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**THE APPLICATION OF DECOMPRESSIVE CRANIECTOMY VERSUS CRANIOTOMY  
IN CASE OF ACUTE SUBDURAL HEMATOMA. REVIEW**

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Acute subdural hematoma (ASDH) is a fatal yet one of the most commonly occurring type of traumatic brain injury. It's a space occupying lesion between the brain and skull which causes an increased intracranial pressure resulting in a decrease in the cerebral perfusion thereby contributing to high morbidity levels. ASDH is considered as a medical emergency and American College of Surgeons Committee for Trauma Quality suggests that the hematoma must be evacuated by surgery within 4 hours of the patients' admission to the hospital.

The indication for surgery is determined by the collective results of various tests including the Glasgow Coma Scale (GCS), pupillary reaction to light, CT examination and neurological deterioration. Any patient with a GCS less than 8, presence of extra-axial, hyperdense lesions between the brain and the skull with a midline shift more than 5mm in the CT image and an increased intracranial pressure (ICP) are indicated for surgery. The surgery of choice is either decompressive craniectomy (DC) or craniotomy (CO) depending on the patient's ICP level. DC is the most preferred type of surgery due to its ability to reduce brain edema and control ICP levels nevertheless over the years it has been shown that DC is associated with poor postoperative outcome compared to craniotomy (50.1% vs 60.1%,  $p = 0.004$ ).

Over the past century there is an ongoing debate on what type of surgery should be performed, when and to which criteria of patients. Despite the numerous trials and studies done on this subject, no study has been told to provide with a concrete conclusion. Among all the studies performed so far, two randomizing patient trials; DECRA and RESCUEICP have shown promising results which has shed some light to this question. These two studies assessed the prognosis and the functional status of the patients who underwent DC and CO under two different selections during two time intervals, at 6months and at 12 months. The study found that patients who underwent DC had less intensive care unit (ICU) stay and was effective in reducing the ICP levels however no statistical significance was noted. Furthermore, a trend of decreasing functional outcomes was seen in the patients who underwent DC compared to CO. RESCUEICP obtained similar results to DECRA which pointed to DC causing worsening functional outcomes in the patients. Both trials concluded that DC was the most effective way to reduce the ICP and lower ICU stay but lead to increased unfavourable functional outcome. As such, these findings have been integrated to the fourth edition of the Brain Trauma Foundation's Guidelines for the Management of Severe Traumatic Brain Injury and the guidelines updated accordingly.

Studies were also conducted to compare other variables such as timing of the surgery and timing of the secondary cranioplasty to DC and CO, however both showed no statistically significant favourable or unfavourable results. Till date DECRA and RESCUEICP remains the largest known trails carried out, nonetheless there are many aspects that still needs to be addressed in the future in order to provide the best type of care for public. The risks and benefits of the different types of DC, the optimal time for cranioplasty, and the importance of flax incision during bifrontal DC are critical knowledge gaps that needs to be analysed.

Moreover, another plausibility is whether the type of decompression should be tailored according to the type of intracranial pathology. Almost all of the data focuses on secondary DC and as such evidence on the outcomes of primary DC where the bone flap is left following the initial surgery needs to addressed as well. Future directions for research should focus on these critical and evident gaps in literature and evidence since it's poorly understood due to insufficient data at present.