

SELECTED ABSTRACTS

Comparison of outcomes between a less experienced surgeon using a fully endoscopic technique and a very experienced surgeon using a microscopic transsphenoidal technique for pituitary adenoma

Zaidi HA, Awad AW, Bohl MA, Chapple K, Knecht L, Jahnke H, White WL, Little AS.

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Object

The comparative efficacy of microscopic and fully endoscopic transsphenoidal surgery for pituitary adenomas has not been well studied despite the adoption of fully endoscopic surgery by many pituitary centres. The influence of surgeon experience has also not been examined in this setting. The authors therefore compared the extent of tumour resection (EOR) and the endocrine outcomes of 1 very experienced surgeon performing a microscopic transsphenoidal surgery technique with those of a less experienced surgeon using a fully endoscopic transsphenoidal surgery technique for resection of non-functioning pituitary adenomas in a concurrent series of patients.

Methods

Post hoc analysis was conducted of a cohort of adult patients prospectively enrolled in a pituitary adenoma quality-of-life study between October 2011 and June 2014. Patients were followed up for 6 months after surgery. Patients were treated either by a less experienced surgeon (100 independent cases) who practices fully endoscopic surgery exclusively or by a very experienced surgeon (1800 independent cases) who practices microscopic surgery exclusively. Patient demographic characteristics, tumour characteristics, hypopituitarism, complications, and length of hospital stay were analysed. Tumour volumes and EOR were determined by formal volumetric analysis involving manual segmentation of MR images performed before surgery and within 6 months after surgery. Logistic regression analysis was used to determine predictors of EOR.

Results

Fifty-five patients underwent fully endoscopic transsphenoidal surgery, and 80 patients underwent fully microscopic transsphenoidal surgery. The baseline characteristics of the 2 treatment groups were well matched. EOR was similar between the endoscopic and microscopic groups, respectively, as estimated by gross-total resection rate (78.2% vs. 81.3%, $p = 0.67$), percentage of tumour resected (99.2% vs. 98.7%, $p = 0.42$), and volume of residual tumour

(0.12 cm³ vs. 0.20 cm³, $p = 0.41$). Multivariate modelling suggested that preoperative tumour volume was the most important predictor of EOR ($p = 0.001$). No difference was found in the development of anterior gland dysfunction ($p > 0.14$), but there was a higher incidence of permanent posterior gland dysfunction in the microscopic group ($p = 0.04$). Combined rates of major complications and unplanned readmissions were lower in the endoscopic group ($p = 0.02$), but individual complications were not significantly different.

Conclusions

A less experienced surgeon using a fully endoscopic technique was able to achieve outcomes similar to those of a very experienced surgeon using a microscopic technique in a cohort of patients with non-functioning tumours smaller than 60 cm³. The study raises the provocative notion that certain advantages afforded by the fully endoscopic technique may impact the learning curve in pituitary surgery for non-functioning adenomas.

Commentary

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The comparison of endoscopic transphenoidal surgery for pituitary adenomas has been compared to the traditional method of microscopic transphenoidal surgery in many forums, each presenting evidence that one technique is superior to the other. Traditionalists feel that adequate access to the pituitary tumour is achieved through the neurosurgeons preferred tool, the microscope, and in expert hands this maybe the case. However, recent evidence has suggested that even in less experienced hands, the endoscopic transphenoidal method is superior to the microscopic method in tumour excision, transferring a better outcome to the patient.

High grade blunt renal trauma: predictors of surgery and long-term outcomes of conservative management. A prospective single centre study.

Lanchon C, Fiard G, Arnoux V, Descotes JL, Rambeaud JJ, Terrier N, Boillot B, Thuillier C, Poncet D, Long JA.

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Purpose

The management of major renal trauma has shifted in the last decade in favour of a non-operative approach. Our level 1 trauma centre promotes this approach with the objective of

renal function preservation. However, certain situations still require surgery. In this study we analyse predictors of surgery and long-term outcomes after conservative management.

Materials and methods

From January 2004 to March 2015 we prospectively collected data from all patients admitted to our institution for high grade blunt renal trauma (grades IV and V). Non-operative management was considered successful when patients did not undergo surgical exploration, regardless of angioembolization or endoscopic treatment.

