The potential cost impact of using a peg hydrogel sealant compared with fibrin sealant to prevent cerebral spinal fluid leaks after cranial surgery in the UK.

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Publication Date: 2010

Abstract:

OBJECTIVES: Cerebrospinal fluid (CSF) leak is an unavoidable consequence of cranial surgery with leak rates between 0% to 25% and resulting costs ranging from 9,000 to 36,000. The use of polyethylene glycol (PEG) hydrogel dural sealant as an adjunct to sutured closure has been shown to reduce CSF leak rates as compared with sutures alone in cranial procedures (GR Cosgrove et al, 2007). Our hypothetical analysis applied the potential cost offsets of using PEG hydrogel sealant as an adjunct to sutured closure in 200 cranial procedures assuming CSF leak rates of 4.5% (9/200) (GR Cosgrove et al, 2007), compared with 10% (20/200) for fibrin sealant (JA Grotenhuis, 2005). METHODS: The incremental additional cost for treating CSF leaks using total patient costs for those with CSF leaks (25,253) compared to those without CSF leaks (10,497) was estimated at 14,756 in a Dutch study (JA Grotenhuis, 2005). We applied this CSF leak cost to estimate potential UK hospital cost offsets on 200 hypothetical cranial patients using PEG hydrogel sealant (300/treatment), compared with fibrin sealant (133/treatment) on all 200 patients. RESULTS: Use of a PEG hydrogel sealant compared with fibrin sealant could potentially save 137,611 (or 688/patient) for a hospital that performed 200 cranial surgery procedures using a PEG hydrogel sealant compared with using fibrin sealant on all 200 procedures. CONCLUSIONS: This study demonstrates the potential economic advantages of using a PEG hydrogel sealant in cranial procedures. Future clinical direct comparative studies would be beneficial to confirm these findings and understand the possible economic advantages for other types of dural surgeries.