

Prediction of Results for Recurrent Surgery in GBM

Scale to Predict Survival After Surgery for Recurrent Glioblastoma Multiforme.

Park JK, Hodges T, et al:

J Clin Oncol 2010; 28 (August 20): 3838-3843

The NIH Recurrent Glioblastoma Multiforme Scale can be used to counsel patients about potential survival benefits of surgery for tumor recurrence.

Background: Overall survival of patients with recurrent glioblastoma multiforme (GBM) depends in part on Karnofsky performance status (KPS), extent of resection, age, and time interval between initial and reoperative surgeries. Guidelines for determining when reoperation is appropriate have not been defined.

Objective: To develop an easy, reliable prognostic scoring system to use in counseling patients with GBM.

Design: Retrospective case series.

Methods: Patients with GBM treated at the National Institutes of Health (NIH) with maximal safe surgical resection, involved-field external beam radiation, and nitrosourea or temozolomide chemotherapy were assessed for demographic, clinical, radiologic, and treatment variables to determine significant prognostic factors to develop a scaling system. The scale was validated on patients similarly diagnosed and treated at Brigham and Women's Hospital (BWH).

Results: 34 NIH patients had a median age of 50.5 years (22 to 65 years); 64.7% were male. KPS median was 90 (40 to 100). In total, 70.6% were on corticosteroids, 47.1% had headache, and 50.0% had seizures. Time following initial diagnosis was a median of 11.1 months (range 0.4 to 68.7). Tumor volume median was 27.6 cm³ (0.8 to 98.8 cm³). Median motor-speech-middle cerebral artery distribution (MSM) score (a measure of eloquent brain involvement) was 1 (0 to 3). Survival after reoperation was a median of 7.4 months (0.9 to 64.9). Factors significantly related to survival were assigned 1 point as follows: KPS \leq 80, MSM \geq 2, and tumor volume \geq 50 cm³; scores were additive. Patient groups had significantly different median survival after recurrent surgery: 0 points (good prognosis) – 21 patients, 10.8 months; 1 or 2 points (intermediate prognosis) – 10 patients, 4.5 months; and 3 points (poor prognosis) – 3 patients, 1.0 month. The scale was validated on 109 patients from BWH with significantly different survival as follows: 0 points – 49 patients, 9.2 months; 1 or 2 points – 57 patients, 6.3 months; and 3 points – 3 patients, 1.9 months. Univariate analysis showed only MSM \geq 2 was significantly associated with poor prognosis.

Conclusions: Based on the NIH Recurrent GBM Scale, patients scoring 3 points are less likely to derive survival benefit from reoperation.

Reviewer's Comments: This study attempts to codify the decision to re-operate on patients with recurrent GBM in terms of survival benefit. The results suggest that patients with poor KPS and large tumor volume in eloquent areas are less likely to derive benefit. However, one problem with the study is the small number of patients in the poor prognosis group (3 from NIH and 3 from BWH). Also, because patients treated at NIH are highly self-selected, the results may not be generalized, validation at BWH notwithstanding. By contrast, the parameters in the NIH Recurrent GBM Scale are consistent with usual observations. Neurosurgeons can evaluate their own outcomes with the scale to see if they wish to apply it in making decisions with future patients. (Reviewer-N. Scott Litofsky, MD).

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Keywords: Glioblastoma Multiforme, Recurrent, Prognosis, Surgery, Survival

Print Tag: Refer to original journal article

Glucosamine Is Not a Remedy for Chronic Low Back Pain

Effect of Glucosamine on Pain-Related Disability in Patients With Chronic Low Back Pain and Degenerative Lumbar Osteoarthritis: A Randomized Controlled Trial.

Wilkens P, Scheel IB, et al.:

JAMA 2010; 304 (July 7): 45-52

Up to 25% of individuals with chronic low back pain will take glucosamine for their ailment, yet there is no clear evidence of an effect.

Background: Many patients looking for a solution to chronic low back pain (LBP) will take glucosamine in the hope it will restore their normal cartilage. Yet the efficacy of this treatment has not been rigorously tested.

Objective: To investigate the usefulness of daily oral glucosamine on chronic LBP.

Design: Prospective double-blind single-center study.

