

Radical Resection of Spinal Cord Lipomas Leads to Good Outcomes

Long-Term Outcome of Total and Near-Total Resection of Spinal Cord Lipomas and Radical Reconstruction of the Neural Placode: Part I-Surgical Technique.

Pang D, Zovickian J, Oviedo A:

Neurosurgery 2009; 65 (September): 511-528

Microsurgical technique can be used to completely resect the lipoma and reconstruct the neural placode in most cases of spinal cord lipoma.

Background: Symptomatic and asymptomatic spinal cord lipomas have a poor natural history. Spinal cord tethering is probably the underlying process that leads to neurological deterioration. The goal of surgery should be complete spinal cord untethering and prevention of future retethering.

Objective: To describe and evaluate the authors' technique for radical resection of spinal cord lipomas and untethering.

Design: Technical description and retrospective chart review.

Participants: 238 patients were identified as having undergone resection of a spinal cord lipoma and untethering from 1991 to 2006. In total, 84% were children aged ≤ 18 years.

Methods: Each lipoma was classified into 3 groups: dorsal, transitional, and chaotic. The surgical technique consisted of wide bony exposure, separation of the lipoma from the dural margins, radical resection of the lipoma down to the cord-lipoma interface, and wide dural grafting with fetal bovine pericardium for closure. Extensive use of intraoperative monitoring was employed during surgery.

Results: The authors describe their results in terms of postoperative radiographic findings in this article. First, no residual fat was identified in 58% of patients on postoperative MRI, 36% had minimal residual fat, and 8% had significant residual fat. Second, the cord-to-sac ratio was used as a measure of untethering. The overall rate of neurological complications was approximately 4%. The most common complaint was new lower extremity dysesthesias. About 2% of patients had worsened bowel/bladder function following surgery. The cerebrospinal fluid leak and wound infection rate was also about 2.5%. Dorsal lipomas and virgin resections were associated with highest rates of total resection and lowest rates of complications. Redos and chaotic lipomas had the highest rates of complications.

Conclusions: Radical resection of spinal cord lipomas can be performed with excellent radiological outcomes and low rates of neurological and other surgical complications. Since a radical resection of the lipoma and reconstruction of the placode offers the best chance of untethering long-term, clinical outcomes should be improved with these techniques.

Reviewer's Comments: This is a landmark paper in the area of spinal cord lipomas. It describes in excellent detail the technique of radical resection of spinal cord lipomas and reconstruction of the placode. It demonstrates what can be accomplished with good microsurgical technique, intraoperative monitoring, and a thorough understanding of the anatomy. (Reviewer-Ethan A. Benardete, MD, PhD).

© 2010, Oakstone Medical Publishing

Keywords: Complex Spinal Cord Lipoma, Cord-Sac Ratio, Reconstruction of Neural Placode

Print Tag: Refer to original journal article

Evaluation, Follow-Up Discretionary in Older Children With Pineal Cysts

The Natural History of Pineal Cysts in Children and Young Adults.

Al-Holou WN, Maher CO, et al:

J Neurosurg Pediatr 2010; 5 (February): 162-166

Incidentally found pineal cysts in children and young adults rarely progress, and evaluation and follow-up by a neurosurgeon should be considered merely optional.

Background: Pineal cysts are a common MRI incidental finding with an estimated prevalence of 1.1% to 4.3% in adults and 1.9% in children. Their natural history has not been clarified and though usually considered asymptomatic, some have been associated with headache, hydrocephalus, and visual disturbances.

Objective: To review the authors' experience with pediatric pineal cysts in order to define the natural history and clinical relevance of this common intracranial finding.

Design: Retrospective study.

Methods: Electronic medical records for patients aged ≤ 25 years who had brain MRIs between 1997 and 2008 were reviewed. In total, 14,516 patients were imaged during this period with 1.5- or 3-Tesla MRI. Only patients with a pineal cyst who had >6 months of clinical and radiographic follow-up with contrasted MRI were included. Patients with cysts <5 mm in their maximum dimension were excluded. Overall, 106 patients were identified. Size in 3 dimensions, signal characteristics, presence or absence of rim enhancement, and its thickness were recorded. Increases in size <2 mm weren't considered a change. For analysis purposes, cysts were classified based on their appearance into typical and atypical. Typical cysts were homogeneously iso- or slightly hyperintense to cerebrospinal fluid, and had a thin and smooth rim with no irregular masses or nodules.

