eration and confluent stages. In the presence of fibroblast growth factor (FGF)/ epidermal growth factor (EGF) in serum-freemedia, Nb2a cells were induced extent of neurite elongation and cells become neuronal cells. Wound model was performed with needle of ppdsyringe in shape of (+). Cultured cells were exposed to the PEMF (75 Hz frequency sinosoidal waveform) and PRFE (27.12 MHz carrier frequency square waveform) systems for 5 and 24 hours. The wound healing was investigated by closure of the wound by the cell proliferation with neurite inhibition using inverted microscope image.

Results: At the end of the experiment the control group compared with application group has not yet closed the wound in neuroblastoma cells In the neurons that have neurite inhibition is much more lower than neurite-freeneurons. This decreation and delation is significant after 5 hours compared to 24 hours. Statistical analysis was performed on scored images.

Conclusion: Electromagnetic field applications decrease the proliferations of the wounded neuroblastoma cells and on the otherhand give a proliferative sign also the neurite neurons which means accelerate the wound healing process.

Keywords: pulsed electromagnetic field, neuroblastoma cell line, cancer, culture, wound healing

O-022

Epigenetic evaluation of the effects of cranial irradiation on mice brain

Koç T[1], Yılmaz EB[2], Şahin L[3], Ergenoğlu T[3], Öztürk NC[1], Öztürk H[1]

[1]Department of Anatomy, Mersin University Medical Faculty, Mersin, Turkey; [2]Department of Physiology, Mersin University Medical Faculty Research Hospital, Mersin, Turkey; [3]Department of Physiology, Mersin University Medical Faculty, Mersin, Turkey

Objective: After a long period of early cranial irradiation effects on adult hippocampal neurogenesis has been studied to evaulate with epigenetic perspective.

Methods: Single dose of 8?Gray (Gy) whole cranial irradiation at postnatal day 14 (P14) (Rad+ Group) or double doses (Rad++ Group) of 8 Gy both at P14 and P21 were administered to the C57BL/6J female pups. Additionally, a group of age and body weight matched mice were assigned as anesthetic or naive controls. Seven months after the cranial irradiation, all groups were first assigned for Open Field test to measure the locomotor activity, and afterwards for Morris Water Maze paradigm to test the hippocampal dependent spatial learning and long term memory. Also, immunohistochemical stainings were employed with phenotypic neuronal and epigenetic markers.

Results: In the Morris Water Maze experiments, Rad+ and Rad++ groups displayed significantly weaker cognitive abilities as compared to the controls. Lastly, a significant dose-dependent difference of irradiation was also detected. We found a significant decrease of Doublecortin (DCX)-im (immature neuron marker) at the inner granule cell layer of dentate gyrus of irradiated mice as compared to the controls. In the same hippocampal regions, there were also significant reduction of DNA methylation determinants (DNMT3a-im and Methyl-CpG Binding Protein 2).

Conclusion: Our overall data suggests that exposure of cranial irradiation to the young brain alters not only the neurogenesis but also the epigenetic profile in adult hippocampus which may reflect the cellular base of the weakened cognitive abilities observed in the Morris Water Maze experiments.

Keywords: adult hippocampal neurogenesis, cranial irradiation, DNA methylation, epigenetic

O-023

Characterization hypothalamic-hypophysial axis injury models in rats

Ulutabanca H[1], Gergin Ş[1], Tanrıverdi F[2], Küçük A[1], Yücel D[3], Başaran E[4], Sönmez MF[5], Bilgen M[6], Keleştimur F[2], Selçuklu A[1]

[1]Department of Neurosurgery, Erciyes University, Kayseri, Turkey; [2]Department of Endocrinology, Erciyes University, Kayseri, Turkey; [3]Department of Medical Biology, Erciyes University, Kayseri, Turkey; [4]Department of Physiology, Erciyes University, Kayseri, Turkey; [5]Department of Histology and Embryology, Erciyes University, Kayseri, Turkey; [6]Department of Biophysics, Adnan Menderes University, Aydın, Turkey

Objective: Dysfunction of hypothalamic-hypophysial axis is a common event following a traumatic brain injury. But, the current understanding of the postraumatic events is limited due to a lack of appropriate animal models. Our aim was therefore to develop injury models with rats for use in experimental reseach and demonstrate the characteric differences in the underlying pathophsiological mechanisms.

Methods: Rats (n=93, 10-12 weeks old, 280-360 g) were subjected to head injuries under general isoflurone anesthesia using three methods; Marmarau (250 g of weight was dropped from 1 m height on closed head), Feeney (250 g of weight was dropped from 1 m height on 3 mm steel disk placed on exposed brain) and Bilgen (controlled cortical impact of exposed brain with 5 mm injury tip, 15 m/s velecity, 85 ms duration and 3 mm penetration depth). After 4 weeks postinjury, bloods samples were collected and the levels of LH, FSH, Testastrone, IGF1, Cortikosteron andT4 were measured. The rats were tested for behavior and the Morris water maze performance, and then sacrificed for histopathological analysis.

Results: The rats injured with Marmarau model exhibited greater anxiety and increased neuronal tissue damage and degeneration. Those in the Feeney group performed lower in swimming task, likely due to the TBH deficiency as measured. The effects in the Bilgen group were minimal.

Conclusion: In conclusion, Marmarau injury model appears to be better suited for use in experimenal studies as it closely simulates the basic clinial symtoms of hypothalamic-hypophysial axis injury in humans.

Keywords: traumatic brain injury, hypothalamic-hypophysial axis, injury model, dysfunction