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Neurosurgery literature highlights & psychiatry literature highlights

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NEUROSURGERY LITERATURE HIGHLIGHTS & PSYCHIATRY LITERATURE HIGHLIGHTS

NEUROSURGERY LITERATURE HIGHLIGHTS
Muhammad Waqas Shaiq, Muhammad Shahzad Shamim

"A good hockey player plays where the puck is. A great hockey player skates to where the puck is going to be. Similarly, the challenge of our profession is to envision how to deliver exemplary neurosurgical care for the future, not just to fine tune and improve how we practice now." This is an excerpt from an editorial written by Deborah Benzil, which is the first of our featured abstracts for Neurosurgery literature highlights. The challenge is indeed great and the author talks about the economic, political and social awareness needed to meet those challenges which extend beyond the boundaries of a single nation. Brainstem, supratentorial and intramedullary cavernous malformations are critical in their location and pose a great challenge for conventional surgical approaches. Our second abstract is of an article which addresses the use of Co2 Laser for resection of cavernous malformation. This is an analysis of 58 patients, 50% of whom had cavernomas located in brainstem. Complete resection was achieved in all but one of the patients. The issue of precision and control of thermal effect to prevent damage to normal tissue is dealt by use of a special device. The third featured abstract is that of a study of 7651 patients who underwent clipping of their cerebral aneurysms. The authors have analyzed the Nationwide Inpatient sample from 2005 to 2009, and aimed to identify risk factors associated with in hospital morbidity and mortality. The article reports a mortality of 11.5% for ruptured aneurysms which is much lower than reported in literature so far. Advancing age, and history of stroke along with diabetes, hypertension, coagulopathy and peripheral vascular disease are identified as risk factors associated with increase morbidity and mortality of patients in the cohort. Use of endoscopic third ventriculostomy (ETV) versus ventriculoperitoneal (VP) shunt for hydrocephalus in infants is still a matter of debate. Our fourth abstract is that of a retrospective study with a large sample size, evaluating the success of ETV in comparison to VP shunt. The authors compare one year failure rate of the two procedures done for both congenital and acquired hydrocephalus. ETV is shown to have higher failure rate especially for infants less than 90 days old.

CHANGING OUR CULTURE
Benzil DL

ABSTRACT

Today, a great challenge of our profession is to envision how we will deliver exemplary neurosurgical care in the future. To accomplish this requires anticipating how economic, political, and societal influences will affect our ability to provide the highest quality of patient care in an arena that will look increasingly different from today's world of medicine. Already, our profession is battling a relentless assault as numerous sectors implement change that impacts us and our community every day. Surviving this requires an effective strategy that will involve significant cultural change. To accomplish this, neurosurgery must take an honest look inward and then commit to being the agents of positive cultural change. Such a path will not be easy but should reap important benefits for all of neurosurgery and our patients. Several practical and proven strategies can help us to realize the rewards of changing our culture. Vital to this process is understanding that effecting behavioral change will increase the likelihood of achieving sustainable cultural change. Innovation and diversity are crucial to encourage and reward when trying to effect meaningful cultural change, while appreciating the power of a "Tipping Point" strategy will also reap significant benefits. As a profession, if we adopt these strategies and tactics we can lead our profession to proceed in improvement, and as individuals we can use the spirit that drove us into neurosurgery to become the agents of an enduring and meaningful cultural change that will benefit our patients and us.

FLEXIBLE OMNIDIRECTIONAL CARBON DIOXIDE LASER AS AN EFFECTIVE TOOL FOR RESECTION OF BRAINSTEM, SUPRATENTORIAL, AND INTRAMEDULLARY CAVERNOUS MALFORMATIONS
Choudhri O1, Karamchandani J, Gooderham P, Steinberg GK

ABSTRACT

BACKGROUND
Lasers have a long history in neurosurgery, yet bulky designs and difficult ergonomics limit their use. With its ease of manipulation and multiple applications, the OmniGuide CO_2 laser has reintroduced laser

technology to the microsurgical resection of brain and spine lesions. This laser, delivered through a hollow-core fiber lined with a unidirectional mirror, minimizes energy loss and allows precise targeting.