Participants/Methods: 473 individuals responded to a single add in the local newspaper; 250 were selected and randomized. The inclusion criteria included pain below T12, age >25 years, and when leg pain was present it had to be less than the back pain. A recent MRI (<1 year) had to show degenerative changes. Patients with disc herniation, spinal stenosis, previous back surgery or fracture, pregnancy or breast-feeding, or seafood allergy were excluded. The primary outcome measure was a modified version of the Roland Morris Disability Questionnaire. Secondary outcome measures included low back and leg pain and quality of life. Careful monitoring of adverse events was part of the study. Follow-up was through scheduled visits in addition to mailed questionnaires.

Results: After 12 months, no difference was found between the group taking 1500 mg of glucosamine sulfate a day for 6 months and the group taking a placebo. Only 6.8% of patients dropped out of the study and adherence to treatment was the same in both groups. Adverse events were slight and included gastrointestinal discomfort and cutaneous problems.

Conclusions: Disability from chronic LBP is unchanged after 6 months of daily oral glucosamine.

Reviewer's Comments: While back pain is endemic, there is no organized funding or research effort targeting this disorder. Many patients rely on oral supplements. Glucosamine is a popular choice because it is a precursor of the molecules forming cartilage. Yet, the previous clinical trials were not well structured and in my view cannot be used as supportive evidence to recommend taking glucosamine. The present trial and the one by Sawitzke and colleagues (*Ann Rheum Dis*; 69:1459 to 1464) focusing on the knee are better designed. Still, these trials failed to show an effect of glucosamine on osteoarthritis pain. A better way for our patients to spend their money might be to support a well-organized research effort to discover better treatment for chronic LBP. (Reviewer-Luc Jasmin, MD).

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Keywords: Glucosamine, Back Pain, Osteoarthritis, Cartilage Regeneration, Double-Blind Study

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Head CT Is Necessary in Patients Taking Anticoagulants With LOC After Injury

Incidence and Predictors of Intracranial Hemorrhage After Minor Head Trauma in Patients Taking Anticoagulant and Antiplatelet Medication.

Brewer ES, Reznikov B, et al:

J Trauma 2010; August 5 (): epub ahead of print

Loss of consciousness is a good predictor of intracranial hemorrhage in patients taking anticoagulant or antiplatelet medications prior to head injury.

Background: Because the yield of abnormality on head computed tomography (CT) is low for patients with Glasgow Coma Scale score of 15, some studies suggest CT on such patients is unnecessary. Indications for CT on patients taking anticoagulant or antiplatelet agents who suffer minor head injury are unclear.

Objective: To determine the frequency and predictors of intracranial hemorrhage (ICH) in patients with GCS of 15 after head trauma while taking anticoagulant or antiplatelet agents.

Design: Retrospective single-institution case series.

Methods: Head CTs on all patients with GCS of 15 taking clopidogrel or warfarin at time of injury were assessed for ICH (epidural, subdural, intraparenchymal hematomas, subarachnoid hemorrhage and/or cerebral contusion). Charts were reviewed for other clinical information. Patients were grouped into those taking warfarin alone; those taking warfarin and an antiplatelet agent (aspirin or clopidogrel); or those taking an antiplatelet agent only (exclusive of only aspirin).

Results: 141 patients (mean age, 79 years) were evaluated – 84 on warfarin, 21 on warfarin and antiplatelet agent, and 36 on antiplatelet agent alone (15 clopidogrel and 21 clopidogrel and aspirin). Forty-one (29%) had ICH, 19 subdural, 14 subarachnoid, 5 cerebral contusion, and 3 multiple types. Discontinuation or reversal of agent was accomplished in 95%. Five patients required surgery. Four of 141 patients died, all with ICH; 2 died after surgery, and 2 died of other medical comorbidities without reversal or discontinuation of agent. Mechanism of injury was fall (129 patients, 27% with ICH) or motor vehicle accident (12 patients, 50% with ICH). Thirty-five patients suffered loss of consciousness (LOC); 35% of these had ICH. In total, 18% of patients without LOC had ICH. LOC was the only predictor for ICH. Mechanism of injury, type of medication, age, gender, presenting international normalized ratio, and external injury above clavicles were not predictive of ICH.

Conclusions: Patients taking anticoagulant or antiplatelet medications with GCS of 15 who suffer LOC after head injury should be evaluated by head CT.

