Retrospective Review of 423 Epidural Blood Patches: Volume Effect on Success

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Introduction: Epidural blood patch (EBP) is a well recognized treatment of post-dural puncture headache (PDPH). Although the success rate for the procedure is high and the volume of blood admin is believed to directly correlate with success, studies assessing vol are difficult to conduct due to ethical concerns of informed consent and dropout secondary to symptoms during injection. Per institution protocol, blood is admin until the patient experiences discomfort or 30ml is admin, follow-up is conducted until symptom free, and EBP files are stored indefinitely. The purpose of this study was to assess if the vol of blood injected during EBP affects outcome.

Methods: After IRB approval, 423 EBP records from 1996 to Nov, 2010 were retrospectively reviewed. Demographics, type of anesthetic, known wet tap (17g puncture) incidence, time intervals until EBP, volumes, and the number of EBP were recorded. Success was defined as requiring 1 EBP, failure as requiring a 2nd or 3rd EBP. Chi2 and Pearson’s Corr. as appropriate, p<0.05 sig.

Results: The mean±SD height was 144.7±7.1cm, weight 81.2±16.8kg, and the anesthetics included 236 epidurals (56%), 102 CSEs (24%), 47 spinals (11%), and 38 CSAs (9%). There were 205 documented wet taps. The average vol of blood admin in the 423 EBP was 20.4±5.4ml. 355/423 patients had 1-EBP (83.9%), 68 required a 2nd EBP (16.1%), and 6 required a 3rd EBP (8.7% of pts that had 2-EBP or 1.4% of 423). EBP vol has no effect on success or failure rate (p=0.72, r2=0.0054, see Table); however, pts with a wet tap had a significantly higher failure rate, 19.2 vs. 11.9% (p=0.048). Also, time to EBP was inversely related to failure rate: Day 1-42.6% required 2nd EBP, day 2-20.4%, day 3-14.3%, day 4-9.1%, and days 5-16 3.6% (p<000001).

Conclusion: The vol of blood admin during EBP does not affect the likelihood of requiring a 2nd EBP. The correlation is so poor it seems unlikely that a randomized prospective study of any size would demonstrate a significant difference. Based on these findings it is recommended that blood be admin until the patient experiences discomfort/pressure during injection or 30ml is admin (vol >30ml were not admin per protocol). It is speculated that because patients with a known wet tap are more likely to develop severe, early symptoms, EBP are performed sooner and may be less successful because of the large dural hole. This may account for the inverse relationship observed in EBP day and need for a 2nd EBP.