromised functional connectivity along with the reduced performance in the task.

Abs.NS.49

Study of Visual Evoked Potential in Megaloblastic Anemia

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Background : Megaloblastic anaemia is very common and its prevalence is higher in Indian population. Megaloblastic anaemia results from faulty DNA synthesis attributed to vitamin B12 or folic acid Deficiency which are essential for DNA biosynthesis. These deficiencies usually presents with brain, spinal cord, optic nerve and PNS manifestations (neuropathy) which can lead to substantial morbidity if unrecognized or misdiagnosed.

Objective : The visual evoked potential (VEP) provide a noninvasive means of examining the visual aspect of the CNS functions. Visual pathways are vulnerable to vitamin B_{12} & folate deficiency but there is paucity of studies evaluating VEP changes following megaloblastic anaemia. A delayed VEP is used to support the diagnosis of optic neuropathy. Our aim was to evaluate the VEP changes in megaloblastic anemia patients.

Method : The study was conducted in 60 subjects-30 controls and 30 patients of megaloblastic anemia diagnosed on the basis of low haemoglobin along with !MCV, low serum vitamin B_{12} level or bone marrow changes or both. Patients were tested for visual acuity, field of vision, colour vision and neurological examination. Pattern reversal VEP was carried out. P_{100} latency and amplitude were measured.

Results : Though patient's Visual acuity, field of vision and fundus were found normal, VEP revealed prolongation of P_{100} latency with significant difference when compared with control group.

Conclusion : VEP can be used as an early indicator of optic nerve involvement in patients with asymptomatic megaloblastic anaemia in which P100 latency is frequently prolonged.

Abs.NS.50

Assessing the Evoked Potential in Subclinical Vitamin B12 Deficient Young Adults

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Objective : Vitamin B12 deficiency is widely prevalent among mostly vegetarian Indians. Vitamin B12 is essential for conversion of homocysteine into methionine, which undergoes methylation and converts into lecithin which is the main constituent of the myelin sheath. Neuropathy occurs much earlier than any other symptom due to vitamin B12 deficiency. The objective of the present study was to assess evoked potential in subclinical vitamin B12 deficient subjects and to compare them with age matched replete subjects.

Method : 18 healthy subjects were recruited from in and around the Medical College .After informed consent, routine hemogram and Vitamin B12 levels were estimated. Subjects were divided into Vitamin B12 deplete and replete groups using the universal cutoff for Vitamin B12 deficiency (148 pmol/L). Each subject underwent physical activity questionnaires, 24-hour food frequency recall,

anthropometry, heart-rate variability, cognitive and nerve conduction assessment. Using a standard protocol brainstem-auditory evoked potential and visual evoked potential tests were performed.

Results : There was a significant difference between the body mass index, weight and fat free mass (all $P<0.05$). Both visual evoked potential and brainstem-auditory evoked potential latencies were prolonged in the Vitamin B12 deplete group compared to those in the Vitamin B12 replete group (both, $P<0.05$) using a covariate analysis. There was a significant association between Vitamin B12 levels and the inter-peak latency of brain-stem auditory potential.

Conclusion : In conclusion evoked potential appears to uncover changes before the development of symptoms in Vitamin B12 deficient subjects. This data could help understand the importance of Vitamin B12 supplementation at a population level.

Abs.NS.51

Prevalence and Significance of High Frequency Audiometric Notch on Normal Healthy Young Volunteers Aged 20 to 25 Years

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Objective :

1. To observe the prevalence of HFAN in normal healthy adults of age group 21 to 25 years.
2. To investigate the effects of age, mobile phone and music player on hearing thresholds at different frequencies in the audiogram.
3. To observe if any correlation of HFAN with age, gender, duration of mobile phone use, loud music.

Method : The study sample consisted of 75 students between 20 to 25 years of age. Written informed consent from all the subjects was taken for the study before recording the audiogram. A protocol with basic demographic details and the usage of mobile and ear phones were noted.

Pure tone audiometry measurements were recorded with MA 30 model audiometer in all the subjects in both the ears at different frequencies varying between 250 Hz to 8000 Hz.

Results : Out of the total 71 subjects 53(75%) were females and 18(25%) males. The mean age was 21 years (range 20 to 25 years). In 58(81%) subjects, a high frequency audiometric notch (HFAN) was present. 43(74%) female and 15(26%) male subjects had HFAN. Of the 58 subjects with notches, 11(19%) were on the right, 14 (24%) on the left and 33(57%) were bilateral. In total, 44(48%) notches were found in the right ear and 47(52%) in the left ear. In 57 ears (63%), the notch depth was in the range of 10 to 19dB and in 34 ears (37%) the depth was in the range of $\geq$ 20dB.

Conclusion : The prevalence of HFAN in young adults of 20 to 25 years age was 81%. Subjects who had HFAN were all mobile users and no correlation was found between the duration of mobile use and the notch. The

presence of notch was not related to the ear frequently used for listening music or mobile use. A strong correlation between females (79%) and HFAN at ≥ 20dB range was seen when compared to the males (21%). But there was no significant correlation between the duration of mobile use and music player on the depth of the notch.

Abs.NS.52

Neurophysiological Perspectives of Electroencephalography in Children with Attention Deficit Hyperactivity Disorder (ADHD)

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Objective : The present study was undertaken to digitally evaluate the electroencephalographic signature in children with Attention Deficit Hyperactivity Disorder (ADHD).

Method : 30 children in the age range of 3–11 years were included in the present study and power spectral analysis of electroencephalographic (EEG) output from the central EEG electrode pair location (preferably the C_z – Vertex pair) was run to test the hypothesis that cortical slowing in the prefrontal region can serve as a basis for differentiating children with ADHD from healthy children.

Results : Quantitative electroencephalographic findings indicated significant increased theta power and decreased delta power seen in patient with ADHD with lack of suppression of Mu waves which suggested significant maturational dysfunction in cortical arousal in the prefrontal cortex, cortical slowing and dysfunctional mirror neuron system in children with ADHD.

Conclusion : These finding constituted a positive initial test of a QEEG-based neurometric test for use in the assessment of ADHD and the significance of mirror neuron system in the disorders of the social mind.

Abs.NS.53

Total Neuropathy Score to assess Taxane Induced Peripheral Neuropathy in a tertiary care Hospital in Eastern India

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Objective : Taxane (Paclitaxel and docetaxel) are microtubule inhibitors, extensively used for breast, lung and ovarian carcinoma. Taxane induced peripheral neuropathy (TIPN) is a dose limiting side effect and can be that severe, so as to compromise the patients Quality of Life (QOL). The aim of our present study is to validate an objective scoring system which is sensitive enough to detect subclinical neuropathy, besides evaluating the severity

of symptomatic TIPN and corroborating it with patients QOL.

Method : 31 newly diagnosed cancer patients were selected scheduled to be treated with taxane monotherapy with 3 weekly regimen for 6 cycles with standard dosage (175-200 mg/m^2). Evaluation was done in 3 phases, i.e., before, after 3rd cycle and after 6th cycle of taxane chemotherapy. The neuropathy was graded according to Total Neuropathy Score (TNS). It is a composite scale taking into account symptoms, neurological signs, electrophysiological parameters and Vibration threshold by using biothesiometer, and has a much larger range (0-32) as compared to other validated scale. Patient's QOL was assessed by a highly sensitive scoring system Visual Analogue Scale (VAS).

Results : Peripheral neuropathy developed in almost 96% of cases at the end of 3rd cycle and 100% of cases at the end of 6th cycle. The mean TNS was significantly higher in phase III as compared to phase II and phase I, indicating significant increase of TIPN with cumulative dosage. There was also significant deterioration of amplitude of both Sural and Peroneal nerves in phase II and phase III. Electrophysiological changes were evident in 90% of asymptomatic patients at phase II.

Conclusion : Our study indicates that a precise clinical and electrophysiological evaluation of Peripheral nervous system and grading by TNS not only gives reliable information regarding symptomatic TIPN but are also capable of diagnosing subclinical neuropathy. QOL assessment by VAS is corroborative with TNS.

