# Decompressive craniectomy size

While the Brain trauma foundation guidelines favour large DC, there remains a lack of consensus regarding the optimal size of DC in relationship to the patient's head size.

A minimum diameter of 12 cm has been widely accepted as mandatory for effective decompression for ICP control. Complete hemispheric exposure is frequently advocated to further reduce the risk of parenchymal shear stress, hemorrhage and swelling. At the same time, superior efficacy and comparable risk profile of a more extensive decompression have yet to be established.

Tanrikulu et al. reviewed 74 patients with comprehensive clinical data sets undergoing DHC from 2008 to 2013 at our institution. With a minimum threshold of 12 cm in AP diameter being observed in all cases, patients were grouped according to the absolute size of maximum AP diameter (<18 cm, ≥ 18 cm) and surface estimate (<180 cm(2), ≥ 180 cm(2)). Surgical technique, efficacy of ICP control, surgical complications and early clinical course were recorded.

Baseline demographics were comparable in both groups. Surgery was effective in relieving or preventing intracranial hypertension in all patients, irrespective of craniectomy size. With smaller craniectomies, immediate surgical and secondary complications such as parenchymal herniation, hemorrhage, or swelling did not occur more frequently.

Due to the heterogeneity of underlying disease, a conclusion as to effect of craniectomy size on long-term outcome cannot be made based on this study. However, if the obligatory lower threshold of 12 cm for DHC size and decompression to the temporal base are observed, a smaller craniectomy is equally effective in relieving intracranial hypertension. While not inadvertently associated with a more favorable surgical risk profile, it does not increase the risk for early secondary complications such as parenchymal shear stress, hemorrhage and swelling [1)].

1)
Tanrikulu L, Oez-Tanrikulu A, Weiss C, Scholz T, Schiefer J, Clusmann H, Schubert GA. The bigger, the better? About the size of decompressive hemicraniectomies. Clin Neurol Neurosurg. 2015 Aug;135:15-21. doi: 10.1016/j.clineuro.2015.04.019. Epub 2015 May 5. PubMed PMID: 26005165.