

Results: A correlation between ICP and A/V-ratio was found suggesting a reverse u-shaped curve with IOP as the vertex. Data >20 and ≤ 19 mmHg showed a significant difference ($P < 0.05$).

Conclusion: Fast detection and treatment of malignant ICP is critical to avoid secondary brain injury. Fundoscopy is cheap, easy-to-use and can be implemented outside NICU. Prehospitally the method can quickly determine whether a patient should receive neuroprotective treatment or not. Furthermore, it can be implemented in poor countries, where access to CT/MRI scans are limited and early detection of raised ICP in infectious brain swelling is crucial.

This study is a continuation of previous work with promising results published in 2020 and can result in a paradigm-shift in future ICP assessment especially in the trauma setting and non-neurosurgical specialties.

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DECLINING NUMBERS OF NEUROSURGICAL EMERGENCIES AT A GERMAN UNIVERSITY MEDICAL CENTER DURING THE CORONAVIRUS LOCKDOWN

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Background: The coronavirus pandemic due to SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) is posing unprecedented challenges to health care systems around the globe. Consequently, various lockdown scenarios have been politically imposed to get control over the spread of this disease. We examined the impact of the lockdown situation on the number of neurosurgical emergency patients admitted to our tertiary care center with a catchment area of approximately 2.2 million inhabitants in the south of Germany to ensure adequate neurosurgical emergency care during a pandemic lockdown.

Methods: All emergency admissions (with consecutive inpatient treatment) to the Department of Neurosurgery at the University Medical Center Regensburg, Germany, between 1 March and 8 May (69 days) of the years 2018, 2019, and 2020 were retrospectively identified and reviewed for this study. Demographic data, diagnoses, urgency of surgery, and duration of the journey to the emergency room were examined.

Results: Between 1 March and 8 May 2020, 59 emergency patients were neurosurgically treated at our department. Compared to 2018 and 2019, emergency admissions in 2020 had thus declined by 37.2% and 27.1%, respectively.

The decline especially concerned non-traumatic spinal cases but also patients with other neurosurgical diagnoses such as intracranial hemorrhage. Evaluation of the overall disease severity of admitted patients by means of the urgency of surgery showed no difference between the baseline years and the lockdown period.

Conclusion: Our findings are in line with other observational studies of neurosurgical, neurological and cardiological centers in Europe that have described a drop in emergency cases. The reasons for this drop that seems to affect various medical fields and countries across Europe are still unidentified. Morbidity and mortality rates are still unknown, and efforts should be made to facilitate neurosurgical emergency care during a pandemic lockdown.

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EXTRACORPOREAL MEMBRANE OXYGENATION IN TRAUMATIC BRAIN INJURY – A RETROSPECTIVE, MULTICENTER COHORT STUDY

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Background: Patients with moderate to severe traumatic brain injury (TBI) with or without relevant concomitant injuries are usually treated on intensive care units (ICUs) with invasive ventilation. Consequently, these patients are at increased risk of lung failure, potentially requiring extracorporeal membrane oxygenation (ECMO). The aim of this work is to provide an overview of ECMO treatment in TBI based upon data captured into the German TraumaRegistry (TR-DGU).

Methods: A retrospective multi-center cohort analysis of patients registered in into the TR-DGU was conducted. Adult patients with relevant TBI ($\text{AIS}_{\text{Head}} \geq 3$) who had been treated in German, Austrian, and Swiss level 1 or 2 trauma centers between 2015 and 2019 were included. Multivariable logistic regression analysis

was performed to identify early risk factors associated with need for ECMO treatment.

Results: 16,513 patients fulfilled the inclusion criteria and were analyzed. The overall rate of ECMO treatment was 0.8% (134 patients) with the highest rate of 1.03% among 16-59 year old patients. Patients on ECMO had an overall hospital mortality rate of 38.1% (51/134 patients) while 12.5% (2055/16.379 patients) of TBI patients without ECMO died. Risk factors for ECMO were male gender ($p=0.029$), $\text{AIS}_{\text{Chest}} 4$ ($p=0.048$), $\text{AIS}_{\text{Chest}} 5$ ($p=0.008$) and packed red blood cell (pRBC) transfusion (1-9 pRBC ($p < 0.001$), ≥ 10 pRBC ($p=0.002$)).

Conclusion: ECMO therapy is a key component to the treatment of moderate-to-severe TBI combined with severe chest trauma and pulmonary failure. Even though associated with higher in-hospital mortality, the majority of ECMO patients is surviving. Severe chest trauma and pRBC transfusion are potential early predictors for the need of ECMO in the further clinical course of TBI patients.

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NEUROGENIC DYSPHAGIA IN SUBDURAL HEMATOMA

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Background: Dysphagia is a common and severe symptom of traumatic brain injury (TBI) affecting up to 78% of patients. It is associated with pneumonia, increased morbidity and mortality. Although subdural hematoma (SDH) accounts for over 50% of TBI, the occurrence of dysphagia in this subtype has not been investigated. This study investigates the overall frequency, clinical predictors of dysphagia and functional outcome of patients with SDH associated dysphagia.

Methods: All patients presenting in author's institution between 2007 and 2020 with SDH were included in the study. Patients with SDH and clinical suspicion for dysphagia received a clinical swallowing assessment by a speech and language pathologist (SLP). Furthermore the severity of dysphagia was rated according to swallowing disorder scale. Functional outcome was evaluated by Glasgow outcome scale (GOS).

Results: Of 545 patients with SDH, 71 patients had dysphagia (13%). The prevalence of dysphagia was significantly lower in the surgical arm compared to the conservative arm (11.8% vs 21.8%; OR 0.23; $p=0.02$). Independent predictors for dysphagia were GCS < 13 at admission ($p < 0.001$; OR 4.17), cardiovascular disease ($p=0.002$; OR 2.29) and pneumonia ($p=0.002$; OR 2.88) whereas operation was a protective factor ($p < 0.001$; OR 0.2). All patients with dysphagia improved significantly under SLP treatment from initial diagnosis to hospital discharge ($p < 0.01$). However, patients with most severe grade of dysphagia showed no significant improvement during the clinical course. Patients with dysphagia had significantly worse outcome (GOS 1-3) compared to those without dysphagia (48.8% vs 26.4%; $p < 0.001$).

Conclusion: Dysphagia is a frequent symptom in SDH and the early identification of dysphagia is crucial regarding initiation of treatment and functional outcome. Surgery is effective in preventing dysphagia and should be considered in high-risked patients.

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PREDICTIVE FACTORS FOR CRANIOPLASTY COMPLICATIONS – A DECADE EXPERIENCE

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Background: Patients previously submitted to craniectomy generally undergo cranioplasty procedures to reestablish cosmesis and benefit cerebral protection, perfusion and CSF dynamics. Frequently regarded as minor procedures, cranioplasty series repeatedly report major complication rates. This study aims to identify predictive factors of post-operative cranioplasty complications.

Methods: We performed a retrospective single center study in a tertiary hospital, analyzing all patients submitted to cranioplasty (CP) following craniectomy (CE) between 2008 and 2019. Patients' demographic information, medical history, CE and CP characteristics were retrieved from hospital records. "CP Complications" were considered any symptomatic event that led or not to surgical re-intervention such as symptomatic intracerebral hemorrhage, extradural or subdural