Abs.NS.54

Study of Risk Factors For Hearing Impairment in Deaf Mute Children Referred for Bera

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Objective : To evaluate the risk factors for hearing impairment in deaf mute children.

Method : This is a cross sectional study involving 162 deaf mute children between 3-5 years referred for BERA in last three years. A detailed history was taken to elicit the risk factors before subjecting the children to BERA. The recording was done using RMS EMG EP MARK II recorder. The evoked responses were obtained by placing active electrode at CZ on vertex, reference electrode on the ipsilateral mastoid and the ground electrode on forehead. Both ears were tested separately using shielded headphones.

Results : Out of total 162 children studied, 65 had history of parental consanguinity alone as a risk factor (Group I), 35 children had history of consanguinity along with other risk factors (Group II) and remaining 62 children had risk factors other than consanguinity (Group III). No BERA response was obtained in 40 children in group I (62%), 12 children in group II (34%) and 24 children in group III (38%). The mean absolute latencies of wave I. III and V and mean IPL I-III and I-V though within normal limits were slightly on higher side of normal values in group I. The mean absolute latency of wave V and IPL of I-V was significantly increased in group I ($P<0.05$).

Abs.NS.55

Evaluation of Risk Factors for Hearing Impairment in Infants at Risk by Bera

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Objective : Incidence of severe hearing loss among survivors of neonatal intensive care who are exposed to multiple risk factors ranges from 1% to 28%. To prevent this & to initiate rehabilitative procedure as early in life as possible a screening method to detect auditory disabilities in newborns is of great importance. So the present study is done to know the incidence of hearing loss in infants at risk & to know the significance of each risk factor.

Method : 128 Infants at risk who were exposed to multiple risk factors viz; prematurity, birth asphyxia, LBW (<1500 gm), hyperbilirubinemia, neonatal seizures were evaluated using RMS EMG. EP MARK–II machine.

Results : On multiple logistic regression analysis however only hyperbilirubinemia was found to be significantly correlated (P-value <0.05) with hearing impairment in the affected infants & infants without neonatal seizures showed protective value from deafness signifying that it is a risk factor for deafness.

Conclusion : Since most of infants admitted to NICU have one or more risk factors ,their hearing screening by BERA at the earliest will help in their rehabilitation & normal developmental milestones.

Abs.NS.56

Early Diagnosis of Peripheral Neuropathy By Nerve Conduction Studies in Patients of Rheumatoid Arthritis

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Objective : Rheumatoid arthritis (RA) is a chronic systemic inflammatory disease involving the synovial membranes, articular structures of multiple joints and is also associated with carditis, pleuritis, hepatitis, peripheral neuropathy and vasculitis. The present study was undertaken to find out early peripheral nervous system involvement in RA by electrophysiological tests.

Method : 25 patients (aged between 20-60 years) clinically diagnosed with rheumatoid arthritis according to the criteria of the American College of Rheumatology and 25 control subjects matched with age and sex were recruited. The tests employed were motor (in medial, ulnar, peroneal & tibial nerves) and sensory conduction studies (in median & sural nerves).

Results : In the nerve conduction studies, 11 patients showed pure sensory neuropathy (44%), 10 showed mixed sensory motor neuropathy (40%) while 4 showed normal motor and sensory conduction velocity. Further, out of the above 25 patients, two patients (8%) showed features of entrapment neuropathy of median nerve i.e. feature of Carpal tunnel syndrome concurrently. The decrease in conduction velocity, slight

increase in latency & markedly decreased amplitude were more pronounced in the lower limbs.

Conclusion : Occlusive vascular disease in the vasa nervosum was considered to be the major cause of peripheral neuropathy. As subclinical peripheral nerve involvement is common in RA, clinical examination alone may fail to detect early peripheral neuropathy since neuropathic symptoms are frequently confused with arthritis. To detect neuropathy earlier in patients with RA, electrophysiological studies are recommended as routine diagnostic procedure even in the absence of clinical nerve involvement.

Abs.NS.57

Comparison of Hearing Threshold of Blind and Normal Sighted Subjects

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Objective : To compare the hearing threshold of young male blind subjects with that of matched normal sighted subjects by pure tone audiometry.

Method : The study group comprised of 25 blind males in the age group between 15 and 25 years. They were selected after screening students of Blind School of Bhopal to exclude all causes which could have damaged their hearing by exhaustive history taking and otological examination. Subjects with otalgia, ottorhoea, decreased hearing, tinnitus, vertigo, abnormal auditory perception and injury were excluded from the study. Only those subjects with presumably normal hearing were selected for the study. Their hearing threshold was assessed by pure tone audiometry and was compared with that of normal sighted subjects.

Results : The mean hearing threshold at frequency 250, 500, 1000, 2000, 4000 and 8000 Hertz was 16.5, 22.2, 17.4, 9.8, 13.8 and 16.3 for blind subjects and 15.13, 20.5, 16.13, 9.0, 10.25 and 12.0 for normal sighted subjects. Statistical analysis done by 't'-test showed no significant difference in the mean values of hearing threshold of the two groups.

Conclusion : Although statistically there was no significant difference in the hearing threshold of the blind and the sighted, still there was an increase in the hearing threshold of the both the groups. The cause could be rising levels of noise over the years. There could be significant difference in other auditory functions like discrimination of sound pitch, tone, sequential sound patterns etc. as well, which need to be tested.

Abs.NS.58

Assessment of Motor Neuropathy With Nerve Conduction Study in Hypothyroidism

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Objective : Hypothyroidism is a clinical condition associated with low levels of thyroid hormones with normal or raised level of thyroid stimulating hormone. It may lead to peripheral neuropathy which usually develops insidiously over a long period of time due to irregular intake or lack of thyroid replacement

therapy. The present study was aimed to find out whether hypothyroidism affects peripheral motor nerves.

Method : 60 subjects of both genders with age ranging from 20 to 50 years were grouped as control and hypothyroid as per their thyroid profile. The nerve conduction study was carried out with RMS EMG EP MARK II Machine. The nerve conduction parameters e.g. latency, amplitude and conduction velocity were found out for median nerve in upper limb and tibial nerve in lower limb.

Results : The observations revealed that motor distal latency was significantly higher (P<0.001) in hypothyroid whereas amplitude and conduction velocity were significantly lower (P<0.001) in them as compared to that in control group.

Conclusion : The results indicated that functional alterations in peripheral nerves as reflected by changes in nerve conduction parameters might be due to neuronal damage in hypothyroidism.

Abs.NS.59

Central Demyelination in Guillain-Barre Syndrome

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Objective : To study the change in auditory and visual evoked potential in GBS by :

1. Brainstem evoked auditory potential
2. Visual evoked potential

Method : This is a case control study conducted in north Indian people/Subjects. Subjects were divided into study and control groups. Study group comprised of n=26 subjects with Guillain-barre syndrome (GBS) and control group of n=30 age matched healthy subjects without Guillain-barre syndrome (GBS). Subjects were selected from Department of Medicine, Neurology and Pediatrics, CSMMU, Lucknow. We used Neuro perfect 2000 EMG/NCV/EP system to collect, analyse, print and store evoked potential data. Data was analyzed using statistical package for social science (SPSS) version 13.0.

Results : The mean interpeak latency difference were significantly higher in study group in both Ear for I-V (P=0.003) & (P=0.015) and I-III (P<0.001) & (P<0.001), However there was no statistically significant difference between the two groups for interpeak latency difference III-V, though the mean value was higher for study group as compared to control group.

The mean visible evoked potentials in control group 98.67±1.65, 99.25±2.30 and 98.99±2.55 respectively for both eyes, left eye and right eye respectively whereas in study group these were 105.42±7.64, 107.46±7.27 and 108.58±6.51 respectively, statistically a significant (P=<0.001) difference was seen between two groups for both eyes, left eye and right eye with mean value for latencies in study group being higher as compared to control group.