Reviewer's Comments: This study supports the prudent practice of obtaining head CT on patients after head injury with GCS of 15 who had LOC if they are taking anticoagulant or antiplatelet medications, as these patients are more likely to have ICH. The authors do not discuss the important issues of neurological consequences of ICH or the likelihood of progression of ICH or development of delayed ICH in this patient population. Intervention in the form of reversal or discontinuation of medication can be performed if ICH is identified; occasionally such patients may require operative intervention. Patients on anticoagulant and/or antiplatelet medications are often at significant risk for fall – the most common mechanism of injury in this study. To optimize management after injury, obtaining a good history regarding LOC is essential. (Reviewer-N. Scott Litofsky, MD).

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Keywords: Head Trauma, Warfarin, Clopidogrel, Computed Tomography

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AVM and Gamma Knife Surgery – One More Time

Repeat Gamma Knife Surgery for Incompletely Obliterated Cerebral Arteriovenous Malformations.

Yen CP, Jain S, et al:

Neurosurgery 2010; 67 (July): 55-64

Repeat Gamma knife radiosurgery (GKRS) yielded a 55% angiographic cure rate in residual arteriovenous malformations after initial GKRS.

Background: Gamma knife radiosurgery (GKRS), depending on the volume and dose delivered, demonstrates an arteriovenous malformation (AVM) obliteration rate between 23% and 92%. If the nidus remains patent on follow-up angiogram, these lesions are often retreated with GKRS.

Objective: To define the causes of failure after an initial GKRS for AVM, and to report the outcome of repeat GKRS.

Design/Participants: Case series of 140 patients with cerebral AVMs treated with repeat GKRS for residual AVM.

Methods: Follow-up data were obtained from patients and referring physicians retrospectively. Gamma knife treatment plans were reviewed. To evaluate causes of initial treatment failures, all images were analyzed by both neurosurgeons and neuroradiologists.

Results: In 62 patients (44%), the AVM failed to obliterate despite correct target definition and adequate dose; the reason for failure remained unknown. At the time of retreatment, the nidus volume ranged from 0.1 to 6.9 cm³ and the mean prescribed dose was 20.3 Gy with a range from 5.0 to 35.0 Gy. The mean time to repeat GKRS for residual nidus was 4.6 years. Causes of initial treatment failure included inaccurate nidus definition, failure to fill part of the nidus as a result of hemodynamic factors (low blood pressure during angiogram and compression of nidus from residual hemorrhage), recanalization of embolized AVM compartments, and suboptimal dose (<20 Gy). Repeat GKRS yielded a total angiographic obliteration in 55%. In 27% of patients, the AVMs remained patent. GKRS did not protect from rebleed until the AVM was completely occluded. Radiation changes on MRI were seen more often after repeat than after single GKRS. However the rate of permanent neurological deficits did not increase by much – 3.6% up from 3.0%.

Conclusions: By using repeat GKRS, a 55% angiographic cure rate was achieved. These findings may be useful in deciding the management of patients with AVMs in whom total obliteration after initial GKRS was not achieved.

Reviewer's Comments: The data presented in this article are important to know when consulting patients for GKRS with AVMs. Repeat GKRS was performed at mean of 4.6 years. During this time, the patient had no protective effect from GKRS and follow-up angiogram should be performed earlier and retreatment should be performed sooner. What is also surprising is that in about 16% of patients, the failure of complete obliteration was attributed to suboptimal radiation dose. Therefore, staging AVMs that are too big to receive an effective dose (>20 Gy) needs to be considered. Whether more permanent embolization material will improve occlusion rate for GKRS after embolization needs to be seen. (Reviewer-Martina Stippler, MD).

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Keywords: Arteriovenous Malformations, Stereotactic Radiosurgery

Print Tag: Refer to original journal article

Salvaging Infected DBS Systems Is Possible

Infections and Hardware Salvage After Deep Brain Stimulation Surgery: A Single-Center Study and Review of the Literature.

Bhatia S, Zhang K, et al:

Stereotact Funct Neurosurg 2010; 88 (3): 147-155

Without obvious purulence, a deep brain stimulator system infection can reasonably be treated initially with debridement and antibiotics.

Objective: To report the incidence and management of infections after deep brain stimulation (DBS) in a single institution over the past 11 years.