OBJECTIVE

To analyze resections performed by the senior author from April 2009 to March 2013 of 58 cavernous malformations (CMs) in the brain and spine with the use of the OmniGuide CO2 laser, to reflect on lessons learned from laser use in eloquent areas, and to share data on comparisons of laser power calibration and histopathology.

METHODS

Data were collected from electronic medical records, radiology reports, operative room records, OmniGuide CO2 laser case logs, and pathology records.

RESULTS

Of 58 CMs, approximately 50% were in the brainstem (30) and the rest were in supratentorial (26) and intramedullary spinal locations (2). Fifty-seven, ranging from 5 to 45 mm, were resected, with a subtotal resection in 1. Laser power ranged from 2 to 10 W. Pathology specimens showed minimal thermal damage compared with traditionally resected specimens with bipolar coagulation.

CONCLUSION

The OmniGuide CO2 laser is safe and has excellent precision for the resection of supratentorial, brainstem, and spinal intramedullary CMs. No laser-associated complications occurred, and very low energy was used to dissect malformations from their surrounding hemosiderin-stained parenchymas. The authors recommend its use for deep-seated and critically located CMs, along with traditional tools.

PREDICTING INPATIENT COMPLICATIONS FROM CEREBRAL ANEURYSM CLIPPING: THE NATIONWIDE INPATIENT SAMPLE 2005-2009

Bekelis K, Missios S, Mackenzie TA, Desai A, Fischer A, Labropoulos N, Roberts DW.

ABSTRACT

OBJECT

Precise delineation of individualized risks of morbidity and mortality is crucial in decision making in cerebrovascular neurosurgery. The authors attempted to create a predictive model of complications in patients undergoing cerebral aneurysm clipping (CAC). Methods The authors performed a retrospective cohort study of patients who had undergone CAC in the period from 2005 to 2009 and were registered in the Nationwide InpatientSample (NIS) database. A model for outcome prediction based on preoperative individual patient characteristics was developed. Results Of the 7651 patients in the NIS who underwent CAC, 3682 (48.1%) had presented with unruptured aneurysms and 3969 (51.9%) with subarachnoid hemorrhage. The respective inpatient postoperative risks for death, unfavorable discharge, stroke, treated hydrocephalus, cardiac complications, deep vein thrombosis, pulmonary embolism, and acute renal failure were 0.7%, 15.3%, 5.3%, 1.5%, 1.3%, 0.6%, 2.0%, and 0.1% for those with unruptured aneurysms and 11.5%, 52.8%, 5.5%, 39.2%, 1.7%, 2.8%, 2.7%, and 0.8% for those with ruptured aneurysms. Multivariate analysis identified risk factors independently associated with the above outcomes. A validated model for outcome prediction based on individual patient characteristics was developed. The accuracy of the model was estimated using the area under the receiver operating characteristic curve, and it was found to have good discrimination. Conclusions The featured model can provide individualized estimates of the risks of postoperative complications based on preoperative conditions and can potentially be used as an adjunct in decision making in cerebrovascular neurosurgery.

THE COMPARATIVE EFFECTIVENESS OF VENTRICULAR SHUNT PLACEMENT VERSUS ENDOSCOPIC THIRD VENTRICULOSTOMY FOR INITIALTREATMENT OF HYDROCEPHALUS IN INFANTS

Jernigan SC, Berry JG, Graham DA, Goumnerova L

ABSTRACT

OBJECT

The purpose of this study was to compare the effectiveness of CSF diversion with endoscopic third ventriculostomy (ETV) versus shunt therapy in infants with hydrocephalus.

METHODS

The authors conducted a retrospective analysis of 5416 infants 1 year of age or younger with hydrocephalus (congenital or acquired) in whom CSF diversion was performed using either ETV or shunt placement at 41 children's hospitals between 2004 and 2009. Data were obtained from the Pediatric Health Information Systems database. Surgical failure was defined as the need for a repeat diversion operation within 1 year of initial surgery. The authors compared failure rates of ETV and shunt, as well as patient demographics and clinical characteristics, using hierarchical regression according to treatment group.