Results: Mean follow-up was 3.0 ± 2.8 years. Mean age at diagnosis was 11.7 ± 7.2 years. Mean pineal cyst size at diagnosis was 9.9 mm in its maximal anteroposterior dimension, 98% of cysts were iso- or slightly hyperintense, 86% had a thin rim, 87% had an enhancing rim, and 24% were multiseptated. Altogether, 55% were considered atypical. At last follow-up, 98 cysts (92%) were unchanged, 6 enlarged 4.4 mm in average in their anteroposterior diameter, 4 changed their appearance, and 1 decreased in size. Initial cyst size and appearance were not significant predictors of growth or change, but younger age was. Five of 60 symptomatic patients worsened. This was not predictive for cyst growth or change. Only 1 patient underwent surgical resection due to new gaze palsy 4 years after diagnosis and his diplopia improved after surgery. Histopathology diagnosed a pineocytoma. The authors cite other small pineal cyst series where some cysts were erroneously diagnosed as pineocytomas. They comment on shared histopathological characteristics by both lesions, which can explain the misdiagnosis.

Conclusions: Incidentally found pineal cysts in children rarely progress, and evaluation and follow-up by a neurosurgeon should be considered merely optional.

Reviewer's Comments: This is a valuable study that gives important information to the many neurosurgeons who will need to counsel at some point patients or other consulting physicians regarding pineal cysts. I think that symptomatic patients should be seen in clinic at least once by a neurosurgeon in order to reassure the patient and explain the symptoms that would render a follow-up MRI. (Reviewer-Amir Kershenovich, MD).

© 2010, Oakstone Medical Publishing

Keywords: Pineal Cyst, Children, Natural History

Print Tag: Refer to original journal article

Expert Presentations Alter Clinical Treatment Opinions of Aneurysms

Clipping Versus Coiling for Ruptured Intracranial Aneurysms: Integrated Medical Learning at CNS 2007.

Connolly ES Jr, Hoh BL, et al:

Neurosurgery 2010; 66 (January): 19-34

At the 2007 CNS Annual Meeting, IML was helpful in studying practice patterns while expert presentations were effective in altering clinical treatment opinions regarding aneurysms.

Background: The decision process regarding which treatment modality to recommend for patients with aneurysms (eg, coiling or clipping) is often difficult and complex.

Objective: To examine the effects of Integrated Medical Learning (IML) on education about these treatment options at the 2007 Congress of Neurological Surgeons (CNS) Annual Meeting.

Methods: A pre-meeting survey was distributed to CNS members with education materials regarding coiling versus clipping. During the Annual Meeting, participants were presented with case examples and then chose a treatment option before and after expert opinion presentations.

Results: Surgeons with high-volume cerebrovascular practices demonstrated a preference for the treatment method they already utilized in their clinical practices. Cerebrovascular specialists and those with academic practices were more likely to recommend clipping. Following expert opinion presentations, audience opinions changed significantly (6 of 8 cases). The 2 cases in which there was no opinion change were regarding the most obvious case examples in favor of one modality or another.

Conclusions: IML was helpful in studying practice patterns, while expert presentations were effective in altering clinical treatment opinions regarding aneurysms.

Reviewer's Comments: This is a fascinating study. The optimal treatment method for aneurysms is hotly contested and controversial and greatly depends on individual practitioner experience and biases. Randomized trials provide some guidance in certain cases (eg, basilar tip aneurysms are better treated endovascularly, and wide-necked anterior circulation aneurysms are better treated with surgical clipping), but many cases are not straightforward due to the heterogeneous nature of the disease itself and the patient population. Educational methods, such as IML, do seem to change practice opinions, and studies such as this one are helpful in quantifying the effectiveness of neurosurgical education. It is also interesting to note that, as suspected, a large practice experience is predictive of a lesser influence on decision making by expert presentations, reflecting the powerful effects of individual practice experience and bias in making treatment recommendations, regardless of such "expert" recommendations. (Reviewer-Nicholas C. Bambakidis, MD).