Conclusion : Prolonged central conduction

time in BAEPs and VEPs suggests the subclinical auditory and optical pathway involvement in GBS.

Abs.NS.60

Effect of Training on NCV in Basketball Players – A Cross Sectional Study

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Objective : To assess the influence of duration of regular and intense training on motor nerve conduction velocity (MNCV) in basketball players.

Method : The present cross sectional study was done in the department of Physiology, JNMC, Belgaum. The study consisted of 35 basketball players (male and female) aged between 16 to 26 yrs, divided into two groups depending on number of years of basketball training. Basketball A group (11 players) consisted of junior players with ≥3 years of training and B group (24 players) consisted of the senior players with >3 years of training. MNCV of the ulnar nerve was assessed using computerized equipment "BIOPAC-MP150" by using the traditional double stimulation technique. Statistical analysis involved quantitative variables summarized through mean and standard deviation. Difference between mean of the two groups was tested using Student unpaired 't' test, where significance of the P value was < 0.05.

Results : Mean MNCV of the senior players (52.1 m/sec) was higher than that of juniors (48.9 m/sec) and was statistically significant (<0.05).

Conclusion : Present study indicates that changes in MNCV may be an indicator of nervous system adaptation due to long term physical exercise training. Exercise can cause structural changes in skeletal muscle, increase in excitability in motor units and also increased axon diameter and myelination. Current evidences indicate that long term training is important for increasing MNCV.

Abs.NS.61

Electrophysiologic Evaluation in Haemodialysis Patients

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Objective : Uremic neuropathy is a distal sensorimotor polyneuropathy caused by uremic toxins. The severity of neuropathy is correlated strongly with the severity of the renal insufficiency. Uremic neuropathy is considered a dying-back neuropathy or central-peripheral axonopathy associated with secondary demyelination. Dysfunction of the peripheral nervous system induced by uremia commonly occurs in patients with end-stage renal disease. Peripheral polyneuropathy generally develops only in advanced renal failure and is an indication to initiate dialysis. However, patients already being adequately dialyzed are also at some risk, although the neural dysfunction is often subclinical and detectable only by electrophysiologic studies. The objective of this study was to confirm

electrophysiologically the presence of uraemic neuropathy in haemodialysis patients.

Method : The study was carried out on 100 subjects (50 cases and 50 controls) aged 40-60 years using RMS EMG EP MARK II. Nerve conduction study was done on B/L Tibial and sural nerves.

Results : The distal motor latency and F-minimum latency in the tibial nerve of patients was prolonged significantly ($P<0.05$) as compared to controls. Motor conduction velocity in the tibial nerve was found to be reduced significantly ($P<0.05$), and sensory nerve conduction velocity in the sural nerve also was reduced significantly ($P<0.05$).

Conclusion : These results suggest that most haemodialysis patients showed electrophysiological evidence of uraemic neuropathy.

Abs.NS.62

Carpal Tunnel Syndrome : The Role of Sensitive Comparative Nerve Conduction Tests

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Objective : Carpal Tunnel Syndrome (CTS) is the most common compressive neuropathy of the upper limb. Electroneuromyography is the gold standard for the diagnosis of CTS. However, there is a group of patients who are symptomatic but test negative on routine nerve conduction studies. These patients would require further evaluation using described sensitive tests. We ran a prospective study to determine what percentage of patients referred to us for symptoms suggestive of of CTS, required sensitive tests for the diagnosis.

Method : We studied 506 hands of 263 consecutive patients referred to us for symptoms of CTS. All patients underwent routine testing. Patients who were negative on routine testing were then tested using six sensitive tests. Sensitive tests were considered abnormal when atleast 2 of the 6 tests were abnormal.

Results : Out of 506 hands studied, hundred and six (20.95%) had abnormal sensitive tests and were diagnosed to have minimal CTS. Our study has demonstrated an increase in yield by 20.95% by using various combinations of at least 2 different sensitive tests.

Conclusion : The use of sensitive tests for diagnosis of minimal CTS is thus justified in patients who have negative routine tests.

Abs.NS.63

Demographic Profiles and Electro-encephalographic Features of Patients Referred For EEG – A Retrospective Study

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Objective : Literature and published data on reports of EEG done in the Nepalese patients are very rare. We aimed to study the

relationship between provisional clinical and electrophysiological diagnoses of patients indicated for EEG at B.P. Koirala Institute of Health Sciences (BPKIHS) with documentation of demographic profiles.

Method : This descriptive retrospective study included all the patients referred for EEG at BPKIHS from 2006 to 2009.

Results : Mean age of patients was 18.78±15.93 years. Male were 58.13% (n=944/1624) and female were 41.87% (n=680/1624). Overall common referral age group for EEG ranges from 19-30 years (n=396, 24.38%) followed by 6-12 years (n=277, 17.05%) and 1-5 years (n=212, 13.05%) respectively. Patients coming for EEG mostly were from the regions close to the institute: Sunsari (n=612, 37.68%), Morang (n=240, 14.78%) and Jhapa (n=199, 12.25%) districts. Referral cases were: 74.4% seizure disorder, 4.61% seizure with co-morbidity, 4.37% birth asphyxia with hypoxic-induced-encephalopathy (BA with HIE) and 5.66% atypical febrile seizure. Abnormal EEG found was: 68% of seizure disorder, 67.6% of seizure with co-morbidity, 48.48% of BA with HIE and 26.37% of febrile seizure.

Conclusion : Male had preponderance over female. Common referral age group was young adult and children. EEG was abnormal in 68% of seizure disorder and with co-morbidity, and only 26% of febrile seizure.

Abs.NS.64

The Study of Auditory Evoked Potentials in Primary Hypertension

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Brainstem Auditory Evoked Potential (BAEPs) is an objective electrophysiological method for assessing the auditory pathways from the auditory nerve to the brainstem.

Objective : The aim of our study was to assess the involvement of brainstem auditory pathway in primary hypertensive patients.

Methods : BAEPs recordings were performed on 50 known hypertensives (WHO/ISH Guidelines) aged between 40-60 years of either sex attending Medical OPD of Guru Nanak Dev Hospital, Amritsar along with 50 age- and sex-matched normotensives controls, using standard techniques.

Brainstem Auditory Evoked Potentials were recorded by using EEG electrodes on an RMS EMG, EP MARC II (PC-based) machine. The data was statistically analysed by independent t-test and equality of variance was checked by Levene's test and regression analysis was done.

Results : Auditory threshold increased significantly in the hypertensive group compared with controls ($P<0.05$). There was a significant prolongation of absolute peak latencies of waves I, II and V and inter peak latency III-V in the hypertensive study group.

Conclusion : We conclude that there was a significant correlation of rise in systolic and diastolic blood pressure with absolute peak latencies of ABRs in hypertensive patients, suggesting sensory dysfunction in the auditory pathway along with synaptic delay in the hypertensives.

Abs.NS.65

Effect of elevated Mean Arterial Pressure (MAP) on Brainstem auditory responses

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Auditory evoked potential testing serves as a non-invasive clinical tool in characterizing the electrophysiological phenomena of neural excitation, conduction and transmission across auditory pathways.

Objective : The electrophysiological correlates of changes in sensory function in primary hypertension has already been studied in terms of effects of SBP and DBP on waves of auditory brainstem responses (ABR). Besides the effects of SBP and DBP, the correlation of MAP with ABR was also observed in the present study to explore the possible interaction of cardiovascular regulatory mechanisms with the auditory pathway at brainstem levels.

Method : BAEPs recordings were performed on 50 known hypertensives (WHO/ISH Guidelines) aged between 40-60 years of either sex attending Medical OPD of Guru Nanak Dev Hospital, Amritsar along with 50 age- and sex-matched normotensives controls, using EEG electrodes on an RMS EMG, EP MARC II (PC-based) machine. The data were statistically analysed by way of independent t-test and regression analysis and assessed by Levene's test for equality of variance.

