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The changes of cranial index in the treatment of hydrocephalus

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Introduction: A successful approach to hydrocephalus requires early and accurate diagnostic methods, selection of appropriate surgical techniques and long-term anthropometric monitoring of patients. Craniofacial anthropometry can give us high information values about trend of patient's cranium and also about changes in cranial head shapes in post-operative period.

The present research deals with specific issues of cranial shape in patients with hydrocephalus and deal with influence of gestation age, type of hydrocephalus and surgical intervention.

Methods: Anthropometric examinations are carried according to the methodology of Martin and Saller (1957) and its modifications. We use standard anthropometric instrumentations with donation of Grant Comenius University (UK/77/2012). The monitored group consisted of 36 patients (in age 0-1 year), 19 boys and 17 girls. The group was divided into groups according to gestation age, type of hydrocephalus (congenital or posthemorrhagic), surgical intervention (neuroendoscopy, ventriculoperitoneal shunt, both methods or nothing) and categories of cranial index.

Results: In our group of patients (n = 36) prevailed in 58 % posthemorrhagic hydrocephalus. Patients were born in time in 44 % and only 19,4 % was born in 26 gestation age. From surgical intervention prevailed shunt-dependent patients in 36 % and neuroendoscopy were made in 25 % cases. The type of hydrocephalus does not affect to cranial index but the types of surgical intervention have the effect. We found no statistically significant differences in gestational age.

Conclusion: Patients who were shunt-dependent had in most cases dolichocephalic head shape and patients who were made neuroendoscopy had brachycephalic head shapes.