

Use of Tisseel fibrin sealant in neurosurgical procedures: incidence of cerebrospinal fluid leaks and cost-benefit analysis in a retrospective study.

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Abstract:

OBJECTIVE: To determine the clinical efficacy and cost effectiveness of using the fibrin sealant (FS) Tisseel (Baxter Healthcare Corp., Deerfield, IL) for patients undergoing anterior cranial base, infratemporal, and retromastoid surgical procedures.

METHODS: A retrospective review was performed, comparing two matched populations of patients who underwent surgical procedures using anterior cranial, infratemporal, or retromastoid approaches to intracranial pathological lesions. The incidences of cerebrospinal fluid (CSF) leaks in matched groups treated with the FS Tisseel or treated without FS were compared. The costs of Tisseel use were examined in comparison with the costs of postoperative management of CSF leaks and/or tension pneumocranium with spinal drainage and occasionally surgical reexploration, when lumbar drainage failed.

RESULTS: Patients who received the FS Tisseel exhibited no detectable postoperative CSF leaks or tension pneumocranium. Patients who did not receive Tisseel demonstrated 4 to 16% incidences of postoperative leaks, depending on the surgical approach used. The costs of treating those leaks far exceeded the costs of using Tisseel, even if it were used indiscriminately for all patients.

CONCLUSION: This retrospective review indicates that the FS Tisseel reduces the incidence of

postoperative CSF leaks and tension pneumocranium while reducing overall management costs.

Further prospective study is needed to determine which patients can benefit most from FS use.