E-042

OUTCOMES OF PARTICLE VS. LIQUID EMBOLIC MATERIALS USED IN MIDDLE MENINGEAL ARTERY EMBOLIZATION FOR THE TREATMENT OF CHRONIC SUBDURAL HEMATOMA

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Introduction Chronic subdural hematoma is a common neurosurgical condition with a high recurrence rate. The primary pathologic process is repeated micro bleedings from fragile neo-vessels which are supplied by peripheral branches of the middle meningeal artery (MMA). MMA embolization has been shown to reduce the incidence of re-bleeding and prevent recurrence of cSDH by devascularizing the subdural membranes and shifting the balance from continued leakage and accumulation of blood and proteinaceous material to reabsorption. Liquid embolic and particle embolic materials are the most commonly used methods to devascularize the MMA. Studies comparing the safety, outcomes, and required radiation dose and fluoroscopy time between these two materials is scarce. Our objective is to perform a descriptive analysis of outcomes and to see any difference in radiation dose and fluoroscopy time among the 2 most commonly used materials for MMA embolization.

Methods We performed a retrospective chart review of all patients ≥ 18 years who underwent MMA embolization between 01/01/2020-03/01/2021 for cSDH. We compared patients who underwent particle vs liquid embolization. A descriptive analysis for continuous and categorical variables was performed using SAS 9.4 version.

Result A total of 35 embolizations were performed on 28 patients with a median age of 75 years (Q1-Q3 70–83 years). Among them, 18 patients underwent particle embolization while 17 underwent liquid embolization. Overall, there was no significant difference in terms of post-embolization mRS among the two embolic materials used. The median radiation dose in patients who underwent liquid versus particle embolization was 1476 mGy vs 1596.5 mGy; $P=0.85$. The median fluoroscopy time for liquid embolization versus particle embolization was 32 vs 41 minutes; $P=0.08$. One patient in the particle group required a craniotomy due to recurrence. There was one reported inpatient mortality related to cardiopulmonary etiology in the particle group unrelated to embolization.

Conclusion In a retrospective analysis of a small patient cohort from a single center, we do not see a significant difference in outcome of patients undergoing MMA embolization using liquid embolic versus particles for cSDH. Efficacy of preventing recurrent subdural hemorrhage was noted in both liquid and particle embolic groups in line with previously published data.

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E-043

ASSESSING SAFETY OF FEMORAL ARTERIAL SHEATH REMOVAL IN UNDER 24 HOURS POST-INTRAVASCULAR THROMBOLYSIS IN STROKE PATIENTS WHO UNDERGO MECHANICAL THROMBECTOMY

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Background Although not strictly mandated by current American Heart Association/American Stroke Association guidelines, most hospital stroke protocols and third-party recommendations suggest a waiting period of at least 24 hours post-infusion of tissue plasminogen activator (tPA) prior to any arterial or venous manipulations. In patients who undergo mechanical thrombectomy, this rule encompasses femoral arterial sheath (FAS) removal at the site of access in the groin. Given that there are no official guidelines for this 24-hour rule, nor any scientific studies regarding its safety, as well as the short half-life of tPA (five minutes, with negligible concentrations after 20 minutes), we aimed to determine if it would be safe to proceed with FAS removal prior to 24 hours. Earlier removal in general angiography patients has been associated with decreased rates of complications, including clot formation and bleeding, and can potentially free up hospital resources.

Methods A retrospective chart review was conducted over a three-year period across 67 hospitals, looking at acute ischemic stroke patients who received intravenous tPA and underwent emergent mechanical thrombectomy, selecting specifically those patients whose FAS was not removed immediately following the procedure. These patients were divided into two groups depending on whether the FAS was ultimately removed before or after 24 hours post-tPA administration. Rates of complications between the two groups were then compared, particularly those of retroperitoneal hematoma, femoral artery pseudoaneurysm, femoral arteriovenous fistula, femoral artery thrombosis, surgical site infection, and femoral arterial laceration. Patient data including age, sex, race, medical history, and anticoagulation status were also collected for comparison.

Results From January 1st, 2017 to January 1st, 2020, 2,839 patients were found to have a diagnosis of acute ischemic stroke treated with tPA and emergent mechanical thrombectomy. Of these, 365 patients did not have the FAS removed immediately following the procedure, with 255 patients having it removed after 24 hours post-tPA administration (Group A) and 110 patients having it removed before 24 hours post-tPA administration (Group B). In Group A, eight patients (3.14%) had any of the specified complications, as compared to Group B with four patients (3.64%). Retroperitoneal hematoma was discovered in six patients (2.35%) in Group A, as compared to Group B with two patients (1.82%). Femoral artery thrombosis was discovered in two patients (0.78%) in Group A, as compared to two patients (1.82%) in Group B. No other complications were discovered in either group.

Conclusion Similar rates of complications were discovered in both groups of patients, without any significant increase in those whose FAS was removed within 24 hours of tPA administration. Further evaluation should be considered to assess the safety of FAS removal in these patients.

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