Results : Auditory threshold increased significantly in the hypertensive group compared with controls ($P<0.05$). There was a significant prolongation of absolute peak latencies of waves I, II and V and inter peak latency III-V in the hypertensive group. However, no significant difference was observed in other parameters of BAEPs. We established a highly significant correlation of rise in MAP with absolute peak latency of wave V and inter peak latency III-V.

Conclusion : These findings suggest that central vasomotor control system interacts with generator of wave V of the BAEPs in the midbrain region in delaying the absolute peak latency of this wave in primary hypertension.

Abs.NS.66

Does Sleep Affect ECG Parameters ?

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Objective : Quantity of sleep has shown to affect the cardiovascular system and has an impact on the different ECG parameters. This study aimed to evaluate the relation between the sleep duration and ECG parameters in young adults.

Method : 75 adults aged 19-23 were recruited for the study. The subjects were found to be healthy following history and clinical examination. Self reported average sleep duration over the last one month was noted for all. Resting 15 minutes continuous electrocardiogram was recorded on each participant with eyes closed and in supine

position. ECG was analysed by using software (Lab Chart 6 Pro, ADI Australia) for parameters Pavg. Pmin, Pmax and QRS. Pd(P deviation=Pmax–Pmin) calculated. The data was analysed by grouping and comparing the subjects according to average sleep duration per day with >7 hrs (n=43) and <7 hrs (n=32) as adequate (AS) and inadequate (IS) group respectively.

Results : Among AS group, the mean Pavg was 0.0959 secs, Pmin was 0.0711 secs, Pmax 0.1281secs, Pd 0.0570 secs and QRS 0.0782 secs. In IS group, the mean Pavg was 0.00982 secs, Pmin was 0.0768 secs, Pmax 0.1317, Pd 0.0602 secs and QRS 0.0742 secs. There was no significant difference between the two groups. There was a positive correlation between IS, Pmax and Pd whereas negative correlation between AS and Pmax was observed. The correlation between AS and Pd was not significant.

Conclusion : Though there was no significant difference in ECG among sleep groups, the relation observed between sleep, Pd and P max confirms sleep do affect and might be a cardiovascular risk factor.

Abs.NS.67

Evolution of Babinski's Reflex in 0-12 Months of Children

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Objective : Objective of the study is to evaluate the pattern of Plantar Response in 0-12 months of children and to compare the Plantar response in male and Female babies.

Method : The study was conducted in the department of pediatrics, Chattrapati Shivaji hospital affliated to Subharti Medical College. The thumb nail drag method was used to elicit plantar response. The Groups are divided as 0-1 month of age which includes term AGA, Term SGA and preterm AGA, 1.1-6 months, 6.1–12 months.

Results : Total of 108 cases were examined, out of which Preterm AGA were 11out of which 73% showed extensor response, Term AGA were 48 and 75% were showing extensor response, Term SGA were 13 and 69% were showing extensor response. 1.1–6 months children were 19 and 52% children showing flexor response and 6.1–12 months were 17 (65% were showing flexor response).

Conclusion : Extensor response was predominantly seen in 0-1 month of age, while in 1-6 months of ages it was seen in 52% of cases while in 6-12 months of cases flexor response were seen in 65% of cases.

Abs.NS.68

Bisphenol A Depresses Compound Action Potential of Frog Sciatic Nerve *in vitro* Through Ca^{2+}-dependent Mechanisms

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Objective : Bisphenol-A (BPA) is a toxic chemical leached from polycarbonate plastics.

BPA is known for alteration in locomotor activity and reflect the changes in neural activity. However the effect of BPA on nerve action potential is not available. Therefore present investigation was undertaken to study the effect of BPA, on compound action potential (CAP) of frog sciatic nerve *in vitro.*

Methods : Bundle containing small group of nerve fibres in a sciatic nerve was dissected from frog and was placed in a Perspex chamber (0.5 ml) perfused with Ringer solution at 2-3 ml/min at 25°C. Suction electrodes were applied to the cut ends of the nerve for stimulating and recording purposes. The stimulation of one end (with supra maximal strength) produced CAP in the recording electrode.

Results : BPA (1-100 µM) decreased the amplitude and repolarization time of CAP in a concentration-dependent manner, without any alteration in other parameters of CAP (latency, rise time and threshold). These BPA-induced decreases were absent in Ca^{2+} free medium or in nifedipine pre-treated preparations.

Conclusions : The observations indicate that the BPA produces neurotoxicity by decreasing the amplitude and repolarization time of CAP which involves Ca^{2+}–dependent mechanisms.

Abs.NS.69

Regional Changes in Grey Matter of Brain of Adolescent Children Diagnosed With Attention Deficit Hyperactive Disorder : A Voxel Based Morphometric Analysis of Structural MRI

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Objective : Back Ground Attention Deficit Hyperactive Disorder (ADHD) is a neuropsychiatric disorder characterized by hyperactivity, inattention or both. The estimated prevalence of ADHD in India is about 12.2% of school going children. Voxel based morphometric (VBM) analysis is an advanced analytical neuro imaging technique using voxel wise changes as a measure to analyze changes in whole brain volume as well as regional volume differences. Objective of our present study was to observe any specific regional changes in brain by use of VBM analysis on structural MRI of brain from adolescent children diagnosed with ADHD.

Method : We used structural magnetic resonance image (sMRI) data of children (mean age 16.27) from the NeuroImage webpage. This dataset contain 48 three dimensional T1 weighted sMRI. We selected 15 ADHD combined type patients and compared regional grey matter volume to that of control matched for age, sex and handedness for VBM analysis.

Results : A comparison of regional changes in the gray matter volume of the brain images from control with ADHD children showed a significant decrease in the gray matter volume in ADHD, particularly in regions like the cingulate, superior frontal, superior temporal, and others but also an increase in gray matter volume in the right thalamus.

Conclusion : Our study specifically indicates that VBM analytical technique from structural MRI images in children with ADHD gives a precise and superior method to analyze gray matter abnormalities in specific regions of brain involved in attention and working memory function.

Abs.NS.70

Low Optimal Luminance Gives Better Flash Visual Evoked Potentials (Fvep) : An Observational Study of Intra and Inter-individual Variability

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Objective : Visual evoked potentials (VEP) are evoked potentials generated in response to visual stimuli. They are very useful in investigating physiology and pathophysiology of human visual system. Of the 2 commonly used techniques to record VEP, the clinical utility of flash visual evoked potential (FVEP) is less when compared to pattern-reversal VEP (PR-VEP). Because FVEP shows higher variations in both latency and amplitude in normal subjects. The advantage of FVEP is its feasibility in non-cooperative subjects which circumvents the major limitation of PR-VEP. The present study was undertaken to reduce the variability seen in latencies of FVEP. To improve existing guidelines for performing FVEP, by analyzing the various contributing factors for its wide inter/intra-individual variations.

Deriving analytical conclusions to decrease these variations and thereby increasing the clinical utility of this novel diagnostic technique.

Methods : Subjects were undergraduate and postgraduate students and employees of JIPMER belonging to the age group 18-30 years. Participants were divided into 3 groups. In group 1, after the standard technique, subjects underwent altered technique done with eyes closed. In group 2, after the standard technique (0.6 J), subjects underwent altered technique done with increased luminance (1.2 J and 20 J). In group 3, after the standard technique stimulus was given with blue and red colored flash light. Two trials were given for each eye for each of the techniques. The same procedure was repeated at the same time the following day.

Results : In group 1 while assessing inter-individual and intra-individual variability, technique done with eyes closed showed lower variability as compared to standard technique done with eyes open. On the other hand in group 2, inter-individual and intra-individual variability was less with standard technique as compared to technique done with higher luminance. In group 3, procedure done with blue light showed lesser inter and intra-individual variability than the standard technique.

Conclusion : Stimulus with standard luminance and with eyes closed may reduce inter-individual and intra-individual variability seen in peak latencies of P2 and N2 waveforms of FVEP. Decreased eye movements may be the possible cause for this observation. Luminance rather than color may be considered as an important factor for reducing variability.

