from 50% of patients with recurrent cervical cancer after radiation therapy as a result of hyperthermia in combination with cisplatin, whereas without hyperthermia - only from 15% of patients. In the treatment of patients with with cisplatin-resistant ovarian cancer A.M. Westermann et al. applied the general hyperthermia (41,8 ° C for 1 h) in combination with carboplatin, which in 7% cases resulted in complete tumor regression and in 28.5% of patients resulted in partial tumor regression. Duration of life without disease progression was 9.2 months, the overall life expectancy was 13.7 months. F. Douwes et al. applying the common hyperthermia in combination with hyperglycemia in patients with recurrent ovarian cancer after surgery and first-line chemotherapy observed a complete remission in 4.8% patients, partial remission in 33.3% - and a stabilization of process - in 47.6% of patients. The median survival time of patients was 16.5 months.

**Conclusion.** At present, when malignant neoplasms occupy a leading position in the list of causes of death, thermochemotherapy is a very promising direction in the treatment of cancer because it provides a more efficient standard chemotherapy with minimal harm to normal cells. This direction needs active research and improvement.

**Sheyan D.**

## STRUCTURAL ORGANIZATION OF THE CEREBELLAR NUCLEI

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Background.** At the present the research of neuroanatomy as a science and discipline have received the vast development. It accumulates extensive factual material-of the modern developments. The structural and functional organization of the cerebellum and its pathways has been the subject of research by many authors. However, the works of other authors which are devoted to the study of the structure of the cortex and the cerebellar nuclei contain contradictory and questionable states that must be solved. However, not all of them allow you to see an objective picture of the structure of the parts of the nervous system, as well as to estimate the information reliably.

**The aim** of research: to establish that the method of the study of nerve fibers in the neurovascular bundles of different tissues (Patent number 65245 from 25.11.2011g.) is possible in a study of the structural organization of the nuclei of the cerebellum.

**Materials and methods.** The histological preparations of the microscopic sections of the cerebellums, including parts of the cerebellar cortex, white matter and nuclei of the cerebellum were obtained from 34 corpses. In this work we used macro-microscopic, morphometric, histological methods (painting by hematocsilin-eosin, impregnation by Grosso-Bilshovsky, by Golgi-Deineka, by Krutsay, by Gomori, by Weigert-Pal by Kulchitsky), method of research of nerve fibers in neurovascular bundles of different tissues (Patent number 65245 from 25.11.2011g.), methods of statistical analysis.

**Results.** Using of this coloration method the borders of the cortex, cerebellar nuclei and white matter are very clearly defined. The bodies of large and small neurocytes are differentialed exactly. The nucleus of each nerve cell has pronounced contrast and a clear contour, surrounded by more lighter cytoplasm containing small nisslevskuy grains which are coloured brown. Small cells are scattered in the interior of the cerebellar nuclei between the large cells. Dendrites and axons of these cells are coloured light brown, they are short and branch near the dendrites of large neurons. The axons of the cells are covered by myelin in grey matter of the dentate nucleus and give collaterals, branching near the glial cells. The myelin sheathes of nerve fibers are colored in dark-black color and are good visible, making possible to trace the route and direction of a single nerve fiber. Muscular tissue is coloured rich red-brown, which contributes to the high differentiation of the vascular bed. The coats of blood vessels are differentiated by color, red blood cells take dark brown sometimes black colour. Connective tissue is coloured from pink to bright red. The nerve fibres devoid of myelin are coloured brown in the interior of the cerebellar nuclei and on the walls of the capillary bed. A microscopic study of the sections of the dentate nucleus shows an rich network of capillaries and different correlations of the nerve cell and the capillaries.

**Conclusion.** Comparative analysis of different histological methods of the colouring of the cerebellar nuclei to study their structural organization showed the expedieney of the using histological method "Method of study of nerve fibers in the neurovascular bundles of different tissue structures" (Patent number 65245 from 25.11.2011g.).

**Sheyan D., Lyutenko M.**

## THE MORPHOLOGY OF THE CEREBELLUM OF NOT PEDIGREE WHITE RATS DURING EARLY ONTOGENESIS

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Background.** In studies of age-related changes of the physiological systems of the human body in recent years there has been increased interest in the earliest stages of postnatal ontogenesis. According to the physiological state of the newborn animals white rats are related to immature ones. Among the most immature at birth, even in normally birth age, the cerebellum and cerebral cortex are related.

**Methods and materials.** The observations were made in 10 white rats which were born by 10 female and 3 male rats of the same species in individual cages. Each dropping contained from 9 to 12 rats. The total number of animals involved in the experiment was 98. We used a number of techniques: morphometric, timing, macro-microscopic, histotopografy, histological (hematoxylin and eosin colouring by Nissl), statistical.

**Results.** The animals were divided into two groups which were called "observation" and "morphological" where the objects to study were the brain and the cerebellum of white rats during early ontogenesis. In the "observation" group the rats