The relationship between patient related variables at assessment and progression to surgery for patients with lumbar radicular pain

TBIhealth INTEGRATED REHABILITATION PROFESSIONALS

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Background

Radicular pain resulting from lumbar disc herniation has a predominantly favourable natural course, with resolution of symptoms usually within a relatively short timeframe. The outcomes for lumbar decompressive surgery are variable and highlight the need for proper selection and early identification of factors that influence the need for surgery.

By identifying factors early on that predict a higher likelihood of surgery, clinical pathways for radicular pain can be developing to be more efficient, and valuable health resources can be allocated more effectively.

Aim

This study aims to determine the variables for patients initially presenting with lumbar radicular pain that are more strongly associated with the eventual decision to progress to surgery.

Methods.

This retrospective, observational study monitored and reported on all ACC patients with non resolving lumbar spine related radicular pain that were referred to a contracted rehabilitation service over a four-year period. All patients initially received a triage assessment with a Physiotherapist and commenced a period of rehabilitation. Patients with minimal improvement after 3-6 weeks of rehabilitation were then referred to a spine specialist for review of imaging and consideration for discectomy surgery. Following the specialist assessment, patients were then placed in a non-surgical rehabilitation or surgical (discectomy plus rehabilitation) pathway.

Patient related symptomatic and demographic variables were recorded at the triage assessment and included injury duration (days), work status, age, medication use, claims history, health status (Whodas), work demand, medication usage, psychosocial risk (Orebro), perceived pain (Numeric Pain Rating Score) and disability levels (Oswestry Disability Index).

General linear modelling was used to identify the variables with the strongest predictive power in evaluating the probability of having surgery. For purposes of evaluation, the level of significance was set at $P \leq 0.05$.

Results

1209 patients were referred and entered the study over a four-year period. Of the group, 665/1209 (55.1%) completed their rehabilitation without surgery (non-surgical pathway), and 544/1209 (44.9%) completed a surgical pathway.

Both the non-surgical and surgical groups reported improvements in pain NPRS score (non-surgical group 65.7% reduction: surgical group 73.1%) and perceived function ODI score (non-surgical group 65.7% reduction: surgical group 73.1%) at discharge. Similar improvements were seen at the 12 month follow up checkpoint (Figs 1 and 2).

Fig 1. Change in NPRS pain scores

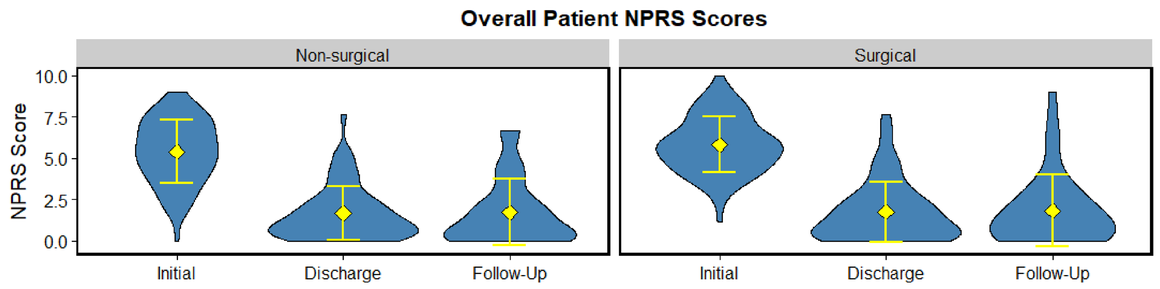
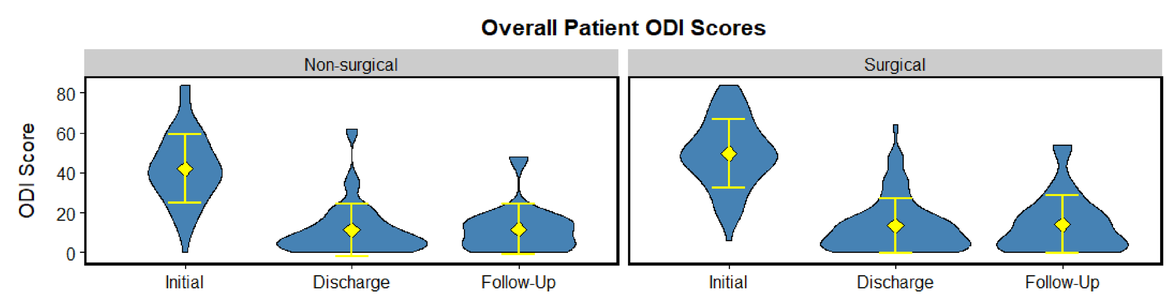


Fig 2. Change in ODI perceived function scores



Statistical analysis

Of the potential predictive variables selected at assessment (Table 1), patients with higher levels of perceived disability (ODI scores), and those taking more regular pain medication, had a statistically significant higher likelihood of requiring surgery.

For patients presenting with lumbar radicular pain, if their Oswestry Disability Index was greater than 41/100 points **AND** their medication utilisation was greater than 1 dose per day the likelihood of progressing to surgery was 74.1%

Table 1. Comparison of assessment variables

Variable	Surgical (mean (SD))	Non- Surgical (mean (SD))	P value
Age	45.4 (13.8)	49.1 (16.6)	0.231
Symptom Duration	167 (129)	73 (56)	0.166
Psychosocial risk	64/100	59/100	0.212
Not working (%)	63%	41%	0.545
Heavy work type (%)	27.2%	31.0%	0.621
Previous claims (%)	14.2%	14.5%	0.890
Pain levels	5.74	5.4	0.196
Disability levels	48.9/100	41.9/100	0.007
Health status	23.2/100	19.0/100	0.11
Daily medication (%)	81.0	61.7%	0.003

Conclusion

Clinical pathways are most effective when they effectively identify and stratify patients to an appropriate level of care based on their presenting situation. When developing clinical pathways for patients with persistent radicular pain, the level of perceived disability and self medication rates are important factors to consider in identifying patients early on that are more likely to require surgical intervention.

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