Abs.NS.71

Prevalence and Distribution of Myopia Among Baroda Medical College Students

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Objective : To find out the prevalence and distribution of myopia among medical students.

Material and Method : This is a cross sectional study with a sample size of 283willingly participating students (111 of 1st Year, 84 of 2nd Year, 88 of 3rd Year). Data regarding degree of myopia was obtained using a pretested printed structured questionnaire and the data collected was statistically analyzed using appropriate software.

Results : The results showed that 147 out of 283 students (51.94%) were having myopia with 90 males and 57 females. Out of all myopic 90students (61.22%) were having mild myopia (<-3 Diopters), 51 students (34.69%) were having moderate myopia (–3 to –6 Diopters) and 6 students (4.09%) were having high myopia (>-6 Diopters). Their successive year wise distribution has shown 33.33%, 33.33% & 33.33% mild myopia, 35.29%, 23.53% & 41.18% moderate myopia and 33.33%, 16.67% & 50% high myopia respectively.

The study revealed that myopia is common with majority of students having a mild to moderate degree of myopia.

Conclusion : The overall myopic for the entire sample is found to be 51.94%. On the basis of the current study, it is evident that mild to moderate degree of myopia is more common with proportion of male myopic is more than the female myopic. It is suggested that further investigative studies along specific lines would indicate the exact causes of increase in myopia, and the actions to mitigate factors causing refractive-error.

Abs.NS.72

Digitizing The Existing Manual Mosso's Ergograph

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Objective : Digital quantification of rate, time duration, work done and Area under the curve during muscle fatigue using enhanced Mosso's ergograph.

Method : Optical displacement transducer is LDR based circuit designed and developed in the biomedical lab. It is fitted to existing Mosso's ergograph which gives analogue signal for displacement of light source during flexion of fingers in isotonic exercise when attached to data acquisition system using standard jack.

Results : Acquired analogue signal from the optical transducer is digitally processed using MATLAB. Extracted parameters will give digital value of rate, time duration, work done and Area under the curve during isotonic exercise for induction of muscle fatigue.

Conclusion : Acquired analogue signal from the optical transducer is digitally processed using MATLAB. Extracted parameters will give digital value of rate, time duration, work done and Area under the curve during isotonic exercise for induction of muscle fatigue.

Abs.NS.73

Effects of Transcranial Magnetic Stimulation on Pain and Anxiety in Fibromyalgia Patients

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Objective : We aimed to investigate the effect of transcranial magnetic stimulation (TMS), on chronic pain and anxiety in FM patients.

Method : Primary FM female patients (n=50) were recruited from Rheumatology Clinic, AIIMS, New Delhi. The pregnant, lactating subjects and patients with history of seizures, arthritis, brain trauma, brain surgery, intracranial hypertension, pace maker and other metallic implants were excluded from the study. They either received 0.5Hz TMS applied to the right dorso-lateral prefrontal cortex (RDLPFC) daily for 5 days in a wk x 4 wks (TMS group) or only electrode application (Sham group). Subjects provided informed consent and rated their pain using 0-10 point Visual Analogue Scale (VAS), quality of life using WHOQOL-BREF questionnaire and anxiety using state trait anxiety inventory six short form (STAI-SSF) pre and post-TMS in both the groups.

Results : Pre-TMS pain was 7.02±0.6 which reduced to 3.71±1.34 post-TMS ($P<0.009$); while in sham-TMS no significant change (6.89±0.6 to 6.5±0.89) was found. STAI-SSF score also decreased ($P<0.007$) to 12.3±1.80 post-TMS from pre-TMS 17.65±1.59; whereas WHOQOL-BREF score revealed improvement in physical (39.0±8.75 to 46.3±8.44, $P<0.02$), psychological (42.1±6.56 to 51.1±7.76, $P<0.01$) and social (51.25±13.49 to 59.8±10.61, $P<0.01$) domains of quality of life. The beneficial effect persisted till the period of observation post TMS-wk 6. DLPFC has been implicated in pain perception, anxiety and depression. Recently, DLPFC has been suggested to exert active control on pain perception by modulating cortico-subcortical cortical pathway.

Conclusion : Our data suggest that unilateral TMS at RDLPFC reduces chronic widespread pain, anxiety and depression and therefore, it can constitute an effective alternative treatment modality for FM patients.

Abs.NS.74

Hand Eye Co-ordination and Handedness Among Young Adults

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Introduction : It is said, "left-handers tend to have unusually good visual-spatial skills and the ability to imagine spatial layouts", are usually good at most ball sports and things involving hand-to-eye co-ordination. It is also more common to find people considered ambidextrous who were originally left-handed and who learned to be ambidextrous as these people are much more likely to develop motor skills in their non-dominant hand than right-handers (who are not subjected to left-favoring devices).

Aims & Objectives : To assess the hand eye co-ordination among young adults and to compare hand eye co-ordination of "non

dominant hand" among right hand dominant population and left hand dominant population.

Methodology : The 9 Hole Peg Test is a simple, timed test of fine motor coordination. The test involves the subject placing 9 dowels in 9 holes. Subjects are scored on the amount of time it takes to place and remove all nine pegs. The Nine Hole Peg Test is commonly used by occupational therapists as a simple, quick assessment for finger dexterity.

Results : We assessed hand eye co-ordination in 57 young adults, 49 were right hand dominant and eight were left hand dominant individuals (3 male, 5 female). There is significant difference in time taken to complete the tasks by right hand dominant individuals and left hand dominant individuals by their non-dominant hand.

Conclusion : Inference Left hand dominant individuals have better dexterity in right hand when compared with right hand dominant individual's dexterity of left hand. Our findings are consistent with the fact that most of the left hand dominant individuals are ambidextrous.

Abs.NS.75

Trigeminal Neuralgia and Role of Trpv-1 Agonist-Capsaicin in a Neuropathic Pain Model in Rats

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Objectives : To assess the effectiveness of Capsaicin in animal models of Trigeminal neuralgia. To compare Capsaicin with Carbamazepine which is the drug of choice in this condition.

Methods : For induction of neuropathic pain, after a habituation period, one drop (40 microlitre) of NaCl, 5M, solution was topically applied on the surface of the cornea using a fine dropper and then the number of eye wipes performed with ipsilateral forepaw were counted for a period of 30s. In the other eye (control eye), one drop of normal saline was put.

Results : In the carbamazepine alone group, there was significant analgesia. In capsaicin alone group, there was hyperalgesia Though when capsaicin was used repetitively for the fourth consecutive time, analgesia was produced. In Carbamazepine plus capsaicin group, there was analgesia, though, the analgesic response was blunted when compared to Carbamazepine alone.

Conclusion : Capsaicin produces hyperalgesia at the outset but repetitive use of Capsaicin leads to analgesia. However, initial use of combination therapy using Carbamazepine with Capsaicin can help tide over the initial hyperalgesia and later the use of topical Capsaicin alone can bring about significant pain relief, thus sparing the use of Carbamazepine, a highly effective drug whose long term use often leads to serious adverse drug reactions.

Abs.NS.76

Assessment of Cognitive Performance in Hypertensive & Normotensive Individuals of Age Group 40-75 Years

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Objective :

1. To establish a correlation (if any) between hypertension and cognition impairment.
2. To assess the blood pressure levels at which cognitive impairments are most frequent.
3. To study whether hypertension affects the reaction time of an individual.

Method : The study was conducted at Seth GSMC & KEMH, Mumbai on 90 patients attending the medicine OPD. The study group consisted of 45 hypertensive and 45 normotensive individuals. In both the groups, the blood pressure, Cognition status was assessed using the Sweet Sixteen® Questionnaire and the auditory and visual reaction time were determined using the reaction time apparatus. The scores from the questionnaire and the readings were analyzed statistically

Results : Mean cognition score for normotensive group was 13.6±2.78, hypertensives was 8.42±5.Z test application in two groups showed highly significant differences in reaction times of hypertensive and normotensive group with Z = 2.33 ($P<0.01$). The hypertensive group showed positive correlation between raised BP and increased reaction times. The impairment of cognition with increased systolic BP was more pronounced than diastolic BP.

