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The Effects of Three Neurosurgical Anaesthetic Methods on HLA-Dr Expression

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Abstract: Expression of human leukocyte antigen-DR (HLA-DR) is considered a meaningful indicator of immune response because of the important role that HLA-DR plays in presenting antigen to T-lymphocytes. The aim of this study was to evaluate the effects of three anaesthetic methods (intravenous anaesthesia with propofol-fentanyl and balanced anaesthesia with isoflurane-fentanyl or sevoflurane-fentanyl) on monocytic HLA-DR expression in neurosurgical patients who underwent craniotomy. Thirty patients were divided into 3 groups of 10, and each group was the subject of one of the anaesthetic regimes noted above during craniotomy procedures. Blood samples were collected and HLA-DR expression was measured by flow cytometry at 15 minutes before induction, 1 hour into surgery, 3 hours after surgery, and on postoperative day 3. Comparing the levels of expression at each given stage between and within groups, there were no significant differences found at any time point except on the third postoperative day. For all groups, HLA-DR expression on postoperative day 3 was significantly higher than that measured in the first three stages ($p<0.05$). The results indicate that neither intravenous anaesthesia nor balanced anaesthesia has any significant effect on monocytic HLA-DR expression in neurosurgical patients.

Key Words: Intracranial surgery, Immune response, Anaesthetic agents, Immunosuppression, HLA-DR

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