© 2010, Oakstone Medical Publishing

Keywords: Aneurysms, Integrated Medical Learning, Expert Presentations, Treatment Options

Print Tag: Refer to original journal article

What Impact Will Changes on Limited Reimbursement or HACs Have on Your Practice?

Potential Financial Impact of Restriction in "Never Event" and Perioperative Hospital-Acquired Condition Reimbursement at a Tertiary Neurosurgical Center: A Single-Institution Prospective Study.

Teufack SG, Campbell P, et al:

J Neurosurg 2010; 112 (February): 249-256

Significant reductions in physician and hospital reimbursement would adversely affect the ability of tertiary care facilities to provide complex neurosurgical care.

Background: "Never events" are defined by the Centers for Medicare and Medicaid Services (CMS) as serious adverse events that are largely preventable. Such events, with certain hospital-acquired conditions (HACs), are currently being targeted for reduction in hospital and physician reimbursement.

Objective: To attempt to financially quantify such policy changes with respect to a tertiary neurosurgery care center.

Design/Methods: The authors reviewed operative cases over a 6-month period at a single institution. They assumed that current CMS regulations would be expanded to common neurosurgical procedures as well as expansion of CMS restrictions to other payers. They also assumed that current regulations would be expanded to rehospitalizations and entire hospitalization case billing due to HACs and never events.

Results: The authors studied 1289 procedures in which 25 HACs were identified (2%; all wound infections requiring 29 secondary procedures). Under present policy regulations, there was minimal effect on hospital and physician billing. However, assuming extension of current regulations to include nonpayment for rehospitalizations and index procedures as well as private payers resulted in profound payment reductions (5.73% reduction in hospital receipts and 8.9% reduction in physician reimbursement).

Conclusions: Potentially significant reductions in physician and hospital reimbursement are likely should expansion of never event and HAC nonpayment regulations become standard practice. Such reductions would adversely affect the ability of tertiary care facilities to adequately provide complex neurosurgical care.

Reviewer's Comments: This important article highlights a possibly inevitable change in neurosurgical care that has already been implemented in other areas of medical care. The study is an attempt to evaluate the potential implications that changes related to limited reimbursement for "never events" or HACs might have on neurosurgical practice. HACs currently not being reimbursed include retention of foreign bodies after surgery, catheter-associated urinary tract infection, and surgical site infection following coronary artery bypass graft. The authors propose many foreseeable extensions of current policy and extend their analysis using the assumption that all health care payers would eventually adopt the same payment restrictions. Based on such assumptions, the study is a purely speculative exercise and is based on theoretical concerns. Nevertheless, the findings are sobering and serve as an important alert to neurosurgeons that they must remain active participants in the discussions regarding health care reform. Neurosurgeons must serve as advocates for patients who may be at higher risk of surgical complications. These patients may find that access to complex tertiary neurosurgical care may be limited as a result of such policy implementation and expansion. (Reviewer-Nicholas C. Bambakidis, MD).

© 2010, Oakstone Medical Publishing

Keywords: Never Event, Hospital-Acquired Condition, Complication, Reimbursement

Print Tag: Refer to original journal article

XRT Delays May Not Impact GBM Survival?

The Timing of Cranial Radiation in Elderly Patients With Newly Diagnosed Glioblastoma Multiforme.

Lai R, Hershman DL, et al:

Neuro Oncol 2010; 12 (February): 190-198

Initiation of XRT within 37 days after biopsy and 40 days after resection is not associated with negative impact on survival.

Background: Mathematical models suggest that short delays in beginning radiation therapy (XRT) after diagnosis of glioblastoma multiforme (GBM) would be associated with an adverse effect on survival. Clinical studies have had conflicting results.

Objective: To evaluate whether the time interval from surgery to initiation of XRT is an important determinant of survival in elderly patients.

Design: Retrospective database case series.