Conclusion : Consistently elevated systolic blood pressure is associated with premature memory deficits in hypertensives and abnormal reaction times. Timely management of hypertension with drugs and lifestyle modifications may avoid premature onset of dementias in the population.

Abs.NS.77

Physiological Analgesia for BCG Vaccination Induced Pain in Neonates

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Objective : Blood sampling, intravenous catheterization and vaccination are some of the common painful procedures in newborns. Pain may contribute to immediate hemodynamic fluctuations as well as late significant behavioral changes. Physiological measures (such as holding, swaddling, breastfeeding) and pharmacological measures (such as acetaminophen, sucrose and opioids) have been used to alleviate pain. We intend to identify least painful period following feeding for procedures as breast milk has natural way of calming and sedation. In this study we assessed BCG vaccination induced pain response in healthy neonates.

Method : This cross sectional study was performed at Coimbatore medical college hospital for 3 months. Term healthy, exclusive breastfed neonates receiving BCG vaccine were included. Neonates with any illness and on analgesic or sedative drugs prior to vaccination were excluded. Vaccine

is administered by trained nurses and an observer performed Neonatal Infant Pain Scale (NIPS) scoring without the knowledge of feeding schedule. NIPS is a validated score for assessing the pain response. Scores range from 0 to 7 and scores above 4 indicates moderate to severe pain.

Results : A total of 113 neonates were assessed for pain. Mean age was 6.9 days. Mean birth weight was 2.9 kg. Mean NIPS score was 4.75 (range 1 to 7). NIPS scores were significantly less in time period between 30 to 60 minutes from breast feeding (P value-0.001). In general, alert status did not significantly influence pain but sleeping neonates scored less during the time between 30to 60 minutes from breast feeding (P value-0.002). In hungry neonates and immediately after fed state scores were high.

Conclusion : Less painful period is between 30 to60 minutes from breast feeding, especially if neonate is sleeping. All elective procedures may be performed in this period; however this results needs to be confirmed in different settings and procedures.

Abs.NS.78

Changes in Visual Evoked Potential in Children : An Indicator of Neuronal Development

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Objective : To study the visual evoked potentials in children.

Method : VEP was recorded in healthy children (n=66, age=0.5-7 yr) attending Well Baby Clinic. Flash VEP (n=36, ≥4 yr) and pattern VEP (n=30, 4-7 yr) recording was done. Consent was taken from parents.

Results : Age was negatively correlated with VEP latencies (Pearson correlation): N90 latency (n=36, r=-0.503, P=0.003) and P120 latency (n=36, r=-0.733, P=0.001) of flash VEP on right eye stimulation. On left eye stimulation, the P120 flash VEP latency was negatively correlated with age (n=36, r=–0.722, P=0.001). Similar negative correlation of age with pattern VEP latencies: N75 (n=30, r=–0.411, P=0.024) and P100 (n=30, r=–0.384, P=0.036) on right eye stimulation. On left eye stimulation, the pattern VEP P100 latency was negatively correlated with age (n=30, r=–0.429, P=0.018). As age advanced from 1.19±0.44 to 3.48±0.29 yr the flash VEP latencies decreased significantly : N90 (103.75±22.54 vs. 79.09±17.76 ms, P=0.012), P120 (148.50±15.38 vs. 116.27±13.65 ms, P=0.001) on right eye stimulation and P120 (145.91±18.11 vs. 116.67±13.65 ms, P=0.001) on left eye stimulation. As age advanced from 2.44±0.28 to 3.48±0.29 yr flash VEP P120 latency of right eye (137.70±12.04 vs. 116.67±13.65 ms, P=0.004) and left eye (137.18±11.7 vs. 115.75±12.69 ms, P=0.004) decreased significantly. As advanced from 4.46±0.26 to 6.46±0.28 yr, pattern VEP latency (112.7±17.14 vs. 102.7±4.77 ms, P=0.03) decreased significantly.

Conclusion : As age advances from 6 months to 7 years, the VEP latencies decrease indicative of neuronal development.

Abs.NS.79

Gender Based Variation in Cognitive

Functions in Adolescent Subjects

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Objective : There is paucity of the data related to cognitive function amongst healthy adolescent age group which limits our ability to distinguish and compare cognitive changes that occur across the adult lifespan in female and male subjects separately and can provide some help to understand dementia related conditions.

Method : Cognitive function was assessed in 100 healthy subjects of each sex of 17-20 years by using 'Montreal Cognition Assessment Test', a 10 minutes : 30-points test which is used in assessing a wide range of cognitive abilities on 7 subscales : 1) Visuospatial Skills, 2) Language, 3) Memory, 4) Attention, 5) Mathematical ability, 6) Abstraction, and 7) Orientation.

Results : Overall score (Male : 25.16±1.8, Female : 25.72±1.8) of cognition functions was statistically significantly higher in female adolescents (P=<0.022). However, male subjects showed higher score in Mathematical ability.

Conclusion : Specific cognitive ability differs with gender.

Abs.NS.80

Meditation as an Intervention for Cognitive Disturbances Following Total Sleep Deprivation

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Objective : We used middle latency response (MLR), event related potentials P300-ERP and contingent negative variation (CNV) and Raven's Advanced Progressive Matrices (RAPM) – a standard neuropsychological test to evaluate cognitive impairment after total sleep deprivation (SD); and impact of meditation as an intervention for this impairment.

Methods : Healthy male volunteers (n=10) drawn randomly from the Indian Army participated in a 6-night study design executed before and after two months of meditation practice: night1 – adaptation, night 2 – baseline, night 3 – 24h SD, night 4 – recovery sleep, night 5 – 24h SD after 60 days meditation, night 6 – recovery sleep after SD. A 36h SD was obtained by keeping the subject awake for 12h after 24h SD.

Results : The latency and amplitude of P300 increased after 36h SD. Amplitudes and latencies of both early and late CNV increased after 24h and 36h SD, indicating deficient orientation and impairment of attention & perception. Prolonged CNV reaction time after 36h SD manifested deficient motor response following second (imperative) stimulus. Latency of MLR Na registered significant change following 36 h SD compared to baseline ($F_{3, 36}$: 3.34; P<0.01)

and recovery ($F_{3, 36}$: 3.34; P<0.05). RAPM score showed significant decrease after 36h of wakefulness indicating impaired analytical ability and difficulty in problem solving. None of these parameters showed any significant alteration after SD, following meditation practice.

Conclusion : It was evident from the study that SD impairs cognitive performance to graded extents significantly, but this deterioration can be improved to a significant extent using meditation. The study authenticated the efficacy of meditation in ameliorating cognitive impairment following SD.

Abs.NS.81

Nutritional Iodine As a Micronutrient in Prevention and Control of Brain Damage and Intellectual Development

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Objective : Nutritional iodine deficiency is a geo-chemical environmental problem. Iodine Deficiency Disorders continue to be a threat to health and well-being, social and economic productivity and advancement of several hundred million people throughout the world. Lack of iodine results in abortion, mental retardation, deaf-mutism, squint, neuromotor defects, goitre, dwarfism, etc. Iodine deficiency disorders are known to exist since ancient civilization but they have not attracted much attention, as these disorders do not cause death. However, the adverse effect of these disorders is profound on brain damage and intellectual development of individuals which directly affects human productivity as well as social and economic development of the country. Iodine Deficiency Disorders (IDD) are one of the major public health problems in 130 countries and about 1.5 billion population of the world is at the risk of IDD, out of which more than 200 million are in our country alone. No State/UT in the country is free IDD. Most of the consequences of nutritional iodine deficiency are irreversible and permanent in nature except some types of goiter. But, these disorders can be prevented through daily consumption of iodated salt, which is the most effective, cheapest and sustainable way to prevent IDD.

Method : In order to control the problem of iodine deficiency disorders in the country, Government of India is implementing hundred per cent centrally assisted National Iodine Deficiency Disorders Control Programme (NIDDCP). The important components of the programme are survey and re-survey of IDD; supply of iodated salt, laboratory monitoring of iodine content of salt and health education and publicity.

