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Oral Presentation

Decompressive Craniotomy and Reconstruction with Cranioplasty: Perspective Study in 96 Patients

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Abstract

Autologous bone is considered the first choice as material of cranioplasty because of its biological and anatomical features. However in some situations such as skull fractures or tumors the bone flap is not available or it must be replaced with a heterologous cranioplasty because of the development of surgical complications. Authors of this study aimed to identify which are the best materials for cranioplasty and which are the factors involved in the development of complications. Patients over 14 years of age and of both sexes that underwent the positioning of autologous and heterologous cranioplasty (Polyetheretherketone, Polymethylmetachrilate, Hydroxyapatite) between January 2008 and December 2013 have been collected after the analysis of neurosurgical registries of four different Neurosurgery Units of four Hospitals in Italy. For all these patients data about complications were prospectively collected. 96 patients met the study criteria. 7 patients (7.29%) developed complications which required re-operation. Complications included infection (4 cases), bone resorption (2 cases) and fracture of the cranioplasty (1 case). Statistical analysis of the factors revealed a relevance in the use of autologous bone compared to heterologous materials in the development of complications ($P=0.3710$). No statistical significance has been revealed from the comparison of primary and secondary cranioplasties with heterologous materials. In order to predict which material is better to use for a cranioplasty, our experience suggests that cranioplasties with heterologous materials are burdened by a lower rate of complications compared to the autologous bone flap.

Keywords: Craniotomy, Cranioplasty, Skull Fractures.

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