Methods: Data (socioeconomic status, surgery dates, timing of radiation, chemotherapy, etc) for patients aged ≥ 65 years diagnosed with GBM from 1991 to 2002 were obtained from the merged SEER (Surveillance, Epidemiology, and End Results) Medicare database. Patients were excluded if: (1) no pathological confirmation (148 patients), (2) no cranial XRT (289), (3) no cranial XRT within 90 days of diagnosis (90), or (4) death within 90 days of diagnosis (45). Timing of XRT initiation was determined from Medicare CPT-4 files, subtracting XRT start date from last surgery date, and grouped into quartiles of 1 to 12 days, 13 to 16 days, 17 to 23 days, and >23 days. Overall survival was measured in months.

Results: 1375 of 2018 patients were included for analysis, 296 with biopsies and 1079 with surgical resections (53.2% gross total, 44.9% subtotal, and 1.9% non-specified). Median survival for gross total was 9.3, subtotal 8.0, non-specified 6.7, and biopsy 5.6. Median time for XRT initiation was 15 days – 16 days for resections and 10 days for biopsies. In total, 95% of patients started XRT by 37 days after biopsy and 40 days after resection. Multivariate analysis showed time of XRT initiation had no prognostic effect. Favorable factors for survival were highest socioeconomic group, gross total resection, and chemotherapy; negative factors were age ≥ 70 years.

Conclusions: Initiation of XRT within 37 days after biopsy and 40 days after resection is not associated with negative impact on survival. XRT should be started as early after surgery as possible.

Reviewer's Comments: The authors conclude that initiating XRT until 6 weeks after surgery is not associated with a decrease in survival of elderly patients with GBM, yet they also conclude that XRT should be started as early as possible after surgery. Why these contrasting conclusions? I am concerned that their methodology may be missing the impact of XRT initiation delays. By grouping XRT initiation into quartiles, patients who start at 23 days are in the same group as those who start at ≥ 37 days. The impact of these 2 weeks may be missed. The authors also exclude patients who died within 90 days of diagnosis – did significant numbers of these patients start XRT later than other patients? I am not convinced that initiating XRT as late as 6 weeks post-surgery will not affect patient survival; I will still encourage my radiation oncology colleagues to begin XRT promptly after surgery. (Reviewer-N. Scott Litofsky, MD).

© 2010, Oakstone Medical Publishing

Keywords: Elderly, Glioblastoma Multiforme, SEER-Medicare, Radiation Delay, Waiting Time

Print Tag: Refer to original journal article

MRSA-Specific Antibiotics Yield Significantly Lower Postop Infection Rates

Perioperative Management of Neurosurgical Patients With Methicillin-Resistant Staphylococcus aureus.

Akins PT, Belko J, et al:

J Neurosurg 2010; 112 (February): 354-361

Patients with MRSA should receive antibiotics active against MRSA, such as vancomycin and preoperative and postoperative wound care with chlorhexidine antiseptics to reduce MRSA wound colonization.

Background: Postoperative wound infections are very problematic for any patient, but especially in the neurosurgery patient, postoperative wound infection can be detrimental. Also, more of our patients have methicillin-resistant *Staphylococcus aureus* (MRSA). This has posed a challenge.

Objective: To investigate the impact of MRSA colonization and infection in the neurosurgical population at a community-based, tertiary care referral center.

Methods: All included patients were prospectively entered into a database. In Phase I, 492 consecutive patients were followed. Of these, 260 patients were admitted to the intensive care unit (ICU) and underwent screening for MRSA and were designated MRSA positive or negative. The 232 patients admitted to non-ICU nursing units did not undergo MRSA screening and were designated as unscreened. In Phase II, the authors reviewed 1005 neurosurgical admissions and identified 62 MRSA-positive patients (6.2%). Seventeen patients were excluded because they did not undergo surgery or presented with infections. Forty-six patients underwent 55 procedures, and the authors reviewed their perioperative management.

Results: In Phase I, the authors found that the rate of postoperative wound infections for MRSA-positive patients was 23.5%, 4.1% in MRSA-negative patients, and 1.3% in unscreened groups. For MRSA wound infections, the rates were 23.5%, 0.8%, and 0%, respectively. In Phase II, patients with MRSA had the following features: 63.0% males, a malignancy in 39.1%, diabetes in 34.8%, prior MRSA infection in 21.7%, immunosuppressed state in 17.4%, and a traumatic injury in 15.2%. The rate of postoperative neurosurgical wound infection in patients who received MRSA-specific prophylactic antibiotic therapy (usually vancomycin) was 7.4% (27 procedures) compared with 32.1% (28 procedures) in patients who received the standard treatment (usually cefazolin); $P = 0.04$. Wound care for ICU patients was standardized for postoperative days 0 to 7 with chlorhexidine cleaning and bandage changes at 3-day intervals.