Participants/Methods: 25 patients (9.3%) had 33 episodes of infection (6.8% per implant). Median time to infection was 64 days with two thirds occurring within 6 months. There was a significant decrease of infection rate after 2003 (14.3% decreased to 4.9%). Nine of 33 episodes showed no purulence. All patients were treated with antibiotics for at least 6 weeks and all underwent at least 1 procedure. If no purulence was found, hardware was not removed. If purulence was found in contact with the hardware, this component was immediately removed.

Results: Preservation of all hardware failed due to infection recurrence in 9 of 19 episodes, and some hardware had to be removed. There was complete salvage in 30.3%, partial salvage in 21.2%, and complete removal in 48.5%. For superficial infection, hardware could be preserved in 86% (6 of 7 patients) but in only 4 of 26 (15.4%) deep infections. If there was no purulence, 78% (7 of 9 patients) allowed preservation of hardware; but in only 3 of 24 if there was purulence. The authors cite several articles regarding infection rates but point out that the definition of infection may vary widely, with many excluding superficial skin infections treated by antibiotics alone. Their rate in the last 5 years of 4.9% was within range of similar series. In some studies, there were short follow-up times. Most infections in fact occur later than 30 days postoperatively. When the authors' algorithm is used, the incidence of complete hardware removal was about 50%. In patients with a deep infection or obvious purulence, partial or complete removal of the hardware is recommended initially; if *Staphylococcus aureus* was involved, preservation is unlikely (1 of 12 cases).

Conclusions: The incidence of hardware infections declined significantly over time. Improvements in hardware and implantation techniques may be responsible. Hardware can often be completely or partly saved in infected patients.

Reviewer's Comments: I find this to be a well executed and valuable study to guide the management of hardware-associated infections. The fact that there was an inclusive definition of infection strengthens the conclusions of the study. The incidence of hardware infection decreased significantly over time perhaps due to a change in hardware and implantation techniques. About half the time there was an attempt to preserve hardware components in the presence of infection. One of the more interesting conclusions is that hardware can often be completely or partly saved in infected patients. (Reviewer-Paul L. Penar, MD).

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Keywords: Deep Brain Stimulation, Complications, Hardware-Associated Infection

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Is Laminectomy More Cost Effective Than X-STOP for Spinal Stenosis?

Cost-Effectiveness of Current Treatment Strategies for Lumbar Spinal Stenosis: Nonsurgical Care, Laminectomy, and X-STOP.

Burnett MG, Stein SC, Bartels RH:

J Neurosurg Spine 2010; 13 (July): 39-46

Lumbar laminectomy is the most cost-effective treatment strategy for patients with symptomatic lumbar spinal stenosis.

Objective: To compare the cost-effectiveness of current treatment strategies for treating lumbar stenosis – nonsurgical versus laminectomy versus X-STOP.

Design/Methods: A literature review was performed and 108 papers were analyzed for outcomes and cost data. Outcomes were derived from SF-36 questionnaires and reported in quality-adjusted life years (QALYs) and costs were estimated from a societal perspective using 2008 Medicare national average reimbursements. Lost wages, medication, and physical therapy costs were not included in the overall assessment of cost.

Results: The mean cost of lumbar laminectomy was \$9349.03; X-STOP was \$ 9756.86; and nonoperative treatment was \$3453.82. The mean improvement in QALYs following lumbar laminectomy was 0.1651 versus 0.1515 for X-STOP. Both interventions were more effective than nonoperative treatment.

Conclusions: Lumbar laminectomy appears to dominate X-STOP in this economic analysis. It is less costly and more effective. Several assumptions were used to generate the costs. X-STOP was less expensive when only 1 level was decompressed.