Results : The country has got 124 lakh tones per annum production capacity of iodated salt with more than 840 private salt manufacturers. The production of iodated salt during the last year was 56 lakh tones (2009-10). The resurvey studies conducted in various States and Union Territories have shown significant reduction in prevalence of IDD as a result of regular consumption of iodated salt. About 71 percent population is consuming adequately iodated salt. There is significant increase in IQ points after post iodisation phase.

Conclusion : The various measures adopted by the Government have shown significant reduction in IDD prevalence in the country. However, there is need to have sustainable monitoring and IEC strategies so that the achievements made in the programme is continued to exist in future also.

Abs.NS.82

Comparative Study of Tactile Sensibility and Auditory Reaction Time in Blind and Sighted Individuals

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Objective : 1. Measurement and comparison of the auditory reaction time in the blind and sighted Individuals. 2. Measurement and comparison of the two point discrimination in the blind and sighted Individuals.

Method : The following study was carried on 60 subjects after the institutional ethical approval. 30 congenitally blind female students from a school for blind in Mumbai, and 30 female students with normal vision from Seth GSMC & KEMH, Mumbai participated in the study. Three consecutive auditory reaction time readings were obtained in both groups by the auditory reaction time analyzer. The two point discrimination was done on finger tips, lips, and back using the compass aesthesiometer in both the groups. The results of the two tests were statistically analysed and compared.

Results : The mean auditory reaction time in blind was 0.21±0.03 seconds and in the sighted was 0.32±0.06 seconds which is statistically significant. The two point discrimination for the blind was 1.00±0.24 mm at the fingertips was while that in control was 1.61±0.57 mm. The two point discrimination scores at lips and back did not differ significantly.

Conclusion : We concluded that there was a definite increase in the auditory acuity and the tactile discriminative ability in the blind students. This may be due to the higher tactile sensory inputs especially in the Braille readers and increased cross modal plasticity in the blind.

Keywords : auditory reaction time, blind, two point discrimination

Abs.NS.83

Interrelationship Between Sleep and Body Temperature at Different Ambient Temperature in Rats With Impaired Warm Reception

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Objective : Ambient temperature (Ta) affects both sleep-wakefulness (S-W) and body temperature (Tb). Peripheral and central warm receptors convey the thermal status of changing Ta to the preoptic area (POA). The POA regulates both S-W and Tb. There is reduction in total sleep time when exposed to extreme low and high Ta. In order to understand the temperature sensitive changes in sleep , S-W and Tb at wide range of Ta (18°, 21°, 24°, 27°, 30°, 33° and 36°C) were studied in rats before and after destruction of

warm receptors by capsaicin.

Materials and Methods : Under sodium pentobarbitone anesthesia (40 mg/kg BW), 12 adult male Wistar rats were chronically implanted with electroencephalogram, electro-oculogram and electromyogram electrodes for recording S-W parameters and a temperature transmitter in the peritoneum to asses Tb. After control recording of S-W and Tb for 6 h (11:00-17:00 h) animals were equally divided into local injection group (intrapreoptic, 125 µg) for selective destruction of preoptic warm receptors and subcutaneous injection (375 mg/kg) group for destruction of all warm receptors. Destruction of warm receptors was assessed by test dose response of capsaicin before and after lesion.

Results : Test dose (2 mg/kg) of capsaicin produced a fall of ~3°C in Tb after an hour, and the hypothermia persisted for about an hour. After destruction of all warm receptors, test dose effect of capsaicin was completely abolished while reduced effect was observed in the animals with preoptic warm receptor destruction. Normal rats showed Ta-related changes in rapid eye movements (REM) sleep and slow wave sleep with maximum sleep at 30°C. REM sleep showed more marked Ta-related changes. After destruction of all warm receptors REM sleep peak at 30°C disappeared whereas it shifted to 33°C after local lesion of preoptic warm receptors. In addition, rats destroyed with all warm receptors were unable to maintain normal Tb.

Conclusion : These results suggest Ta- related thermoregulatory role of REM sleep.

Abs.NS.84

A Study of Pure Tone Audiometric Hearing Thresholds in Plastic Weavers And Effects of Various Factors

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Aims and Objectives :

1. To quantify and typify hearing thresholds of plastic weavers exposed to occupational noise by pure tone audiometry.
2. To study effects of sex, duration of exposure, shift work and smoking on hearing and their role as a preventive one.
3. To sensitize workers about use of protective measures and to suggest better type of work shift.

Method : Present cross sectional field study was carried out in 50 plastic weavers working in various shifts with minimum 5 years of exposure, no break in job after ruling out other causes of hearing loss apart from NIHL. The results of hearing thresholds at various frequencies for pure tones taken in dB were compared with age and sex matched controls and various factors were compared for statistical significance.

Results : Hearing thresholds were worse at higher than speech frequencies which further worsened with increase in duration of exposure. Interrupted shift than continuous shift, non smoking, and female gender showed

advantage. Audiometric notch at 6 kHz was more prevalent than at 4 kHz.

Conclusion : Unaffected hearing at speech frequencies keeps disease unrecognized in early stage of NIHL. Affection of 6 kHz in majority than classical 4 kHz and mild to moderate degree of hearing loss is attributable to continuous type of noise that is less damaging which can be further reduced by interrupted shift with weekends off, use of hearing protective devices and by nonsmoking.

Key words : Audiometry, hearing thresholds, noise, shift work.

Abs.NS.85

A Comparative Study to Assess the Quality of Life and Mood Disorders Among Medical, Engineering and Other Undergraduate Students

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Objective : College is the best time of life for almost all young adults. However, in the face of cut throat competition, academic demands and family expectations these years maybe undermined by anxiety, depression, substance abuse and sleep disorders. Present study was undertaken to compare the quality of life and prevalence of mood disorders among Medical, Engineering and other undergraduate students.

Method : A cross-sectional study was conducted amongst 150 students, 50 participants from each stream. Enrolled subjects were administered questionnaires pertaining to their quality of life (WHOQOL-BREF), mood disorders (DASS-21), sleep satisfaction and sleepiness (Epworth Sleepiness scale) among various other parameters.

Results : Medicos showed significantly higher levels of stress (P value=0.0001), depression (P value=0.002) and anxiety (P value=0.002). 30% of medicos labelled their quality of life as very good compared to 48% and 50% of engineering and other undergraduates. 62% of medicos were sleep deprived with 38% of them suffering from sleepiness compared to 12% of engineering and 6% of other undergraduates. Only 8% of medicos exercised daily compared to 38% of engineering and 32% of other undergraduate students.

Conclusion : Present study shows that medical students are most vulnerable to mood disorders and have a poor quality life among the three segments of students compared in the study. Due to the demanding academic curriculum, very few medicos spare time for exercise as well as a higher percentage of them suffer from sleep deprivation. This study is a small step forward in creating awareness among students which would enable them to deal more effectively with stress and modify their lifestyle.

Abs.NS.86

Effect of Hypothyroidism on Brainstem Auditory Evoked Responses

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Objective : Thyroid hormone deficiency before the onset of hearing causes irreversible

damage to central and peripheral auditory systems. The purpose of this study is to evaluate objectively the functional integrity of auditory pathways by using auditory brainstem evoked responses in hypothyroid patients.

Method : The present study was conducted on two groups : a hypothyroidism group (HG, n=30) and a control group (CG, n=30). Parameters recorded were : hormonal examination (TSH, T4) and brainstem auditory evoked responses examination. All the patients were newly diagnosed females.

Results : All the patients had altered TSH values and decreased T4 value ABR showed significant difference ($P<0.05$) in absolute latencies averages of the waves III ($P=0.039$) and wave V) $P=0.006$) and interpeak latencies I-III ($P=0.017$), III-V ($P=0.044$) and I-V ($P=0.002$) in both the groups,showing that measures of these latency periods were significantly larger on the hypothyroid patients.