Conclusions: Neurosurgical patients identified with MRSA colonization or a prior history of MRSA infections benefit from specific perioperative care, including prophylactic antibiotics active against MRSA (like vancomycin) and postoperative wound care with coverings and chlorhexidine antiseptics to reduce MRSA wound colonization.

Reviewer's Comments: Postoperative wound infections have to be avoided--not only because they can be detrimental for the patient but also because they can have a huge impact on reimbursement in the changing climate of performance-based payment. This article provides us with a means of how to lower infection rates in MRSA-positive patients. Although in this study the number of MRSA-positive patients was low, MRSA-specific preoperative antibiotic administration still showed a positive effect. This regimen can easily be added to our practice and may help to prevent infection in MRSA-positive patients. (Reviewer-Martina Stippler, MD).

© 2010, Oakstone Medical Publishing

Keywords: Postoperative Infection

Print Tag: Refer to original journal article

DS, SPS Patients Have Different Outcomes After Surgery

Degenerative Spondylolisthesis Versus Spinal Stenosis: Does a Slip Matter? Comparison of Baseline Characteristics and Outcomes (SPORT).

Pearson A, Blood E, et al:

Spine (Phila Pa 1976) 2010; 35 (February 1): 298-305

DS patients improve more with surgery than SPS patients. Future studies should not combine these 2 heterogeneous populations when studying outcome.

Objective: To compare outcomes (nonoperative and operative) for patients with spinal stenosis with or without lumbar spondylolisthesis.

Design: As-treated analysis comparing 2 subgroups from a previously completed randomized controlled trial.

Participants/Methods: There were 601 patients in the degenerative spondylolisthesis (DS) cohort and 61% underwent surgery; 634 patients were in the spinal stenosis (SPS) cohort and 62% underwent surgery. DS and SPS characteristics were compared at baseline. Changes from baseline after surgical and nonoperative management were compared at 1 and 2 years using longitudinal regression models. Primary outcome measures included bodily pain and physical function domains of the SF-36 as well as the Oswestry Disability Index (ODI).

Results: DS and SPS populations were different at baseline. The DS cohort included more females (69% vs 39%; $P < 0.001$), was older (66.1 years vs 64.6 years; $P < 0.001$), and was less likely to have multi-level stenosis (35% vs 61%; $P < 0.001$) compared to the SPS patients. The baseline outcomes scores were similar between groups. DS patients were generally treated with fusion (94% vs 11%) compared with the SPS group. Both DS and SPS groups improved following surgery in all outcome measures. Greater degrees of improvement in all 3 outcome measures were found at both 1 and 2 years in the DS cohort. The 2 populations did not differ in outcome when treated nonoperatively.

Conclusions: Degenerative spondylolisthesis and spinal stenosis patients differ at baseline and have different outcomes after surgery. Future studies should not combine these 2 heterogeneous populations when studying outcome.

Reviewer's Comments: The authors should be congratulated for doing a subgroup analysis of patients treated in the Spine Patient Outcomes Research Trial (SPORT). The SPORT trial was well organized and contains valuable data and lessons for those interested in spine outcomes research. The results of the study are not surprising. Patients with non-isthmic degenerative spondylolisthesis generally have single-level stenosis, and in this trial the majority was treated with decompression and fusion. Patients with spinal stenosis often have multi-level disease and are treated with decompression alone in general. It is well known that the degenerative spondylolisthesis population is nearly two thirds female. The study does not provide any data that support the use of fusion when treating degenerative spondylolisthesis, nor does the study provide any new information about what characteristics of patients with degenerative spondylolisthesis or spinal stenosis predict better or worse outcomes. Future studies evaluating data collected in prospective registries or in randomized controlled trials should attempt to focus on questions that would enhance clinical practice as opposed to confirming known concepts. Nevertheless, the data presented here are of high quality and should be useful for those planning further spine outcomes studies. (Reviewer-Zoher Ghogawala, MD).