Reviewer's Comments: The authors should be congratulated for their effort to apply modern cost-effectiveness methodology to the problem of analyzing the costs associated with treating lumbar spinal stenosis in our society. The SPORT trials have convincingly demonstrated (using randomized clinical trials [RCTs]) the effectiveness of surgery over nonoperative strategies for treating lumbar spinal stenosis. There has been no RCT comparing laminectomy to X-STOP for lumbar stenosis. No claim can really be made to suggest that lumbar laminectomy is superior to X-STOP from this analysis. In fact, the improvements seen following both procedures appear to be comparable. No statistical analysis was provided suggesting that the differences observed in favor of laminectomy were significant. Assumptions made for any economic analysis are often necessary but they are not necessarily accurate. The authors assumed that all laminectomies were performed in hospitals (mean cost \$8077) and that all X-STOPS were performed in outpatient facilities (mean cost \$1868 [1-level] to \$1415 [2-level]). The differences in cost based on this assumption are enormous while many laminectomies are in fact performed in outpatient facilities in different parts of the country and some X-STOPS are indeed placed in hospital settings. The authors did not include costs of medicines nor did they include the costs of lost wages. They assumed that both groups would have comparable rehabilitation and physical therapy costs. Many of these items can generate significant cost and these costs might truly differ between the X-STOP and laminectomy groups. Overall, the study is important because it aims to study the cost-effectiveness of 2 different procedures for treating lumbar spinal stenosis. This type of economic analysis would be stronger if it were done alongside a RCT, and if it included costs associated with physical therapy, medication, and lost wages. (Reviewer-Zoher Ghogawala, MD).

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Keywords: Lumbar Spine, Stenosis, Laminectomy, Cost-Effectiveness

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Recombinant Activated Factor VII Could Be Useful in Treating Warfarin-Associated ICH

Safety of Recombinant Activated Factor VII in Patients With Warfarin-Associated Hemorrhages of the Central Nervous System.

Robinson MT, Rabinstein AA, et al:

Stroke 2010; 41 (July): 1459-1463

The use of recombinant Activated Factor VII in anticoagulant-associated central nervous system hemorrhage does not carry a higher risk of thromboembolic events.

Background: Intracerebral hemorrhage (ICH) is a feared complication of anticoagulant therapy that requires medical management and occasional surgical intervention. IV vitamin K and fresh frozen plasma (FFP) are usually used, but their effect might be too slow. Recombinant activated Factor VII has been successfully used in the treatment of spontaneous intracranial bleeding but it is associated with an increased risk of thromboembolic events.

Objective: To analyze the incidence of these events using recombinant Factor VII in anticoagulation-induced ICH and to compare their results to those of the FAST trial, which examined the effects of activated Factor VII on spontaneous ICH.

Methods: Between December 2002 and February 2009, 101 patients were administered recombinant Factor VII for reversal of anticoagulation after warfarin-associated symptomatic central nervous system (CNS) bleeding. FFP and vitamin K were also administered with a goal international normalized ratio (INR) of <1.4, thus allowing for surgical intervention. Data were collected retrospectively. Thromboembolic events were recorded over a 90-day period after the initial bleeding.

Results: 101 consecutive patients were included in the study. The most common indications for anticoagulation were atrial fibrillation (54.4%), deep vein thrombosis (DVT) (6.9%), and prosthetic valves (5.9%). The mean INR was 3.04 before and 1.03 after Factor VII administration. CNS bleeding consisted of isolated intraparenchymal hemorrhages (31.6%), intraparenchymal hemorrhages with intraventricular extension (22.7%), subdural hemorrhage (29.7%), subarachnoid hemorrhages (6.9%), intraventricular hemorrhage (5.9%), spinal epidural hemorrhage (2 patients), and epidural hematomas (1 patient). In total, 42.5% of patients required neurosurgical interventions and 66.3% survived until hospital discharge; 12.8% had new thromboembolic events in the 90-day period following the administration of Factor VII versus 22% to 32% in the FAST trial depending on the dose of Factor VII used. The majority of thromboembolic events in this study were venous, mainly consisting of DVTs, while in the FAST trial most of them were arterial, especially ST-elevation MIs.

Conclusions: Risk of thromboembolic events when administering Factor VII is not greater in anticoagulation-associated CNS hemorrhages compared to spontaneous intracranial bleeds. Furthermore, these events were mostly minor DVTs, suggesting that Factor VII may be a good replacement candidate for FFP in the future.

Reviewer's Comments: Intracranial hemorrhage due to Coumadin is an often fatal complication that requires prompt medical and often surgical management. With the increased use of anticoagulants in the general population, the incidence of CNS hemorrhage is bound to be on the rise. The availability of a drug capable of rapidly reversing anticoagulation without significant thrombotic risk could dramatically enhance outcomes. Recombinant Factor VII may become the core of CNS hemorrhage management protocols in the near future. A randomized controlled trial comparing varying doses of activated Factor VII to standard reversal protocols is warranted. (Reviewer-Bernard R. Bendok, MD).

