

Results. One hundred eighteen responders completed the study with a mean age of 17 ± 1.1 years, male to female ratio 1:2.6 and mean body mass index 19.6 ± 2.1 . The mean PSQI score was 7.2 ± 0.5 , and the prevalence of “poor” sleepers (PSQI score >5) was 69.5% (82/118). Sleep quality during the past month was assessed by the responders as “fairly good” in 55.9% (66/118), “fairly bad” in 38.1% (45/118), and “very bad” in 5.9% (7/118). The mean time of actual sleep was 6.5 ± 0.9 hours, 41.5% (49/118) slept less than 7 hours per day, and 98.3% (116/118) went to bed after 10 PM. 96.6% of participants (114/118) declared the usage of the cell phone before bedtime, 66.9% (79/118) - the consumption of coffee and energizers after 5 PM and 45.8% (54/118) declared eating carbohydrates after 7 PM. The prevalence of smokers was 10.2% (12/118). The mean ESS was 6.9 ± 0.6 , but in 84.7% (100/118) of participants was registered higher normal daytime sleepiness (6-10 points). The responders characterized their physical activity as “zero” in 14.4% (17/118), “low” in 24.6% (29/118), and “medium” – in 61% (72/118).

Conclusions. In about half of the high school students, the sleep quality was bad and very bad. Every third high school student slept less than 7 hours per day, and every second one had poor sleep habits (low physical activity, carbohydrates overconsumption, cell phone usage). This situation can negatively influence cognitive performances and life quality in high school students. For them, their parents and teachers should organize an awareness program about the importance of sleep hygiene and sleep quality for good quality of life and academic performances.

Key words: sleep quality, sleep habits, high school student

283. MOLECULAR, NEUROCHEMICAL AND NEUROPHYSIOLOGICAL MECHANISMS OF MEMORY

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Introduction. Learning and memory have proven to be fascinating mental processes because they address one of the fundamental features of human activity: our ability to acquire new informations and to retain it over time in memory. (Kandel ER, 2001). The brain has to process a continuous input from our sensory organs and at the same time it must be able to store memories, sometimes even for a lifetime. One of the fundamental questions in memory research is how our experiences of life can persist over time. What is the cellular foundation of this long-term information storage of neurons in neuronal networks, which is so important for humans? It is generally acknowledged that the memory processes are the result of the interplay between synaptic plasticity and orchestrated network activity that finally culminates in the long-term storage of information. Overall, information storage starts with the encoding of new information and progresses to the short-term memory. At this stage the engram might be either consolidated for a lifetime, destabilized, or restabilized in the course of memory retrieval. These neuronal dynamics start and end with synaptic and cellular plasticity and can be observed at the behavioral level (Korte M, Schmitz D, 2016). The formation of long-term memory involves gene transcription, protein synthesis and synaptic plasticity dynamics. This plasticity is dependent on a well-regulated program of neurotransmitter release, postsynaptic receptor activation, intracellular signaling cascades, gene transcription, and subsequent protein

synthesis. In the last decade, epigenetic markers like DNA methylation and posttranslational modifications of histone tails have emerged as important regulators of the memory process. (Zovkic IB et al, 2013).

Aim of the study. This review describes cellular processes of synaptic plasticity, particularly functional and structural changes and events that are important for the initial memory acquisition, as well as mechanisms of short-term and long-term memory storage.

Materials and methods. This is a review articles of human studies, clinical trials, bibliographies and books from databases like PMC, PubMed, Elsevier, Wiley Online Library.

Results. The long-lasting memory storage needs the synthesis of a specific set of proteins, this is an elegant way to solve the problem of how a neuron with 10,000 synapses can maintain changes in a few specific synapses without affecting others.

Conclusions. For the past 40 years, the studies into the neural basis of memory focused on the molecular and cellular basis of activity-dependent plasticity. Further progress in examining the conceptual foundation of memory will require an approach that takes into consideration the importance of timing events in the CNS on every level of complexity.

Key words: synaptic plasticity, memory consolidation, information storage, cell signaling, long-term potentiation

284. THE IMPORTANCE OF UMBILICAL CORD INSERTION SITE FOR THE PHYSIOLOGICAL DEVELOPMENT OF PREGNANCY

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Introduction. The study of the variability of the umbilical cord insertion site brings a further understanding of the pregnancy's physiological development, as well as it could help in choosing the best strategy for birth-giving. It should be highlighted that annually 4000 deaths of newborns worldwide are caused by the umbilical cord pathology. Additionally, the pathology of the umbilical cord is present in 30% of pregnancies carried out until the term. Therefore, knowing the insertion of the umbilical cord in the placenta could help the obstetricians in having an individual approach to the pregnancy and the actual birth, in order to prevent complications and abnormalities.

Aim of the study. This study is centered on the correlation between the type of umbilical cord insertion in the placenta and the physiological development of the pregnancy, but also on the obstetrical importance of the obtained results.

Materials and methods. The data of this study were collected from the medical records of 4010 women aged between 15 and 46 that gave birth at the Public Health Institution "Institute of Mother and Child" in 2014. According to the results, the subjects were divided into 4 groups, by the type of the insertion of the umbilical cord: 1st group - normal insertion, central and eccentric (n = 3995), 2nd group - velamentous insertion (n = 11), 3rd group - marginal insertion (n = 5) and 4th group - furcate insertion (n = 0). The experimental protocol included the abnormalities presented by the fetus and the occurred complications during pregnancy/birth-giving, correlated with the types of umbilical cord insertion.

Results. Central and eccentric types of umbilical cord insertion represent 99.6% and are not correlated with any pathologies of the pregnancy, birth-giving process, or fetus. On the other