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ФІЗІОЛОГІЯ МЕДИЦИНІ, ФАРМАЦІЇ ТА ПЕДАГОГІЦІ: «АКТУАЛЬНІ ПРОБЛЕМИ ТА СУЧАСНІ ДОСЯГНЕННЯ»

Тези доповідей
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reflex which was used to test the differences of reactivity of the autonomic nervous system between both sexes, and stroop test as the state of mental activity.

Results and discussion. According to the results the mean HR increases in percentage (18.3%) compared to the meanvalue in males (10.3%) with difference between their values before and after the test, but the mean DAP in males (18.7%) is higher after the test than that in females (14.8%), but the difference between the mean SAP value in males (12%) and females (14.3) its higher in females, and the mistakes in females decisions is more than twice that in males (112.5%), where the mistakes average in females is (1.7) and in males is (0.8), and that females act faster (average25.7 sec) than males (27 sec in average- which is longer in 4.8%), In addition the results of oculo- cardiac reflex test show that the mean HR in males in rest state was 67.2 bpm and that of females was 70.8 bpm, taking into account the same duration of pressing on the eyeballs (5-7 sec), this value decreased in males to 61.2 bpm (reduced by 6 bpm- 8.9%), and that for females to 60 bpm (reduced by 10.8 bpm- 15.2%).

Conclusion: 1. Our study shows that in females compared to that in males, which can be seen in the mistakes average in females (1.7) and in males (0.8), probably because females tend to act faster (average 25.7 sec) than males (27 sec in average- which is longer in 4.8%), because the HR and BP rise more in females the activity of these cortices is higher and the error rate is higher.

2. The autonomic supply and reactivity of the autonomic nervous system is higher in females as it can be seen by more “effective” results in oculo-cardiac reflex test ,where the HR in females decreases 1.7 times more than males.

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REST, STRESS AND ITS EFFECTS ON MENTAL AND PHYSICAL ACTIVITY

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In these modern times the rate of illnesses that are related to stress and it’s frequency, especially among teenagers is alarming, while the explanation you’ll hear is “there is no time” this is not entirely true as time is constant, However studies have shown that those who have a time-table and follow through have ‘more time’ than those who procrastinate. This will later result in stress as the amount of sleep the body needs is being cut short. This being stated it is definitely important to view the relationship between rest and stress, as it is of great significance to reduce the rate of the diseases produced by this very common phenomenon. The first way of going about this is to find the cause of stress and to see the amount of rest regarded as adequate. Although a lot of people know that lack of rest leads to stress and its most common form of manifestation is *Depression*, they probably haven’t realized why depression and its relation to our

hormonal regulation. Stress is amount of force exerted per unit area; Nature's way of improving our productivity; Consequences of the failure of the body to appropriately respond to external threats (emotional or physical) be they real or imagined.The body's stress response is perfect in the short-term, but damaging if it goes on for weeks or years. Raised levels of cortisol for prolonged periods can damp down your immune system and decrease the number of brain cells so impairing memory. It can also affect blood pressure and the fats in the blood making it more likely for heart attack or stroke.

Purpose: To investigate the prevalence of stress related to mental activity especially in students.

Objectives: to find the relationship between stress and activity of body systems, to find the relationship between stress and stimulation of glucocorticoids.

Materials and methods: In animal trials: giving rats daily injections of cortisol for 5 days at 11:30 am, A total of 5 rats were used, 3 of which were injected with overdose of cortisol, and two were not(control group). Twenty Students of KNMU VI faculty, 2nd stream were observed from the first week of second year second semester till the middle of the same semester, the following parameters were examined: sleep-cycle, mental exertion rate, physical exertion rate, exercise rate(attendance in sports classes), rate of exhaustion frustration and irritation, and tested for the amount of cortisol secretion by academic performance.

Results: Of the 20 students that were observed, 10 did sports and had a regular daily routine, the other 10 which didn't partake in sports or any form of physical exercise and an irregular daily routine, In the first 2 months, the rate of mental activity in the both groups were equal but at the middle of the 3rd month, the following changes were observed; the 10 who didn't do any form of sports, began to have low mental activity test scores started decreasing or sometimes fluctuating, while the other 10 who did sports and had frequent relaxation in relation to rate of mental and physical exertion, some had higher mental results while some had the same mental results as at the beginning, (that is in relation to school tests). In the case of the rats, the 3 injected rats with overdose of cortisol; at the first day showed no change in activity and were normal, but at the 3rd day there was hyperactivity in comparison with the other 2 non injected rats, there was abnormal behavior, including confusion, and on the fifth day, 2 of the 3 rats died, the only surviving rat did not return to normal after this experiment until after a week after this experiment and then died.

Conclusion: The increased rate of stress in students is due to lack of an equilibrium between rest, sleep and exertion, which also causes their drop in grades after a few months back in school.

The mental factors were affected by the hypersecretion of cortisol, as it undergoes a cascade of reactions, this causes neurons to admit more calcium through channels in their membrane In the short-term cortisol presumably helps the brain to cope with the life-threatening situation(like the first two months). However, if

neurons become over-loaded with calcium they fire too frequently and die – they are literally excited to death. These go a long way to tell us that an equilibrium between rest and mental or physical exertion leads to increased mental activity, while a shift in equilibrium in case of greater exertion over relaxation leads to decreased mental activity, depression, frustration and stress related sickness.

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PHYSIOLOGICAL & SIDE-EFFECTS OF AUTONOMIC REFLEXES IN CLINICAL PRACTICE

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Background. Autonomic reflexes are extremely various and numerous and they have very important scientifically grounded diagnostic and therapeutic value.

Results. There is an opinion about stimulation of carotid artery baroreceptors by pressing at the point where the common carotid artery divides into its two main branches to normalize high blood pressure leading to activation of carotid sinus reflex slowing of the heart rate which is based on the following mechanism: when the baroreceptors are activated (by an increased blood pressure), the NTS activates the CVLM, which in turn inhibits the RVLM, thus inhibiting the sympathetic branch of the autonomic nervous system, leading to a decrease in blood pressure. Likewise, low blood pressure causes an increase in sympathetic tone via "disinhibition" of the RVLM. The NTS also sends excitatory fibers to the dorsal nucleus of vagus nerve that regulate the parasympathetic nervous system, aiding in the decrease in sympathetic activity during conditions of elevated blood pressure. But excessive stimulation of carotid sinus can cause carotid sinus reflex death which is a disputed mechanism of death in which manual stimulation of the carotid sinus allegedly causes strong glossopharyngeal nerve impulses leading to terminal cardiac arrest. A carotid massage can also possibly dislodge a thrombus, or some plaque. This could lead to any number of life threatening effects, including stroke. There is another opinion how to lower high blood pressure which is pressing in region of epigastric area. This reflex arc begins from receptors of inner organs; they send impulses by splanchnic nerve to the spinal cord. In spinal cord impulses travel to the vagal center of medulla oblongata increasing activity of vagal nuclei leading to negative effects to the myocardium with following deceleration of heart rate, lowering of blood pressure.But excessive irritation in this region leads to strong excitation of vagal center with following symptoms: acute bradycardia, respiratory arrest, hypotension, unconsciousness.

The point of next opinion that patient with hypertensive crisis or paroxysmal tachycardia can lower heart rate and blood pressure by the pressing the eyeball causing activation of oculocardiac reflex. Oculocardiac reflex is a