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Keywords: Factor VII, Intracranial Hemorrhage, Safety, Warfarin

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Should Immunotherapy Be Used to Treat Complex Regional Pain Syndrome?

Intravenous Immunoglobulin Treatment of the Complex Regional Pain Syndrome.

Goebel A, Baranowski A, et al:

Ann Intern Med 2010; 152 (February 2): 152-158

It is too soon to conclude whether immunoglobulin should be used to treat complex regional pain syndrome.

Background: There is some evidence for regional (as opposed to systemic) immune dysfunction as well as neural anomalies in complex regional pain syndrome (CRPS). The authors of the present study initiated a clinical trial based on the earlier observation that a patient with both immunodeficiency and chronic pain (not CRPS) got analgesia every time he received immunoglobulins (IG).

Objective: To investigate the usefulness of IV 0.5 g/kg of IG.

Design: Prospective randomized placebo-controlled double blind crossover trial single-center study.

Participants/Methods: Of 93 potential patients, 13 met the criteria of the study and 12 patients completed the study. Patients with CRPS of 6 to 30 months duration and a pain level of at least 5 on a scale of 0 to 10 for the past 7 days were evaluated. All patients had to have failed standard therapies. The primary outcome measure was the pain score. Secondary outcome measures included individual perception of which treatment was best and the score on a CRPS scale. Follow-up was through scheduled visits and regular phone interviews.

Patients were infused with either IG or saline for 2 days in a row. Then they were observed for 6 days for side effects (mostly headaches). Pain measurements were made between days 6 and 19 post-infusion. The second infusion was made 28 days after the first one and was different from the previous one (crossover).

Results: 5 of 12 patients infused with IG experienced a decrease of 2 points on the pain scale. The pain score decreased by $\geq 50\%$ in 3 patients. On average, the IG-treated patients experienced a 1.55-point decrease in their pain score; this was a significant analgesic effect compared to the saline-treated group.

Conclusions: Modulation of the immune system might be useful for the treatment of CRPS.

Reviewer's Comments: A study involving more patients is needed before any solid conclusion can be achieved. The present data do not support treating CRPS patients with IG both because the effect is modest and the number of patients was too small. The absence of a placebo effect is unusual and raises questions on how the study was designed. Also, the cost is high: 40K to 60K per year. What's more, there is a slight risk of blood-transmitted diseases (HIV, viral hepatitis, Creutzfeldt-Jakob disease). While there is some evidence that IV ketamine, tadalafil (Cialis®), and magnesium might be helpful to some patients, spinal cord stimulation should be considered in many patients. The real implication of this study is that it will generate a greater interest in testing the theory that CRPS might be linked to an immune disorder, in which the offending cells might be glial cells, ie, Schwann cells, astrocytes, and microglia. (Reviewer-Luc Jasmin, MD).

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Keywords: CRPS, Reflex Sympathetic Dystrophy, Immunoglobulin, Pain, Randomized Trial

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Obesity Does Not Cause Increased Complications After Thoracolumbar Surgery

Obesity and Spine Surgery: Reassessment Based on a Prospective Evaluation of Perioperative Complications in Elective Degenerative Thoracolumbar Procedures.

Yadla S, Malone J, et al:

Spine J 2010; 10 (July): 581-587

In elective degenerative thoracolumbar surgery, obesity has no relationship with incidence of perioperative minor or major complications.

Background: The correlation between obesity and incidence of complications in spine surgery is unclear. While some suggest a linear relationship between body mass index (BMI) and complication incidence, others do not recognize such a relationship.

Objective: To assess the relationship between obesity and occurrence of perioperative complications after elective thoracolumbar surgery.

Methods: Perioperative spine surgery complication assessment was prospectively completed and entered into a central database. Two independent auditors assessed for the presence and severity of perioperative complications. Previously validated binary definitions of major and minor complications were used. Major complications were defined as those adverse events that led to permanent damaging outcome or required return to the operating department or other interventions. Adverse events with transient unfavorable effect were deemed minor complications. Patient data and complications were analyzed using multivariate regression. Early complications were defined as those occurring within 30 days of surgery.

Design: Prospective observational cohort study.

