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Spine Free Papers
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Hall 12

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HIGH CAREGIVERS SATISFACTION FOR MAGEC RODS DESPITE ADVERSE MEDIA ATTENTION
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MAGEC spinal rods have attracted national media attention, with concerns raised including early failure and metal wear debris compared to traditional growth rods (TGR). Most notably, these were highlighted in a BBC Panorama programme and on social media. The aim of this study is to demonstrate that MAGEC rods are safe and that caregivers have high satisfaction with MAGEC rods.

A retrospective review of 16 patients in Northern Ireland with MAGEC rods was performed. Complications were recorded and a review of existing literature was performed to identify complication rates. To address concerns regarding MAGEC rods, local agreement amongst the spinal consultant body to support MAGEC rods was achieved. Secondly, the BOA/BSS position statement was forwarded to all caregivers and an information evening was conducted by the spinal consultants. Finally, at the MAGEC rod lengthening clinic, a caregiver's satisfaction survey was completed.

Of the 16 patients, the overall complication rate was 22%. One patient required revision surgery for skin problems, one patient had a rod fracture and one developed a junctional kyphosis. This is relatively low compared to existing literature.

One hundred percent of caregivers completed the satisfaction survey. Five patients had conversion from TGR to MAGEC rods, with 100% preferring MAGEC rods to TGR.

Caregivers ranked the benefits of MAGEC rods, concluding that reduced number of surgeries was most important, followed by reduced psychological trauma and improved quality of life. Fifteen caregivers (94%) stated that the current three-monthly outpatient rod lengthening clinics were of an excellent standard and one (6%) reported it as fair. Reasons for a fair rating were logistical and have been addressed.

MAGEC rods are a safe and effective treatment option for scoliosis. MAGEC rods continue to have high satisfaction amongst caregivers despite recent controversy in the media. MAGEC rods remain safe and have a high satisfaction amongst caregivers.

Disclosure: Nothing to disclose.

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MANAGEMENT OF C2 ODONTOID PEG FRAGILITY FRACTURES - A UK SURVEY OF SPINAL SURGEONS
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Background: Frailty fractures are a major challenge to current health care systems. Clear guidelines and standards of care have led to vast improvements in patient care alongside cost efficacy savings in areas such as frailty hip fractures.

C2 odontoid peg fractures pose a similar burden with comparable mortality rates. However, in contrast, opinion regarding management is still divided with no clear consensus on treatment type, length of follow-up or investigations required.

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We aimed to highlight trends and determine current practice in the management of type two frailty fractures of the odontoid peg through the first cross-speciality survey within in the UK.

Methods: A novel 10 item survey tool was created surrounding the clinical case of an 80 year old patient sustaining a minimally displaced type two fracture as classified by Anderson and D'Alonzo. This was publicised through the BOA website and sent to The Society of British Neurological Surgeons (SBNS) membership via email.

Results: In total we received 107 responses from consultant orthopaedic (56%), neurological surgeons (26%) and senior spinal fellows. (16%). Management varied from conservative management with a soft cervical orthosis (15%) hard cervical orthosis (60%) or invasive procedures such as operative or halo fixation (5%). There was marked variation in time to first follow-up ranging from one week to never with multiple investigations requested throughout follow-up; plain AP radiographs (77%), lateral flexion / extension views (18%) and CT (10%). In the likely occurrence of a non-union opinion remained divided as to whether conservative management (67%) or operative intervention should be considered (25%).

Conclusions: This survey provides evidence for the high disparity in treatment of type two frailty fractures of the odontoid peg, The economic burden these fractures pose combined with high mortality rates within this population forms a strong case for a randomised control trial to define best practice.

Disclosure: Nothing to disclose.

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REDUCING BLOOD TRANSFUSION IN PAEDIATRIC SCOLIOSIS SURGERY: REPORTING EIGHTEEN YEARS OF A MULTIDISCIPLINARY, EVIDENCED BASED, QUALITY IMPROVEMENT PROJECT

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Background: Paediatric scoliosis surgery is historically associated with high rates of transfusion, exposing patients to the risk of transfusion-related reactions, infection and immunosuppression. To minimise exposure to allogenic blood, a multidisciplinary care pathway was implemented at our institution with the aim of reducing the requirement for allogenic transfusion. We report the results of an 18-year multidisciplinary, evidenced-based quality improvement project.

Patients and methods: Between 1st January 2000 and 31st December 2018, a total of 1,410 spinal deformity procedures were performed on 1,258 children under 18 years of age. Patients were matched against the transfusion department's internal database to identify those receiving blood products. Data reviewed included underlying diagnosis, approach, pre-operative haemoglobin, lowest post-operative haemoglobin and transfusion data by blood product.

