Clinical Outcome following Cervical Spine Surgery "Prognostic Factors"

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ABSTRACT

Background: This Study includes Primary outcome measures of interest were: neck and/or arm pain, neck-pain-specific functional status & self-perceived recovery. The choice of a specific surgical technique should be based on its benefits and harms. No additional benefit of fusion upon anterior decompression techniques could be found. A clear overview of other surgical techniques is lacking. We therefore aimed to assess the benefits and harms of cervical spinal surgery in patients with cervical disorders. **Methods:** This Study was carried out at GMC, Bhopal from Aug 2013 to March 2015, which includes. Primary outcome measures of interest were: neck and/or arm pain, neck-pain-specific functional status, and self-perceived recovery. Secondary outcomes were sick leave and complications of surgery. **Results:** In our study 82 females & 119 maled were found. **Conclusion:** The use of SCS has been shown to decrease opioid use & develop function in patients with other pain conditions, a very significant consideration in light of the current epidemic of opioid addiction & abuse. Therefore, significant opportunities remain to improve the clinical treatment of SCI pain with different SCS paradigms, but efforts will require multidisciplinary collaborations with clinical, neurophysiological & biomedical engineering expertise.

Keywords: Cervical, Spine Surgery & Prognostic.

INTRODUCTION

Patients recurrently develop chronic pain after traumatic spinal cord injury as a result of & neurochemical changes in the somatosensory system.[1,2] Spinal cord stimulation (SCS) has been used for over 50 years to manage pathologic pain conditions, especially with a neurogenic origin.[3] Yet, its utility & mechanisms of action in SCI pain are still unclear. The intention of this brief review is to outline SCI pain & the therapeutic potential of different electrical SCS paradigms for its treatment. Cervical disorders are widespread diseases that are regularly disabling & costly. Patients with cervical disorders can be classified into a small group with specific (eg, tumours, fractures) & degenerative (cervical degenerative disorder, cervical radiculopathy & cervical myelopathy) disorders & a larger group of patients with nonspecific complaints. Patients with cervical disorders are initially given conservative therapy.[4] When patients do not respond to conservative treatment they can be referred to a neurosurgeon, who may consider a surgical intervention. Patients with a cervical degenerative disorder often have chronic neck pain without radiculopathy; the goal of surgery is to reduce pain & improve function. Patients with cervical radiculopathy typically suffer from acute pain; the goal of surgery is to improve arm pain in the short term & avoid further neurological complications. Anterior cervical discectomy (ACD) is a usually used procedure & aims to relieve pressure on the nerve roots or the spinal cord by removing the ruptured disc.[5]

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MATERIALS AND METHODS

This Study was carried out at GMC, Bhopal from Sep 2013 to April 2015, which includes. Primary outcome measures of interest were: neck and/or arm pain, neck-pain-specific functional status, and self-perceived recovery. Secondary outcomes were sick leave and complications of surgery. Studies were combined into 2 clusters:

(1) Surgical fusion methods compared with other surgical fusion methods.
(2) Surgical fusion methods compared with artificial (prosthetic) cervical disc surgery.

We used a standardized form to extract data from the included papers: study characteristics, patient characteristics, description of the experimental and control interventions, co-interventions (if used), duration of follow-up, types of outcomes assessed, and possible conflict of interest. Two review authors (SMR and MvM) independently extracted data and disagreements were discussed. A third review author (APV) was consulted if necessary.

Inclusion Criteria

1. Only randomized controlled trials (RCT) including adult subjects with Cervical Disorders were considered.
2. We included studies evaluating Anterior Cervical Surgical interventions, including Discectomy with

different inter body fusion methods & Prosthetic Disc Surgery.

Exclusion Criteria

1. We excluded patients with Distinct Cervical Myelopathy who needed specific surgery, as this is a very serious condition.

RESULTS

Table 1: Demographic Findings

Follow-up period	3.1 ± 1.6
Case	201
Sex, female/male	82/119
non-C-OPLL/C-OPLL	122/79
ADF/LAMP/PDF	66/83/52
Age, average (range)	64.9 ± 13.7 (27-93)

Table 2: Clinical Outcomes

Bone mineral density, YAM, average (range)	98.2 ± 17.5 (55-140)
Operative time, average (range)	204.9 ± 114.7 (50-730)
Blood loss, average (range)	182.1 ± 289.2 (little-3400)
Preoperative C-JOA score, average (range),	11.2 ± 5.7 (3-16.5)
Postoperative C-JOA score, average (range)	12.9 ± 4.3 (7-17)
Recovery rate of C-JOA score, average (range)	44.9 ± 56.0 (100-100)
TSS (one segment/multiple lesion)	134 (107/27) (66.6%)
Lumbar decompression	29 (14.4%)
HT	92 (45.7%)
HL	38 (18.9%)
DM	67 (33.3%)
Smoking, No	87 (43.2%)
IHD, No	39 (19.4%)
HD, No	14 (6.9 %)
Collagen disease, No	16 (7.9%)
Obesity, BMI>25,	112 (55.7%)
Artificial joint, TKA or THA,	10 (5.9%)

DISCUSSION

In this review of 39 RCTs we evaluated the effectiveness of various surgical techniques in patients with cervical disorders. We found no statistically significant and clinically relevant differences between fusion techniques, and statistically significant but clinically irrelevant differences in favour of prosthetic disc surgery compared with fusion. The authors of most studies of prosthetic disc surgery had a conflict of interest.[6] The reviews all have the same a priori protocol and were split before the analysis. In one review (5 studies) we concluded that there was no clear benefit of surgery over conservative care, but all studies suffered from a high RoB. In another review (10 studies) we found no additional benefit of fusion techniques applied within an ACD procedure on pain, recovery, and return to work.[7] The current review shows apparently little difference in patient outcomes at both short- and long-term follow-up between various cervical surgical techniques. This is in line with 2 other recently published reviews, both evaluating cervical fusion in comparison with prosthetic disc surgery.[8]

CONCLUSION

The use of SCS has been shown to decrease opioid use & develop function in patients with other pain conditions, a very significant consideration in light of the current epidemic of opioid addiction & abuse. Therefore, significant opportunities remain to improve the clinical treatment of SCI pain with different SCS paradigms, but efforts will require multidisciplinary collaborations with clinical, neurophysiological, & biomedical engineering expertise.

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