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NATURAL HISTORY AND RISK FACTORS OF BEDSIDE PERCUTANEOUS ENDOSCOPIC GASTROSTOMY TUBES IN THE ICU

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INTRODUCTION: There is a paucity of literature describing patients receiving bedside placed percutaneous endoscopic gastrostomy (PEG) tubes in an intensive care unit (ICU) setting. This study aims to describe the natural history, and risk factors for complications for ICU patients requiring bedside PEG tube placement in a Level I trauma center.

METHODS: Adult patients with bedside placed PEG tubes from 1/1/2017 to 1/1/2022 were identified through retrospective chart review. Patients with at least 6 months of follow up were included in this study. Descriptive statistics were used to illustrate the cohort's natural history. Multivariable logistic regression models adjusting for patient demographics, comorbidities, and index hospitalization factors were fitted to identify risk factors predictive of 6-month all cause complications. Major complications were those requiring invasive intervention.

RESULTS: 144 patients were included in this study. Pertinent cohort characteristics include mean age 55.8 years (IQR: 45.6-68.2), 63.9% male sex, 54.9% black race, 28.7% had prior inpatient hospitalization in the past 6 months, 43.4% were transferred from outside hospitals. The most common indications were respiratory failure (31.9%) and blunt trauma (22.9%). The 6-month rate of all-cause and major complication rates were 12.5% and 7.6%, respectively. The most common complications following bedside PEG tube placement were tube dislodgement (44.4%) and surrounding organ injury (27.7%). No deaths associated with PEG tube placement in our study. Bedside PEG tubes were placed on hospital day 15.4 [IQR: 9.7-20.7] and total hospital stay was 34.6 days [IQR: 21.6-43.7]. The most common disposition was to long-term care facility (55.6%). Significant risk factors associated with 6-month all-cause complications include history of diabetes (OR: 5.8, $P = 0.038$ [95% C.I. 1.1-30.1]). Risk factors for 6-month major complications include prior hospitalization (OR: 5.9, $P = 0.05$, [95% C.I. 1.01-34]), and increasing serum creatinine (OR: 5.8, $P = 0.02$, [95% C.I. 1.3-26.6]).

CONCLUSIONS: History of diabetes, prior hospitalization, and elevated serum creatinine were associated with increased rates of 6-month complications among ICU patients receiving bedside PEG tubes in our cohort.

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INTRACRANIAL PRESSURE IS NOT ALTERED BY JUGULAR VEIN CENTRAL LINE PLACEMENT

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INTRODUCTION: Jugular access for central venous catheterization (CVC) is usually avoided in neurocritically ill patients due to an inferred risk of increasing intracranial pressure (ICP). However, this hypothesis is lacking data to support it. Aneurysmal subarachnoid hemorrhage (aSAH) leads to diffuse cerebral edema, circumventing the question of laterality when assessing CVC placement. Moreover, these patients often have external ventricular drains (EVDs) and direct ICP measurements. Here we test whether CVC-access site correlates with ICP measurements and catheter-associated complications in aSAH patients.

METHODS: A retrospective cohort study of aSAH patients admitted to Emory University Hospital between January 1, 2012 through December 31, 2020 was reviewed. Patients were assigned by the access site of the first CVC placed. The subset of patients with an EVD were further studied. ICP measurements were analyzed using linear mixed effect models, with a binary comparison between internal-jugular (IJ) vs. non-IJ access.

RESULTS: A total of 1,577 patients were admitted during the study period with CVC access. Subclavian access was the most common (SC, 887, 56.2%), followed by IJ (365, 23.1%), femoral (72, 4.6%), and peripheral (PICC, 253, 16.0%). Traumatic pneumothorax was most common with SC access (3.0%, $p < 0.01$). Catheter-associated infections did not differ between sites. Catheter-associated deep venous thrombosis was most common in femoral (8.3%) and PICC (3.6%) access ($p < 0.05$). 1,220 patients had an EVD, generating 351,462 ICP measurements. ICP measurements, as compared over the first 24-post-insertion-hours and the next 10 days, were similar when comparing IJ and non-IJ groups. Subgroup analysis accounting for Hunt and Hess grade on presentation yielded similar results.

CONCLUSIONS: Internal-jugular access was not associated with increased ICP in the largest, quantitative dataset to date. Further, internal-jugular access was least likely to be associated with an access-site complication when compared to SC, femoral, and PICC. Together, these data support the safety of ultrasound-guided internal-jugular venous catheterization in neurocritically ill patients.