Results: Mean age 13.8 years (range one - 18). Females accounted for 69% of the cohort, 31% were male. Idiopathic scoliosis accounted for 59.9% of cases, 25.1% neuromuscular, 13.3% syndromic, 1.4% congenital and 0.3% secondary to pathological causes.

Overall, patients with type 1 scoliosis (i.e. ambulant, otherwise healthy children, 10 - 18 years old) had a 7.1% rate of transfusion. Patients with type 2 scoliosis (ie younger children, or those with other medical problems) had a 41.4% transfusion risk.

Since introducing the pathway, transfusion rates for type 1 patients reduced from 45.3% to 3.6%. Amongst type 2 patients, a more pronounced reduction was achieved: 83.9% to 30.8%. In addition, reductions in mean transfusion volume were observed; 4 to 2.9 units, and 9.2 to 2.3 units respectively.

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Conclusions: We have demonstrated that the introduction of a multifaceted, multidisciplinary pathway can dramatically and sustainably reduce the need for allogenic blood transfusions and their attendant risks in paediatric scoliosis surgery. These data lend weight to the general adoption of such a pathway.

Disclosure: Nothing to disclose.

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IONISING RADIATION EXPOSURE DURING TLIF SURGERY - A COMPARISON OF OPEN VERSUS MIS TECHNIQUES FROM A TERTIARY SPINAL UNIT

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Introduction: Excessive use of image intensifier causes unnecessary exposure of ionising radiation both to the patient and the clinician involved in their care. The aim of the study was to evaluate the use of image intensifier during transforaminal lumbar interbody fusion (TLIF) procedure and evaluate the difference in the radiation exposure between open and minimally invasive surgical (MIS) techniques.

Methods: One hundred and thirty-one TLIF procedures were undertaken at Ipswich Hospital from January 2012 to October 2017. Medical records and data from PACS were reviewed.

Results: Eighty-seven via a standard open technique and 44 via MIS technique. One surgeon performed 73 TLIF procedures and a majority of MIS procedures (N = 38/44). The mean ionising radiation dose for open TLIF was 192.59 (SD = 116.49) cGy.cm2 compared to 687.95 (SD = 589.26) cGy.cm2 for MIS TLIF. This was statistically significant with a p value < 0.0001. The Image intensifier screening time was 0.3033 (SD = 0.2813) min for open TLIF compared to 1.5453 (SD = 0.7076) min for MIS TLIF, which was also statistically significant ($p < 0.0001$).

Conclusions: MIS TLIF procedure carries a 3.5 times increased risk of radiation to the patient compared to open procedure. In addition there is potentially an increased risk of radiation exposure to the practicing clinicians with the use of MIS technique. Proper education of the practicing surgeons, to take necessary steps to minimise the exposure to radiation both the patient and themselves, is essential.

Disclosure: Nothing to disclose.

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PREDICTIVE FACTORS FOR DISTAL JUNCTIONAL FAILURE AFTER ADULT DEFORMITY SURGERY WITH LOWEST INSTRUMENTED LEVEL AT L5

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Introduction: The ideal lowest instrumented vertebrae is still a matter of debate. Literature supports extension to the pelvis in long constructs for adjacent segmental disease (ASD). Fusion to the pelvis for ASD is not a benign procedure in the elderly population. Fusion to the pelvis is associated with increase blood loss, greater operative time and extended length of stay.

Methodology: We conducted a retrospective study in patients who underwent multilevel posterior lumbar interbody fusion (> 3 levels) and instrumentation to L5. We defined degenerative scoliosis as Cobbs angle > 20 degrees, or SVA > 5cm, or PI-LL mismatch >11 degrees or Pelvic tilt >25 degrees. We wanted to determine the mechanism of failure and the risk factors of failure to fusion to L5. We looked at patient demographics and numerous other radiological parameters.

Results: We had a total of 65 patients with a mean age of 71.23. We had a mean follow up of four years. Fifty-four patients were female. DJF was noted in 21 (32%) of patients. We noted a temporal nature of failure: if failure was < 6 months it was often due to fracture of the L5 pedicle or vertebral body. If failure was between 6-18 months, it was mainly due to loosening of the l5 screws.

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If failure was >18 months, failure was generated by progression of l5/s1 disc degeneration. Pre-op SVA (p = 0.018 OR 1), pre-op cobb´s angle (p = 0.05 OR 1.06), change in cobb´s angle (p = 0.023 OR 1.08)and change in SVA (p = 0.023 OR 1.08) are all significant predictors of failure after logistic regression analysis.

Conclusions: We have determined a temporal relationship and modes of failure. We have identified predictive factors for failure after logistic regression analysis. Despite previous published reports, l5/s1 disc degeneration is not associated with higher failure rates.

Disclosure: Nothing to disclose.