Results

Of 306 patients with renal trauma, 151 presented with major injuries, including 124 grade IV and 27 grade V. Non-operative management was successful in 110 (89%) cases of grade IV and 14 (52%) cases of grade V lesions. Deceleration mechanism ($p=0.03$), associated lesions ($p=0.001$), percentage of devitalized parenchyma ($p=0.012$), angioembolization ($p < 0.001$), haemodynamic instability ($p < 0.001$) and low haemoglobin ($p=0.001$) were more frequent in patients treated surgically. On multivariate analysis, grade (OR 7.36, $p=0.01$) and haemodynamic instability (OR 4.18, $p=0.04$) were the only independent predictors of surgical treatment. Long-term follow-up of preserved kidneys revealed a remaining 40% and 0% relative renal function after grade IV and V injuries, respectively. Only devascularized parenchyma greater than 25% predicted the decline of long-term renal function.

Conclusions

Non-operative management can and should be performed safely in cases of grade IV injuries whenever possible, with valuable long-term renal function. It can also be initiated in grade V cases. However, surgeons should consider nephrectomy with the onset of any suspicious symptoms. nce in the bone and improves breast cancer survival, but there is a definite benefit only in women who were postmenopausal when treatment began.

Commentary

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The grading of renal trauma is often done using the American Association for the Surgery of Trauma (AAST) according to depth of damage and involvement of the urinary collecting system and renal vessels – an imaging based classification. Trauma grades I to III can be managed non-operatively. This paper from a French centre analyses the interventions and the long term outcome of more severe grades of blunt renal trauma (grades IV and V). Therefore this is a key recent paper looking at outcomes at two different points in time – short

term and long term. There has been a shift towards conservative management of serious types of renal trauma well in the past decade. On multivariate analysis they have found that the AAST grade and haemodynamic instability are the only predictors of surgery (11% of grade IV and 48% of grade V). This study has been done in a centre where there are facilities for therapeutic embolization for actively bleeding patients. Close monitoring plays a pivotal role in these patients. In the discussion of limitations, the authors state that grade V kidneys with shattering and no clear symptoms were necessitating surgery at the commencement period of the study probably accounting for the relative high rate of surgical intervention.

The long term functional outcome of the injured kidneys preserved by conservative management has been assessed using DMSA renal scintigraphy. DMSA studies done 4 – 6 months after the trauma showed a median 40% relative function in grade IV injured kidneys treated conservatively. The outcome was extremely poor with grade V injured kidneys with 0% relative function.

Outcomes of lower extremity revascularization among the haemodialysis-dependent

Richard PO, Jewett MA, Bhatt JR, Kachura JR, Evans AJ, Zlotta AR, Hermanns T, Juvet T, Finelli A.
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Objective

Optimal patient selection for lower extremity revascularization remains a clinical challenge among the haemodialysis-dependent (HD). The purpose of this study was to examine contemporary real world open and endovascular outcomes of HD patients to better facilitate patient selection for intervention.

Methods

A regional multicentre registry was queried between 2003 and 2013 for HD patients (N = 689) undergoing open surgical bypass (n = 295) or endovascular intervention (n = 394) for lower extremity revascularization. Patient demographics and comorbidities were recorded. The primary outcome was overall survival. Secondary outcomes included graft patency, freedom from major adverse limb events, and amputation-free survival (AFS). Multivariate analysis was performed to identify independent risk factors for death and amputation..