Conclusion : The result of the present study indicates that in hypothyroid state there might be slow conduction through the auditory pathways as given by assessment of ABR. So we can conclude that the auditory pathways are adversely effected in hypothyroidism and such alterations are not associated with TSH and free T4 levels.

Abs.NS.87

Effect of Rapid and Short Duration Presentation of Speech Sounds and Pure Tones on Prepulse Inhibition in Dyslexic Children

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Objective : To study the effect of rapid and short duration presentation of speech sounds and pure tones on prepulse inhibition in dyslexic children.

Method : We have developed a novel paradigm using prepulse inhibition (PPI) to study the startle reflex in dyslexics. We measured reflex eyelid closure. When presented with a much weaker stimulus called pre-pulse within a certain time period prior to presenting the startle eliciting pulse stimuli, there is an inhibitory reflex modulation. We have used a stream of speech sounds and a stream of tones as our prepulse which were changed at a rapid rate or presented for short duration or both. We hypothesized that if there is a low-level auditory processing deficit in dyslexics they will show reduced processing of the rapidly changing and/or short duration pre-pulse auditory stimuli and hence will fail to show significant PPI compared to controls.

Results : Phoneme and frequency change alone when presented at long duration and long ISI did not produce significantly different PPI ratio between dyslexic and control children. Phonemes presented at short ISI and short duration together produced significantly reduced PPI ratio in dyslexic children compared to normal children. Tones presented at short duration and short ISI together produced significantly reduced PPI ratio in dyslexic

children as compared to normal children.

Conclusion : The study concludes that dyslexics are impaired in rapidly processing brief duration speech and tones cues during PPI paradigm.

Abs.NS.88

Gender Based Difference in Color Vision in Myopic Subjects

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Objective : Myopia is a refractory error of the eye generally produced due to elongation of the antero-posterior diameter. Since color vision i.e. ability to discriminate different colors is the function of photoreceptors-cones in the retinal layer of the eye, there seemed a need to view if elongation of AP diameter of myopic subjects produces some consequence in the color detection ability of eye in comparison to normal individuals which might of course be within normal range. Further, a gender based comparison placed the study still ahead.

Method : Study was undertaken on 80 medical students falling under 20 years of age, equal number male (Group 1) and female (Group 2) myopic (corrected) subjects.

The test was performed in bright sunlight by the help of '20 test color strips and 2 matching shade charts' based on Farnsworth–Munsell 100 hue (FM100) test.

Results : % For each color group 2 answered more number of correct responses than group 1 (black : Gr. 1 – 15.25±4.3, Gr. = 2 – 16±3.0; blue : Gr. 1 – 14.75±2.6, Gr. 2 – 16±3.0; yellow : Gr. 1 – 13.75±3.9, Gr. 2 – 16±1.0; red : Gr. 1 – 5.5±1.2, Gr. 2 – 6.25±2.5; green : Gr. 1 – 13.0±3.5, Gr. 2 – 13.75±4.1)%. Difference in correct responses was statistically highly significant ($P<0.01$) for blue color and statistically significant ($P<0.05$) for yellow and red color.

Conclusion : In the study, female subjects showed statistically significant better matching of colors in comparison to their male counter parts even with taking less time i.e. female myopic subjects can see more range of colors in comparison to male myopic subjects.

Abs.NS.89

Noise Induced Hearing Loss (NIHL) in Occupation and Its Effect on The Behavior and Social Life of Employees

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Objective : To check for the Occupational Hearing Loss in workers exposed to hazardous noise.

Method : Pure Tone Audiogram (PTA) with both air and bone conduction tests to identify any Conductive hearing loss in 25 employees working in Sheet Metal Cutting Press Industry.

Result : Positive findings of tinnitus, disturbed sleep and lack of concentration in employees exposed to noisy environment for a long period of time.

Conclusion : Prevention is better than cure for Noise Induced Hearing loss. Preventive measures and awareness is a must for people working in noisy conditions.

Abs.NS.90

Functional Status of Auditory Pathways in Children with Borderline Intellectual Functioning : Evoked Potential Study

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Objective : Children with borderline intellectual functioning are at risk for learning difficulties and often demonstrate academic failure and underachievement. Sensory neural processing of auditory information can be one of the contributory factors for their underachievement. The present study was done to examine the integrity and function of auditory pathway.

Methods : Eighteen children diagnosed having borderline intelligence (IQ 71-84) were selected from the school for special children, Delhi and formed the study group. Children having associated Attention deficit hyperactivity disorder (ADHD), dyslexia or other psychological problems was excluded from the study. Fifteen children of the same age group, who had good school performance, were recruited from an elementary school in the vicinity of our institution to serve as controls. The functional integrity of the central auditory pathway has been assessed by using Auditory Evoked Responses i.e. Auditory Brainstem response (ABR), Mid Latency Response (MLR) and Slow Vertex Response (SVR). The recording was done using a computerized evoked potential recorder by 10–20 electrode placement system.

Results : There was no significant difference in the absolute peak latencies, the interpeak latencies and amplitude of ABR in the subjects as compared to controls. There was prolongation of the latency of MLR and SVR waves in subjects though not statistically significant

Conclusions : There was no conduction abnormality in the auditory pathway of the children having borderline intelligence.

Abs.NS.91

To Study the Prescription Practices for Malaria Treatment and Prophylaxis Among Government and Private Medical Practitioners in Ahmadabad and Gandhinagar Cities

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Objective & Aims : To assess the prescription practices for malaria in medical practitioners as per government guidelines.

Objectives : To compare the prescription practices of government and private medical practitioners in malaria treatment and prophylaxis in light of guidelines prescribed by NIMR and NVBDCP.

To document the mechanism used by Gujarat's health department to disseminate information regarding changes in treatment guidelines for malaria

To compare practices among government and private primary care providers in Ahmedabad and Gandhinagar with regard to

1) Management of fever and

2) Management of malarial fever

Method : Data were collected through interviews with four groups of practitioners: government MBBS medical practitioners (N=37), private MBBS medical practitioners (N=36), private AYUSH medical practitioners (N=37) and private MD doctors (N=8) in Ahmedabad and Gandhinagar city areas. Aim of this method was to compare government and private medical practitioners. The questionnaire had five sections; general, fever and its management, malaria and its management, prophylactic practices and malaria information section. Each section has an open ended questions and close ended questions except section 4. Data were counted, coded and analysed using Epi-info software.

Results : Among 37 government MBBS participants 97% (N=36) were giving treatment in uncomplicated malaria according to NVBDCP guidelines, while most private practitioners did not follow NVBDCP guidelines. Most government doctors received malaria related treatment guidelines in last 3 years and also participated in government training programme related to malaria while most private doctors did not receive malaria related treatment guidelines from government source. But they received treatment information through pharmaceutical company, internet, CME programme or readings. Among 37 government doctors only 8% (n=3) knew of and therefore adviced Tab Doxycycline for prophylaxis of falciparum malaria, a recent change in NVBDCP guidelines. None of the private practitioners knew of this.

Conclusion : Government and private medical practitioners had very different practices regarding diagnosis and treatment of fevers in general and malarial fever in particular even though they practiced in the same area. Government practitioners follow NVBDCP guidelines while privates practitioners do not.

Abs.PH.01

Estimation of Lethal Doses of Acyclovir, Insulin and Ondansetron on Developing Chick Embryo

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Objective : The insulin & ondansetron are widely used by pregnant women. Similarly intake of acyclovir is also not so uncommon among gravid ladies. There is dearth of published data as far as lethal doses of acyclovir and ondansetron related to developing chick embryo is concerned. So it is thought pertinent to conduct such study to estimate lethal doses for these drugs. Special stress was laid on estimation of median lethal doses for these drugs. Study also aims in estimating other measures of toxicity for chick embryo as Lowest published toxic concentration (TCLo), Lowest published lethal dose (LDLo), No Observable Adverse Effect Level (NOAEL), Lowest Observable Adverse Effect Level (LOAEL).

Method : Total of 96 eggs were used with