

DuraSeal

- P040034
- Pre-Market Study Protocol
 - Prospective, multi-center, non-randomized single arm study
 - 10 sites
 - Primary endpoint was success rate of intraoperative CSF leak repair following device use
 - Safety endpoints were CSF leak, including post-operative pseudomeningocele, and infection

Summary of Pre-Market Study Results

- 111 subjects enrolled
- Primary endpoint success = 98.2%
 - Two patients tested improperly
- Incidence of post-op CSF leak = 4.5%
 - Incisional Leak = 1.8%
 - Pseudomeningocele = 2.7%
- Infection rate = 8.1%
 - Deep Infection 7.2%

Advisory Panel Summary

- November 30, 2004
- Concerns discussed
 - Infection rate
 - Lack of concurrent control
- Vote of 7 to 2 for approval
- Panel recommended
 - PAS to investigate infection rate
 - Sponsor should provide MRI/CT data
 - Proposed labeling

Approval Information

- Date of Approval – April 7th, 2005
- Indications for Use Statement
 - The DuraSeal Dural Sealant System is intended for use as an adjunct to sutured dural repair during cranial surgery to provide watertight closure. DuraSeal should only be used with autologous duraplasty material.

PAS Protocol Summary

- Objectives
 - to evaluate the infection rate and CSF leak rates
- Trial Design
 - Prospective, randomized, single-blind, double-arm, multi-center study
 - Patients randomized to receive DuraSeal or Standard of Care
- Patients will consist of those who are scheduled for clean elective cranial surgeries with primary dural closure or closure with autograft
- Intra-operative inclusion of only patients with intraoperative CSF leak

PAS Protocol Summary (cont.)

- Primary Endpoint
 - Incidence of neurosurgical complications related to unplanned intervention or return to OR
- Secondary Endpoints
 - Surgical site infection rates
 - CSF leak rates
- 250 patients and 25 sites

PAS Protocol Summary (cont.)

- Patients will be followed for 30 days after treatment
- Estimated duration of study = 24 months

Enrollment Status

- First patient enrolled on September 12th, 2005
- Interim Results from report in April 2006.
- Number of Sites: Six

Summary of Patient Status/Enrollment to date

- 53 patients enrolled
- Thirty day follow-up completed in 32 patients.

Study Results

- One Incisional CSF leak in Standard of Care Group
- One pseudomeningocele in DuraSeal treatment group (POD#23)
- No infections in either group

Outstanding Issues

- Summary of Pending Issues
 - Ongoing study, too early to compare rates of CSF leak and infection
- Use of Information
 - Information from the post-approval study will be used to update adverse event data in labeling

Questions for Panel

- Are there any concerns regarding interim results?
- Are there any recommendations regarding the ongoing study?

MDR reports

- Five (5) MDRs since PMA approval
 - One case of infection following use of DuraSeal
 - One case of possible device swelling (used with non-autologous duraplasty)
 - One case of device use in spine
 - Two cases of adverse reaction when applied near facial nerve

Major Literature Review

- PubMed search with keyword “DuraSeal”
- 1 Relevant study (Kacher, et al.)
 - Characterization of DuraSeal in Canine model using MRI and CT
 - 3 days to 10 weeks
 - Hydrogel apparent up to 6 weeks post-op
 - Able to discern hydrogel from CSF pseudomeningocele using some MRI sequences