## SESSION 3 – CRAINIAL RECONSTRUCTION - ABSTRACTS

### The UK Cranioplasty Study and Development of the UK Cranial Reconstruction Registry

D. Fountain[1], G. Whiting[2], H. Mee[2], E. Edlmann[3], A. Joannides[2], R. Piper[4], C. Turner[2], A. Kolias[2], PJ Hutchinson[2], on behalf of the BNTRC[5]

[1]Department of Academic Neurosciences, Salford Royal NHS Foundation Trust, Manchester, UK, [2]Division of Neurosurgery, Department of Clinical Neurosciences, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK, [3]Department of Neurosurgery, Derriford Hospital, Plymouth, UK, [4]Department of Neurosurgery, Oxford University Hospitals NHS Foundation Trust, Oxford, UK, [5]bntrc.committee@gmail.com

*Objectives.* Many questions remain without robust evidence in performing cranioplasty operations, including the timing following craniectomy and material. The Royal College of Surgeons of England (RCS) have advised that all devices should be registered with related data collection in appropriate national audits. The objective of this study was to establish and evaluate cranial reconstruction procedures in the United Kingdom (UK) and Ireland.

*Design.* Prospective registry

*Subjects.* All patients undergoing cranial reconstruction in the UK and Ireland.

*Methods.* The UK Cranioplasty Study was a prospective multicentre study for all patients operatively treated with a cranioplasty in the United Kingdom. Patients undergoing cranioplasty insertion, revision, removal and re-insertion between 1st June 2019 and 30th November 2019 were included. Data collected includes basic demographic data, craniectomy date and indication, cranioplasty material and timing, and 30-day outcome.

*Results.* A total of 193 entries across twenty-one neurosurgical units in the United Kingdom were submitted, including 159 new insertions. Of new insertions, 101 (63%) were titanium, 90 (57%) included post-operative antibiotics and 63 (40%) included a wound drain. In 30-day follow-up, there were 8 readmissions (5%), 7 infections (4%) and 3 new seizures (2%). There were 30 revisions or removals of cranioplasty submitted, most commonly for infection (n=18, 60%) and skin breakdown (n=10, 33%). A steering committee has been established to plan the continuation of the UK cranioplasty study as an ongoing registry.

*Conclusions.* The UK cranioplasty study is already the largest prospective study of cranioplasty in the UK and shows promise laying the foundations for a robust registry while providing important insights for outstanding research questions for clinicians performing this procedure.

**15-year institutional retrospective case series of decompressive craniectomy for malignant middle cerebral artery infarction (MCAI) (2005-2020)**

S. Lammy, A. Taylor, S. Willetts, St. George

Institute of Neurological Sciences, Glasgow, UK

*Objectives.* To re-assess institutional outcomes in patients having a decompressive craniectomy (DC) for malignant middle cerebral artery infarction (mMCAI)

*Design.* 15-year retrospective case series (2005-2020) analysed demographics, co-morbidities, pre- and post-operative neurological state, operative timescales, craniectomy dimensions and GOS at discharge and 6-months

*Subjects.* All DC for mMCAI (2005-2020)

*Methods.* We searched case notes in NHS Greater Glasgow & Clyde and Scottish National PACS

*Results.* 67 patients were identified (male/female ratio 1:1.12). The mean age was 45yrs (16-64yrs). Co-morbidities, e.g. HTN were ~48%. The dominant vs non-dominant hemispheric ratio 1:1.23. The modal ictal and preoperative GCS and motor scores were 14 (M6) (range 5–15) and 7 (M5) (range 3–12). The mean time from ictus to INS admission was <24hrs (0.5-80hrs) and INS admission to decompression <12hrs (0.5-72hrs). The mean maximum AP craniectomy diameter is >14cm (10.00–17.00cm) and surface area >100cm2 (70.00–150.00cm2). There were 21 titanium cranioplasties (6 revisions for infection) and 18 bone flap re-insertions (2 revisions for infection). Aphasia occurred in 52% pre- and post-operatively and 12% had seizures pre- and 12% post-operatively. The 30-day mortality was 19.4% and 36% of patients had a discharge mRS <3

*Conclusions.* DC for mMCAI is suitable in select patients. Our practice is still consistent with current evidence

*References.*

Lammy S et al. 10-Year Institutional Retrospective Case Series of Decompressive Craniectomy for Malignant Middle Cerebral Artery Infarction (mMCAI). World Neurosurg. 2016: 96(12): 383-389