© 2010, Oakstone Medical Publishing

Keywords: Spinal Stenosis, Outcomes, Degenerative Spondylolisthesis

Print Tag: Refer to original journal article

PRF L2 -- New and Simple Technique to Treat Low Back Pain

Percutaneous Pulsed Radiofrequency Applied to the L-2 Dorsal Root Ganglion for Treatment of Chronic Low-Back Pain: 3-Year Experience.

Tsou HK, Chao SC, et al:

J Neurosurg Spine 2010; 12 (February): 190-196

Bilateral PRF therapy of the L2 dorsal root ganglion can relieve chronic low back pain caused by L4-L5, S1 disc disease.

Background: Afferent autonomic fibers providing pain sensation to the lower lumbar discs enter the spinal cord through the L2 sensory nerve root. Accordingly, a lidocaine block of the L2 nerve root gives temporary relief of low back pain. In order to produce lasting pain relief, one would need to interrupt neurotransmission in the small nerve fibers without lesioning them. This is because after being lesioned, autonomic fibers usually have re-growth leading to recurring pain. To this end, the authors did bilateral pulse radiofrequency (PRF) therapy of the L2 ganglion. Unlike traditional radiofrequency, PRF functionally only disrupts small pain and autonomic nerve fibers without lesioning them. The larger sensory-motor fibers are unaffected.

Objective: To evaluate the effects of PRF of the L2 ganglion on chronic low back pain.

Design: Retrospective multi-institutional study.

Methods: 127 patients (59 men; 69 women; mean age 62 years) with discogenic low back pain for >6 months all had PRF therapy to the L2 ganglion (bilaterally in most cases). For those also having leg pain (n=78), additional PRF was made to the L3 to S1 nerve roots. Follow-up was for 1 week to 3 years.

Results: In the L2-only PRF therapy, 20 of 45 patients had $\geq 50\%$ pain relief at 1 year follow-up. In the second group (L2 to S1 PRF therapy), 35 of 74 patients had $\geq 50\%$ pain relief at 1 year. In both groups, the greatest pain relief was reported at 3 months. None of the patients were made worse by the procedure.

Conclusions: PRF is a simple procedure with few potential complications. It should be further evaluated for the treatment of low back pain.

Reviewer's Comments: Given how difficult it is to treat chronic low back pain, PRF is a promising first-line therapy, especially since it is minimally invasive and is unlikely to cause a neurological deficit. The current series is too heterogenous and the follow-up is too short in some patients. More significantly, the method chosen to evaluate the degree of pain relief needs to include less subjective measures. (Reviewer-Luc Jasmin, MD).

© 2010, Oakstone Medical Publishing

Keywords: Pain, Radiofrequency, Disc Disease, Failed Back Syndrome, Autonomic Nervous System, Sympathetic Nerve Fibers, Minimally Invasive

Print Tag: Refer to original journal article

Walking the Tightrope of Post-Craniotomy Pain Control

Postoperative Pain Management With Tramadol After Craniotomy: Evaluation and Cost Analysis.

Rahimi SY, Alleyne CH, et al:

J Neurosurg 2010; 112 (February): 268-272

Tramadol around the clock in addition to narcotics can provide better post-craniotomy pain control compared to the traditional regimen of narcotics and as-needed acetaminophen.

Background: Patients undergoing craniotomies have traditionally received opiates with acetaminophen for the management of their postoperative pain. Opiates are associated with many unwanted side effects that can mimic intracranial pathology; therefore, most craniotomy pain is often undertreated. Also, the use of narcotic pain medications can be costly, decrease rates of early postoperative ambulation, and lengthen hospital stays. The use of alternative pain medications such as tramadol in combination with narcotics may benefit patients by resolving many of these issues.

Objective: To evaluate the efficacy of alternative pain management strategies for patients following craniotomies.

Design: Randomized blinded prospective single-center study.

Methods: The authors evaluated the efficacy of alternative pain management strategies for patients following craniotomies. Fifty patients were randomized to a control group that received narcotics and acetaminophen on an as-needed basis or to an experimental group that received tramadol twice a day in addition to narcotic pain medications.