RESULTS

During the period examined, 872 infants (16.1%) initially underwent ETV and 4544 (83.9%) underwent

ventricular shunt placement. The median infant age was 37 days (IQR 11-122 days) for both ETV ands-hunt placement. More infants who underwent ETV rather than shunt placement were born prematurely (41.6% vs 23.9%, respectively; p < 0.01) and had intraventricular hemorrhage (45.4% vs 17.5%, respectively; p < 0.01). Higher operative failure rates at 1 year were observed in infants who underwent ETV as opposed to shunt surgery (64.5% vs 39.6%, respectively; OR 2.9 [95% CI 2.3-3.5], p < 0.01). After controlling for prematurity, intraventricular hemorrhage, and spina bifida, ETV remained associated with a higher risk of failure (OR 2.6 [95% CI 2.1-3.2]).

CONCLUSIONS
In infantswith hydrocephalus, a greater 1-year CSF diversion failure rate may occur after ETV compared with shunt placement. This risk is most significant for procedures performed within the first 90 days of life. Further investigation of the need for multiple reoperations, cost, and impact of surgeon and hospital experience is necessary to distinguish which treatment is more effective in the long term.

PSYCHIATRY LITERATURE HIGHLIGHTS:
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COMORBID DEPRESSIVE AND ANXIETY DISORDERS IN 509 INDIVIDUALS WITH AN AT-RISK MENTAL STATE: IMPACT ON PSYCHOPATHOLOGY AND TRANSITION TO PSYCHOSIS

Palolo Fusar-Poli [*,1], Barnaby Nelson[2], Lucia Valmaggia[1], Alison R. Yung[2,3], and Philip K. McGuire[1,3]

BACKGROUND
The current diagnostic system for subjects at enhanced clinical risk of psychosis allows concurrent co morbid diagnoses of anxiety and depressive disorders. Their impact on the presenting high-risk psychopathology, functioning, and transition outcomes has not been widely researched. Methods: In a large sample of subjects with an at-Risk Mental State (ARMS, n = 509), we estimated the prevalence of DSM/SCID anxiety or depressive disorders and their impact on psychopathology, functioning, and psychosis transition. A meta-analytical review of the literature complemented the analysis. Results: About 73% of ARMS subjects had a co morbid axis I diagnosis in addition to the "at-risk" signs and symptoms. About 40% of ARMS subjects had a co morbid diagnosis of depressive disorder while anxiety disorders were less frequent (8%). The meta-analysis conducted in 1683 high-risk subject's confirmed that baseline prevalence of co morbid depressive and anxiety disorders is

respectively 41% and 15%. At a psychopathological level, co morbid diagnoses of anxiety or depression were associated with higher suicidality or self-harm behaviors, disorganized/odd/stigmatizing behavior, and avolition/apathy. Co morbid anxiety and depressive diagnoses were also associated with impaired global functioning but had no effect on risk of transition to frank psychosis. Meta-regression analyses confirmed no effect of baseline anxiety and/or depressive comorbid diagnoses on transition to psychosis. Conclusions: The ARMS patients are characterized by high prevalence of anxiety and depressive disorders in addition to their attenuated psyxhotic symptoms. These symptoms may reflect core emotional dysregulation processes and delusional mood in prodromal psychosis. Anxiety and depressive symptoms are likely to impact the ongoing psychopathology, the global functioning, and the overall longitudinal outcome of these patients.

POLYSOMNOGRAPHIC SLEEPPATTERNS IN DEPRESSIVE, SCHIZOPHRENIC AND HEALTHY SUBJECTS

Andrej Ilanković[1], Aleksandar Damjanović[2], Vera Ilanković[3], Branislav Filipović[4], Slavko Janković[5] & Nikola Ilanković[1]

SUMMARY

BACKGROUND
Sleep disorders are frequent symptoms described in psychiatric patients with major depression and schizophrenia. These patients also exhibit changes in sleep architecture measured by polysomnography (PSG) during sleep. The aim of the present study was to identify potential biomarkers to facilitate diagnosis based on PSG measurements.

SUBJECTS AND METHODS
Thirty (30) patients with schizophrenia, 30 patients with major depression and 30 healthy control subjects were investigated in the present study. All subjects underwent PSG measurements for a minimum time of 8 hours according to the criteria of Rechts cahffen & Kales (1968). We tested the potential of multiple sleep variables to predict diagnosis in different groups by using linear discriminant analysis (LDA).