Results: The patients included in this study were a cohort of 87 consecutive patients undergoing elective surgery for degenerative thoracolumbar disease over a 6-month period. Mean BMI in this cohort was 31. About 41% of patients were obese, defined as a BMI >30, and 11% of patients were morbidly obese, defined as a BMI >40. The overall complication incidence was 67%. Minor complications occurred in 50% of patients, and major complications occurred in 18% of patients. BMI did not correlate with the incidence of perioperative complications; however, performance of fusion, hypertension, and age did. No positioning palsies occurred in this series.

Conclusions: In elective degenerative thoracolumbar surgery, obesity has no relationship with incidence of perioperative minor or major complications.

Reviewer's Comments: This is an important contribution addressing a controversial topic in spine surgery. The limitations of the study are that the study design does allow for a selection bias toward healthier obese patients. This could explain the good outcome in this patient population. One can only hope that the finding of this study is generalizable. Also only perioperative complications within 30 days were assessed. This limits the conclusion that can be drawn from this study. (Reviewer-Martina Stippler, MD).

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Keywords: Obesity, Complication, Spine Surgery, Outcome

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Glioblastoma Prognosis Better in Children Than Adults

Long-Term Outcomes in Children With Glioblastoma.

Song KS, Phi JH, et al:

J Neurosurg Pediatr 2010; 6 (August): 145-149

Children with glioblastoma multiforme have a significant better prognosis than adults. Radical resection followed by concurrent chemoradiation therapy with temozolomide may be the initial treatment choice.

Background: The median overall survival (OS) of adult patients with a newly diagnosed glioblastoma is 11.0 to 14.6 months. Non-brainstem glioblastoma is rare in the pediatric population, accounting for 3% of all central nervous system pediatric neoplasms.

Objective: To analyze the long-term outcome of glioblastoma in children.

Design: Retrospective study.

Participants: 27 pediatric patients with a glioblastoma from a database for pediatric patients between 1985 and 2007 were evaluated.

Methods: Median age at diagnosis was 9 years. Median initial Karnofsky performance scale (KPS) score was 80. Eighteen tumors were hemispheric, 6 in the deep nuclei, and 3 in the cerebellum. Twelve patients (44%) received complete resection, 12 (44%) received subtotal resection, and 3 received biopsy only. Three treatment protocols were used. From 1997 to 2004, patients had radiotherapy after surgery. Starting in 2004 chemotherapy was added and in 2005 temozolomide was added. Twenty-four patients (89%) underwent radiation therapy and 14 (52%) patients underwent chemotherapy plus radiation therapy as adjuvant therapy. Five of these received temozolomide. At the end of follow-up, 17 patients (63%) had died, 8 (30%) were alive, and 2 (7%) were lost to follow-up at the cut-off date. The median overall survival was 43 months and the actuarial survival rates at the first, second, and fifth postoperative years were 67%, 52%, and 40%, respectively. Considering the location of tumors, the median survival time was 52 months in the superficially located tumor group and 7 months in the deeply located tumor. Regarding the extent of resection, the median survival time in the complete resection group was 106 months, and 11 months in the incomplete resection group. The median survival time for the KPS >70 group was 52 months and 9 months for the KPS <70 group. Survival between patients not receiving chemotherapy and those who did, including the temozolomide group, was not significant, but the authors comment that as is similar in adults, temozolomide combined with radiotherapy is beneficial.

Conclusions: Glioblastoma in children has a better prognosis than glioblastoma in adults. Radical resection followed by concurrent chemoradiation therapy with temozolomide may be the initial treatment choice.

Reviewer's Comments: The results of these study as well as others have proven that glioblastoma multiforme may not be the deadliest of tumors in children compared to others like atypical teratoid rhabdoid tumors and other malignant primitive neuroectodermal tumors, especially in children in whom the tumor is superficial or children who have a good initial Karnofsky score and undergo a total resection. Unfortunately, the much better prognosis compared to adults is not a consequence of advances in our knowledge of the tumor's nature or the adjuvant treatments, but is purely a matter of the tumor's natural history. The pediatric neurosurgeon should be encouraged to perform a complete resection when glioblastoma is suspected. It is my opinion that in cases where pathological diagnosis of glioblastoma has been established in patients with radiological evidence of tumor, residual re-do surgery should be recommended if complete removal is possible. (Reviewer-Amir Kershenovich, MD).

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Keywords: Glioblastoma Multiforme, Children

Print Tag: Refer to original journal article