Results: The control group was noted to have statistically significant higher pain scores, an increased length of hospital stay, and increased narcotic use compared with the experimental group. The control group also had higher hospitalization costs when compared with the tramadol group.

Conclusions: Tramadol around the clock in addition to narcotics can provide better post-craniotomy pain control compared to the traditional regimen of narcotics and as-needed acetaminophen. Additionally, tramadol decreases the amount of narcotics consumed and thus decreased narcotic side-effects. Use of tramadol also showed earlier postoperative ambulation and reduced total hospitalization costs.

Reviewer's Comments: Are we all guilty of under treating post-craniotomy pain because we are afraid to over sedate our patients? This study seems to offer a good alternative to the narcotic and acetaminophen regimen. The randomized and blinded design gives this paper more credibility and validity over similar studies. Importantly, the authors report no conflict of interest or financial gain, in case one wonders if this is an industry-sponsored study. In short, think about tramadol the next time a post-craniotomy patient is writhing in pain. (Reviewer-Martina Stippler, MD).

© 2010, Oakstone Medical Publishing

Keywords: Craniotomy, Tramadol, Postoperative Pain Management,

Print Tag: Refer to original journal article

Neurointensivist Management of Neurosurgical SAH Patients Garners Further Study

Improvement in Intensive Care Unit Outcomes in Patients With Subarachnoid Hemorrhage After Initiation of Neurointensivist Co-Management.

Josephson SA, Douglas VC, et al:

J Neurosurg 2010; 112 (March): 626-630

The management of neurosurgical patients by a neurointensivist team in a dedicated neurological ICU has a positive impact on length of stay, but other outcomes, including mortality and medical complication rates, were not significantly changed.

Background: No study to date has examined the role of neurointensivists specifically in subarachnoid hemorrhage (SAH) management.

Objective: To measure the impact of treatment of dedicated neurointensivists in managing SAH.

Design/Methods: The authors performed a retrospective review of patients with aneurysmal SAH over 4 years. Comparison of all end points was made around the time at which dedicated neurointensivist management was instituted. Intensive care unit (ICU) stay was the primary outcome, and secondary outcomes included ventriculoperitoneal shunt placement, in-hospital mortality, and other medical complications.

Results: Over the study period, the authors reviewed records from 512 patients. These included 296 patients after neurointensivist management was implemented compared to 216 patients prior to such management. A significant decrease in length of ICU stay followed the implementation of neurointensivist management (12.4 vs 10.9 days; $P = 0.02$). The only other significant outcome after implementation was the incidence of ventriculoperitoneal shunting (23.0% vs 11.5%; $P = 0.0001$). Other outcomes, including mortality and medical complication rates, were not significantly changed.

Conclusions: Use of dedicated neurointensivist management in the care of patients with aneurysmal SAH may have a positive effect on length of stay in the ICU.

Reviewer's Comments: This interesting study echoes other studies that have found that management of neurosurgical patients by a neurointensivist team in dedicated neurological ICUs has a positive impact on outcomes and decreased mortality. The patient population reviewed in this study, namely patients that have suffered from aneurysmal SAH, is extremely difficult to manage and has long ICU stays with a myriad of associated complications related to the disease process. Therefore, this study is of particular interest. It is obviously limited in the design, which is artificially divided around the time of implementation of routine neurointensive care management at the study institution rather than being designed as a prospective study. In addition to the primary outcome finding of reduced ICU stay, the authors report a decreased rate of ventriculoperitoneal shunting. It is unclear why this may be the case, though the authors posit that it may be related to an increase in aggressive weaning efforts. They also note their inability to control for fenestration of the lamina terminalis at the time of surgical treatment. One other variable that should be noted is that 15% of patients were treated with endovascular therapy in the neurointensivist group comparing similarly to the 11% treated endovascularly in the non-neurointensivist group. This low number likely reflects the institutional bias of the authors in choosing the treatment modality of these patients and should be considered a confounding variable in extrapolating the results of this study to institutions where endovascular management is more commonly utilized. (Reviewer-Nicholas C. Bambakidis, MD).

© 2010, Oakstone Medical Publishing

Keywords: Subarachnoid Hemorrhage, Intensive Care Unit, Neurointensivist

Print Tag: Refer to original journal article