RESULTS
There were significant differences in PSG variables between healthy control subjects and psychiatric

patients (total sleep time, sleep latency, number of awakenings, time of awakening after sleep onset, REM 1 latency, REM 1 and index of endogenous periodicity). Importantly, LDA was able to predict the correct diagnosis in 88% of all cases.

CONCLUSIONS
The presented analysis showed commonalities and differences in PSG changes in patients with major depressive disorder and in patients with schizophrenia. Our results underline the potential of PSG measurements to facilitate diagnostic processes.

POSITIVE IMAGERY COGNITIVE BIAS MEDICATION IN TREATMENT-SEEKING PATIENTS WITH MAJOR DEPRESSION IN IRAN: APILOT STUDY

Hajar Torkan. Simon E. Blackwell. Emily A. Holmes .
Mehrdadkalantari . Hamidtaherneshat-doost
Mohsen Maroufi. Hooshang Talebi

ABSTRACT

Cognitive bias modification paradigms training positive mental imagery and interpretation (imagery CBM-I) hold promise for treatment innovation indepression. However, depression is a global health problem and interventions need to translate across settings and cultures. The current pilot study investigated the impact of 1week of daily imagery CBM-I in treatment-seeking individuals with major depression in outpatient psychiatry clinics in Iran. Further, ittested the importance of instructions to imagine the positive training materials. Finally, we examined the effects of this training non-imagery vividness. Thirty-nine participants were randomly allocated to imagery CBM-I, a non-imagery control program, orano treatment control group. Imagery CBM-I led to greater improvements indepressive symptoms, interpretive bias, and imagery vividness than either control condition at post-treatment (n=13pergroup), and improvements were maintained at 2-week follow-up (n=8pergroup). This pilot study provides first preliminary evidence that imagery CBM-I could provide positive clinical outcomes in an Iranian psychiatric setting, and further that the imagery component of the training may play a crucial role.

COMMENTARY
The enigma with schizophrenia is as such that by the time diagnosis is made six months have already elapsed when we adhere to the American Psychiatric Association, DSM diagnostic criteria. The experience of psychosis, in itself, is toxic to the overall neuronal plasticity of the brain. Early psychosis research looks to redefine the paradigms in the schizophrenia research. The concept of at risk mental state (ARMS) coined by Young et al. looks to identify those who have the propensity to develop serious mental disorder. Docherty et al. reported that there are five consistent stages in the development of psychotic symptoms. The first three primarily consist of non-psychotic symptoms and the type of behavior (typically reflecting emotional dysphoria) which are then followed by psychotic disorganization. The complexity with the prodromal symptoms of schizophrenia is that they are mostly non-specific and affective in nature. The perfidious presentation not only challenges the existing psychiatric nomenclature of categorical classification (as opposed to continuum of disturbance from affective to psychotic) but also makes the treatment recommendations difficult. The article by Fausar-PoliPaolo on ARMS from Kings College, London makes for interesting read as they presents the meta-regression of their data. Insomnia is one of the most commonly reported symptoms in neuro-psychiatric practice. The frequency of insomnia symptom in general population is reported to be around 30% to 40%, while the specific diagnostic criteria – meeting the day time impairment criteria – ranges from 5% to 10% of adult population in United States. It is classified as primary and secondary. The paper by Alonkovic A. et al from a neurophysiology research center in Serbia reports the polysomnographic sleep patterns in individuals with depression, schizophrenia and healthy volunteers. The paper makes the case on divergent findings among these subgroups in terms of sleep difficulty, sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances and daytime dysfunction.

The Major Depressive Disorders remains the major contributor to the global burden of disease. The morbidity (and mortality) associated with them remains an ongoing concern with newer interventions designed every now-and-ten to affect their course. A pilot study from Iran explores the possibility of a positive cognitive bias practiced through imagery as an intervention for depression. The study follows a mixed design with three groups followed over a course of one week. The intervention group was asked to follow cognitive bias modification through imagery (CBM-I) while other two groups were non-imagery control group and no intervention group. Although the study is pilot in nature, it definitely makes the case for further research with larger sample size and robust methodology given the cost-effectiveness of the intervention.