Results

Among the 689 HD patients undergoing lower extremity revascularization, 66% were male, and 83% were white. Ninety percent of revascularizations were performed for

critical limb ischaemia and 8% for claudication. Overall survival at 1, 2, and 5 years survival remained low at 60%, 43%, and 21%, respectively. Overall 1- and 2-year AFS was 40% and 17%. Mortality accounted for the primary mode of failure for both open bypass (78%) and endovascular interventions (80%) at two years. Survival, AFS, and freedom from major adverse limb event outcomes did not differ significantly between revascularization techniques. At 2 years, endovascular patency was higher than open bypass (76% vs. 26%; 95% confidence interval [CI], 0.28-0.71; $P = .02$). Multivariate analysis identified age ≥ 80 years (hazard ratio [HR], 1.9; 95% CI, 1.4-2.5; $P < .01$), indication of rest pain or tissue loss (HR, 1.8; 95% CI, 1.3-2.6; $P < .01$), preoperative wheelchair/bedridden status (HR, 1.5; 95% CI, 1.1-2.1; $P < .01$), coronary artery disease (HR, 1.5; 95% CI, 1.2-1.9; $P < .01$), and chronic obstructive pulmonary disease (HR, 1.4; 95% CI, 1.1-1.8; $P = .01$) as independent predictors of death. The presence of three or more risk factors resulted in predicted 1-year mortality of 64%.

Conclusions

Overall survival and AFS among HD patients remains poor, irrespective of revascularization strategy. Mortality remains the primary driver for these findings and justifies a prudent approach to patient selection. Focus for improved results should emphasize predictors of survival to better identify those most likely to benefit from revascularization.

Commentary

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Limb revascularization in the haemodialysing population is always a challenge. As shown by this multicentre registry data from Boston, USA, the outcomes are rather poor compared to the general population and even amongst the non-haemodialysing renal failure patients. The overall poor medical condition of such patients, technical difficulty on the revascularization procedure due to heavily calcified arteries and impaired wound healing are some of the factors that contribute to overall poor amputation, free survival and overall survival. The group has also looked at revascularization in some wheel chair bound and bed-ridden patients with critical limb ischaemia. A prudent approach may be to consider primary amputation in such patients who have minimal usage of the affected limb. The high mortality rate of 76--80% at 2 years depicts the severity of the general medical condition in such patients, especially if they have not been given a renal transplant. Hence a more prudent approach to peripheral revascularization should be adopted in such patients considering their overall survival and with realistic limb salvage expectations.

When ignorance is not bliss – a study of poor awareness of radiation exposure.

Poullis C, Mackay A, Ahmed M.
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Introduction and objective

Patient safety is at the forefront of quality of care. Radiation exposure secondary to diagnostic imaging is increasing rapidly. Coupled with clinicians' lack of awareness concerning radiation, doses incurred during these common procedures, many patients are being exposed to substantial cumulative radiation. Recent publications have indicated a significant minority of cancers are secondary to medical ionising radiation. The purpose of this study was to establish physician knowledge of radiation dosages.

Methods

Clinician knowledge of radiation doses was determined by a questionnaire distributed to 40 doctors across all specialties in a District General Hospital in England. Clinicians were asked to estimate the radiation dose incurred during common diagnostic investigations, environmental exposure and the relation to increased cancer risk. The results were correlated against seniority and previous formal education on ionising radiation.

Results

Clinician knowledge of radiation doses was poor with a mean score of 17% (range 0–44%). There was, on average, more than a 12-fold underestimation of radiation exposure levels across all grades and specialties of doctors. Those with previous formal education outperformed those without, but not significantly ($p > 0.05$).

Conclusions

Clinician awareness surrounding radiation doses of common diagnostic modalities is poor, grossly underestimating the true values. Increasing seniority or prior formal radiology training did not significantly alter the outcome. There is a need to educate clinicians, raise radiation dose awareness and avoid the financial, medico-legal and health delivery implications of unnecessary patient exposure to radiation.

Commentary

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Excessive and at times unnecessary use of tests instead of emphasis and reliance on clinical evaluation can lead to abuse of imaging technologies leaving patients at danger of

overexposure to radiation. Patient, family, and institutional led pressures to do the “best possible” test probably adds on to this abuse.

The study interestingly showed that prior formal training in the hazards of radiation did not improve the knowledge and practice regarding this issue. This suggests that undergraduate

and postgraduate training should be altered so that the issue of radiation exposure and patient safety becomes tagged as an important issue and translates to practice following adequate training. The question of exposure to radiation of health care workers for e.g. in cardiac cath labs; interventional radiology suites; orthopaedic and urology operating theatres etc., is also an issue which should be audited and further researched upon.
