patient, independent of therapy, showed structural epilepsy after the abscess healing.
Conclusions: Outpatient IV antibiotic therapy via a PICC line catheter is a safe and feasible method for long-term antibiotic treatment of cranial infections.

844
BRAIN AND SPINE 3 (2023) 101794 102336
INNOVATIVE NON-INVASIVE TECHNOLOGY FOR INTRACRANIAL COMPLIANCE MONITORING

Edvinas Chaleckas [1], Vilma Putnynaite [1], Vytautas Petkus [1], Romanas Chomskis [1], Mantas Deimantavicius [1], Laimonas Bartusis [1], Rolandas Zakelis [1], Yasin Hamarat [1], Indre Lapinskiene [2], Aidanas Preiksaitis [2], Mindaugas Serpytis [2], Saulius Rocka [2], Tomas Jovaisa [2], Arminas Ragauskas [1,2]. [1] *Health Telematics Science Institute, Kaunas University of Technology, Kaunas, Lithuania;* [2] *Clinic of Neurology and Neurosurgery, Faculty of Medicine, Vilnius, Lithuania*

Oral e-Poster Presentations - Booth 1: Trends & Innovation A, September 26, 2023, 1:00 PM - 2:30 PM
Background: Intracranial compliance (ICC) has been studied to add the value for interpretation of intracranial pressure (ICP) in neuro-critical care and to help to personalize treatment decision making. Invasive ICC (iICC) monitoring is possible using real-time analysis of morphology of iICP pulse waves. It has been shown in previous studies that iICC changes have been linked to iICP pulse wave tidal peak's (P2) amplitude and upstroke peak's (P1) amplitude ratio changes. It has been also demonstrated by analysis of CENTER-TBI study data base that iICP pulse wave shape derived parameters are predictors of mortality after TBI. Such biomarkers were associated with poor outcome in patients with low iICP. Latest studies support the importance of iICP pulse wave form analysis in addition to recording mean iICP. Unfortunately, non-invasive sensors for nICP pulse wave form recording with accuracy and precision needed for clinical practice do not exist.
Methods: Novel technology is proposed for nICP pulse wave recording and analysis. Codman invasive sensors were used for iICP pulse wave recordings. Novel non-invasive nICP sensor is gently applied to the closed eye lid of TBI or stroke patients. 6 piglets were included into animal study of novel sensor's performance. Patients with low, normal and high ICC were included into clinical study.
Results: We found that proposed novel technology records nICP pulse waves which highly correlates (R = [0,97;0.99]) with simultaneously recorded iICP pulse waves.
Conclusions: Our study shows that proposed technology is able to record nICP pulse waves which highly correlates (R=[0,97;0.99]) with simultaneously recorded iICP pulse waves. nICC real-time monitoring with clinically needed accuracy and precision is possible by using proposed technology.

845
BRAIN AND SPINE 3 (2023) 101794 102337
INTRODUCING A NEW GRADING SYSTEM FOR HEMIFACIAL SPASM SEVERITY USING FACIAL RECOGNITION AND FACIAL TRACKING TECHNOLOGY

Ahmed Al Menabbawy [1,2], Lennart Ruhser [1], Ehab El Refaee [1,2], Marc Matthes [1], Henry Schroeder [1]. [1] *University Medicine Greifswald, Greifswald, Germany;* [2] *Cairo University Hospitals, Cairo, Egypt*

