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EARLY EXPERIENCE WITH PATIENT TREATMENT AND DRUG DELIVERY USING IRRAFLOW: AN AUTOMATICALLY IRRIGATING & DRAINING VENTRICULAR CATHETER

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INTRODUCTION

External ventricular drains are a mainstay of neurosurgical critical care. They are used in the treatment of a large variety of acute neurosurgical illnesses. External ventricular drain technology has not meaningfully changed since their initial introduction. Recently, an automatically irrigating and draining external ventricular catheter IRRAflow (Irras, San Diego, CA, USA) was made available.

METHODS

Here we report a series of consecutive cases treated with the IRRAflow device at a large academic medical center.

RESULTS

31 patients were treated with 33 IRRAflow devices over a period of 10 months. Diagnoses treated included subdural hematoma (11), intraventricular hemorrhage (16), subarachnoid hemorrhage (2), ventriculitis/abscess (4). Drain days ranged from 1–18 and ICU days ranged from 0–21. Irrigation rates ranged from 0ml/h to 60ml/h. Medications included intravenous tPA and vancomycin. 5/31 drains required revision, 4 for suboptimal position and 1 for pre-existing ventriculitis that failed to clear. No drains experienced new infections or clotting that required replacement or revision.

CONCLUSIONS

Here we present the largest case series using an automatically irrigating and draining ventricular catheter for a variety of diagnoses. Safe and effective protocols for continuously irrigating catheters as well as continuous intrathecal medication administration can be developed. Continuously irrigating ventricular catheters can be safely used in the critical care unit and may avoid some of the most common complications associated with external ventricular drainage.

DISCLOSURES

R. Turner: None. B. Khan: None. J. Garavaglia: None. N. Brandmeir: 2; C: IRRAS.
Technical failures rates were comparable between the groups (4.2% vs 3%, respectively; \( p=0.82 \)). Similarly, radiological improvement in terms of ≥50% reduction of hematoma thickness on the last follow-up was similar between GA and MAC groups (81.8% vs 83.9% respectively; \( p=0.85 \)).

Conclusions In our data, there was no significant difference between GA and MAC in terms of radiological improvement and clinical outcomes, despite a trend of higher retreatment rates in the GA group.


E-172 RESTENOSIS AFTER VENOUS SINUS STENTING FOR IDIOPATHIC INTRACRANIAL HYPERTENSION: SINGLE-CENTER EXPERIENCE


Introduction Venous sinus stenting (VSS) has emerged as an alternative treatment for idiopathic intracranial hypertension (IIH) patients with evidence of transverse-sigmoid stenosis and symptoms refractory to medical therapy. Though its efficacy in alleviating visual deficits, papilledema, headache and nausea is promising, a substantial rate of restenosis can occur either within or adjacent to the stented segment. It is possible that increase of, or failure to lose, body-weight could potentially be a mechanism behind restenosis, as central venous pressure would remain elevated. We report IIH patients who underwent VSS at our institution and compare characteristics between those with and without restenosis, focusing on patient’s body mass index (BMI).

Methods Our institution’s database was retrospectively analyzed. We included all IIH patients who underwent VSS between January 2021 March 2022. Analysis between restenosis and non-restenosis groups was performed. Body mass index was evaluated as a continuous variable and also as categorical by stratification into normal (<25), overweight (25 – 34.9), obesity class I (35–39.9), obesity class II (≥40). BMI groups were dichotomized into normal or mildly obese (normal, overweight and obesity class I) and moderate to severely obese (obesity classes II and III).

Results A total of 55 patients were included, of which 7 (12.7%) had restenosis. Age, sex, and comorbidities were similar between non-restenosis and restenosis patients. Opening pressure on lumbar puncture was similar between the groups (non-restenosis, 38.1 vs restenosis, 38.1, \( P=0.304 \)). Median BMI at time of procedure was similar between the groups (non-restenosis, 35.1 vs non-restenosis, 37.1, \( P=0.958 \)). Median pre-stenting pressure gradient was not significantly different between the groups (non-restenosis, 17 vs restenosis, 21, \( P=0.280 \)), and neither was immediate post-stenting pressure gradient (non-restenosis, 1 vs restenosis, 3, \( P=0.230 \)). Median time of follow-up was not significantly different between the groups (non-restenosis, 676 days vs restenosis, 597 days, \( P=0.319 \)). Median BMI at last follow-up or at date of restenosis detection was not significantly different between the groups (non-restenosis, 36.1 vs restenosis, 36.5, \( P=0.904 \)). Neither stratification nor dichotomization of BMI revealed differences between the groups. Median BMI change from procedure to last follow-up was not different between the groups (non-restenosis, 0.1 vs restenosis, 0, \( P=0.552 \)). Reduction in BMI class was also not different between the groups (non-restenosis, 12.5% vs restenosis, 28.6%, \( P=0.645 \)).

Conclusions Idiopathic intracranial hypertension patients with venous sinus stenosis treated with VSS who had restenosis were similar to those who did not with regards to demographics, pressure gradients and duration of follow-up. Body mass index did not predict restenosis as we hypothesized.

Disclosures J. Cappuzzo: None. A. Monteiro: None. N. Siddiqi: None. A. Baig: None. W. Khawar: None. B. Donnelly: None. S. Housley: None. M. Waqas: None. E. Levy: 2; C; Clarret Medical, GLG Consulting, Guidepoint Global, Imperial Care, Medtronic, Rebound, StimMed, Misionix, Mosiac, Clarion, IRRAS. 4; C; NeXtGen Biologics, RAPID Medical, Clarret Medical, Cognition Medical, Imperative Care, Rebound Therapeutics, StimMed, Three Rivers Medical. A. Siddiqui: 2; C; Amnis Therapeutics, Apellis Pharmaceuticals, Inc., Boston Scientific, Canon Medical Systems USA, Inc., Cardinal Health 200, LLC, Cerebrotech Medical Systems, Inc., Cerenovus, Cervatech Medical, Inc., 4; C; Adona Medical, Inc., Amnis Therapeutics, Bend IT Technologies, Ltd., BlinkTBI, Inc, Buffalo Technology Partners, Inc., Cardinal Consultants, LLC, Cerebrotech Medical Systems, Inc, Cervatech Medical.

E-173 INITIAL EXPERIENCE WITH PENUMBR A RED REPERFUSION CATHETERS FOR ACUTE STROKE INTERVENTION: SUBSET ANALYSIS FROM THE PROSPECTIVE, MULTICENTER INSIGHT REGISTRY

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Introduction/Purpose The INSIGHT Registry is a multicenter ‘multi-omic’ analysis of thrombi associated with acute hemorrhagic or ischemic stroke. To understand variances of specimens collection and efficacy based on device choice, we performed an interim analysis to evaluate the initial performance of Penumbra RED catheters used during aspiration thrombectomy in acute ischemic stroke (AIS) patients.

Materials and Methods This is a subset analysis of data extracted from a prospective multicenter registry (INSIGHT) aiming to collect and analyze specimens from ischemic stroke adult patients undergoing aspiration thrombectomy. All cases in which Penumbra RED catheters (RED 62, 68, or 72) were utilized as a frontline treatment were included in the analysis. Procedural data collected included modified Treatment in Cerebral Ischemia (mTICI) score after the first pass and at the conclusion of the procedure and key time metrics.

Results Of 284 patients enrolled across 25 US centers, 66 patients underwent thrombectomy with Penumbra RED