

Preoperative Meningioma Embolization – reducing blood loss, but at what cost?

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Introduction

The clinical efficacy and cost-effectiveness of preoperative meningioma embolization was evaluated.

Methods

This is a retrospective, two-institution matched sample study. The studied variables included: estimated blood loss, number of transfusions, pre and post hemoglobin and hematocrit, and postoperative morbidity. The additional cost of undergoing an angiogram and embolization was calculated via hospital charges obtained from the billing department.

Results

29 patients undergoing preoperative meningioma embolization were matched to 29 control patients based on tumor size and location. The mean decrease in perioperative hemoglobin and hematocrit was 1 and 3, respectively, in the angiogram group, vs. 3 and 10, respectively, in the control group. The mean estimated blood loss was 280mL in the angiogram group vs. 510mL in the control group. There was no significant difference in EBL when subdividing patients based on tumor location (skull base vs. not). Six (21%) patients underwent perioperative transfusions in the angiogram group vs. none in the control group.

In the angiogram group (n=29), 22 pts (76%) underwent embolization of a feeding artery, while the remaining 7 patients underwent only a diagnostic angiogram as no safe feeding artery was deemed safe to embolize. There were no angiogram-related complications. The mean additional charge per patient, which included procedural charges as well as 1 night in the intensive care unit, was \$88,767.

Conclusions

The preoperative meningioma embolization cohort had a reduced estimated blood loss in comparison to the control group, however, this did not impact the rate of blood transfusion nor postoperative morbidity. Embolization accrued nearly an additional \$90,000 in hospital charges.

Learning Objectives

Evaluate if meningioma preoperative embolization reduces blood loss, or perioperative transfusion rate.

Calculate additional cost of meningioma preoperative embolization.