Oral e-Poster Presentations - Booth 1: Trends & Innovation A, September 26, 2023, 1:00 PM - 2:30 PM
Background: Hemifacial spasm severity is difficult to be quantified accurately due to the paroxysmal nature of the spam's frequency. Postoperative outcomes vary among the different patients. Only few studies considered the severity of the preoperative spasms severity into account while evaluating the outcome of surgery. However, the current grading systems are unfortunately not very easy to implement and in many cases the categories overlap. Currently, many technological tools have been available at hand such as facial recognition and tracking technologies. We describe a novel modality to quantify and grade hemifacial spasms severity precisely.
Methods: Retrospective review of our prospectively maintained database for MVD was done. Preoperative videos were evaluated using Blender open-source software for facial movement tracking. Relevant demographics, disease, and patient related data were also extracted. Blender Software was run to detect the motion for an objective measure of the intensity and severity of the spams.
Results: We analyzed 50 preoperative videos. The severity varied among patients in terms of the intensity of the spasms and their frequency. We could identify 5 different spasm intensity amplitude ranges and 5 frequency ranges. Accordingly, the patients could be classified into 5 different severity levels.
Conclusions: Facial recognition and tracking technology are accurate and reliable in calculating the severity of hemifacial spasms and can help us objectively comparing the preoperative to the postoperative outcome in patients with persistent spasms.

871
BRAIN AND SPINE 3 (2023) 101794 102338
DIGITAL PATIENT-SPECIFIC 3D MODEL AS AN OBJECTIVE ASSESSMENT TOOL FOR NEUROSURGICAL PLANNING SKILLS

Sahin Hanalioglu [1], Ilkay Isikay [1], Muhammet Enes Gurses [1], Baylar Baylarov [1], Osman Tunc [2], Nergiz Ercil Cagiltay [3], Ilkan Tatar [1], Mustafa Berker [1]. [1] *Hacettepe University, Ankara, Turkey;* [2] *Btech Innovation, Ankara, Turkey;* [3] *Atilim University, Ankara, Turkey*

Oral e-Poster Presentations - Booth 1: Trends & Innovation A, September 26, 2023, 1:00 PM - 2:30 PM
Background: Neurosurgical patient-specific 3D models have been shown to facilitate learning, enhance planning skills and improve surgical results. However, there is limited data on the objective validation of these models. Here, we aim to investigate their potential for improving the accuracy of surgical planning process of the neurosurgery residents and their usage as a surgical planning skill assessment tool.
Methods: A patient-specific 3D digital model of parasagittal meningioma case was constructed. Participants were invited to plan the incision and craniotomy first after the conventional planning session with MRI, and then with 3D model. A feedback survey was performed at the end of the session. Quantitative metrics were used to assess the performance of the participants in a double-blind fashion.
Results: A total of 38 neurosurgical residents and interns participated in this study. For estimated tumor projection on scalp, percent tumor coverage increased (66.4±26.2% to 77.2±17.4%, p=0.026), excess coverage decreased (2232±1322 mm2 to 1662±956 mm2, p=0.019); and craniotomy margin deviation from acceptable the standard was reduced (57.3±24.0 mm to 47.2±19.8 mm, p=0.024) after training with 3D model. For linear skin incision, deviation from tumor epicenter significantly reduced from 16.3±9.6 mm to 8.3±7.9 mm after training with 3D model only in residents (p=0.02). The participants scored realism, performance, usefulness, and practicality of the digital 3D models very highly.
Conclusions: Patient-specific digital 3D models can be used as educational materials to improve the surgical planning accuracy of neurosurgical residents and to objectively assess their surgical planning skills through various surgical scenarios.

876
BRAIN AND SPINE 3 (2023) 101794 102339
EARLY EXPERIENCE WITH ROBOTIC MICROVASCULAR ANASTOMOSES

Daniel Wiggan [1], Corinne Rabbin-Birnbaum [1], Karl Sangwon [1], Albert Liu [1], Erez Nossek [1], Osamah Choudhry [1]. [1] *NYU Langone Health, Manhattan, United States*

Oral e-Poster Presentations - Booth 1: Trends & Innovation A, September 26, 2023, 1:00 PM - 2:30 PM
Background: Robotics are becoming increasingly widespread within various neurosurgical subspecialties. The adoption of robotic technology within vascular neurosurgery is of great interest, but data pertaining to its feasibility is currently limited. In this paper we present our novel attempt to evaluate the learning curve