



Obesity in Spinal Surgery: the Impact on Peri-Operative Practice, Complications and Length of Stay

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Introduction

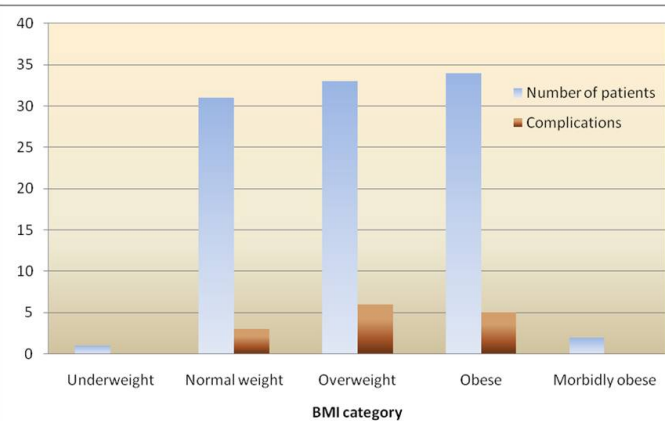
Obesity is increasingly prevalent in the United Kingdom. The consequences for daily practice and service provision in spinal surgery are uncertain (1, 2). We investigated the impact of BMI and posterior spinal fat content on peri-operative practice and complications in lumbar spine surgery.

Methods

135 cases of lumbar spine surgery imaged and carried out at a single centre between October 2009 and 2010 were identified. Of these, 101 datasets including BMI were available for analysis. Patient demographics, co-morbidities, operative details, peri-operative complications and length of stay were recorded. Posterior spinal fat content was measured as the perpendicular distance from the skin to the spinous process at the level of pathology on T2 weighted MRI. Data was analysed using logistic multiple regression and contingency table analysis in the Minitab 13.1 statistics package.

Results

Figure 1: Patient numbers and complications by BMI

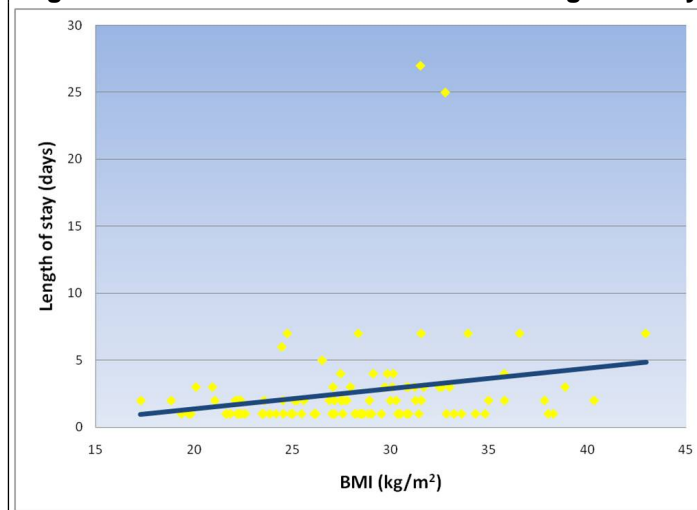


Overall complication rate was 13% with 5 in the obese group, 6 in the overweight group and 3 in the normal weight group (Figure 1). Operative and non-operative complications were distributed among weight categories (Table 1). There was no significant difference in the distribution of operative complications between weight categories.

Table 1: Specific operative and general complications

Patient	Normal Weight	Overweight	Obese
1	Durotomy and CSF leak	Durotomy and CSF leak	Durotomy and CSF leak
2	Durotomy and Superficial wound infection	Durotomy and CSF leak	Durotomy and CSF leak
3	Superficial wound infection	Durotomy	Durotomy
4		Position related palsy	Meralgia Parasthetica
5		Pulmonary Embolus	Pneumonia
6		Atrial Fibrillation	

Figure 2: BMI correlates with increased length of stay



Procedure ($p=0.001$) and complication rate ($p<0.0005$) also correlated strongly with length of stay. There was no significant effect of BMI or posterior spinal fat content on peri-operative complications ($p=0.374$, $p=0.205$), operating time ($p=0.462$, $p=0.865$) or blood loss ($p=0.732$, $p=0.820$).

Conclusions

Higher BMI is associated with increased length of stay following lumbar spine surgery at our unit.

There is no evidence that obesity is associated with an increased rate of complications in this cohort. However, total complications numbers were low. Demonstrating a significant relationship may require a larger study

This study does not support the hypothesis that obesity is associated with an increased risk of intraoperative complications, or longer operating times due to greater posterior spinal fat content

Pre-operative planning and resource allocation in spine surgery should account for an increased length of stay due to obesity

Learning Objectives

- 1) Gain a further appreciation of the implications of operating on obese patients
- 2) Compare and contrast this cohort with their own experiences of the patient group

References

1. Patel, N et al. Obesity and spine surgery: relation to peri-operative complications. 2007. J Neurosurg Spine. 6: 291–297.
2. Yadla S et al. Obesity and spine surgery: reassessment based on a prospective evaluation of perioperative complications in elective degenerative thoracolumbar procedures. Spine J. 2010 Jul;10(7):581-7