Incidence of pain at Implantable Pulse Generator (IPG) site following spinal cord stimulator (SCS) surgery – A retrospective case series

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Introduction

Spinal Cord Stimulation (SCS) has been increasingly utilised in the treatment of chronic pain. While a growing body of literature continues to establish SCS as an effective treatment for chronic pain, commonly arising complications hinder the positive outcomes for patients. Complication rates of SCS implantation are often reported at around 35-40% (1). Pain at the Implantable Pulse Generator (IPG) site is not commonly reported.

Methods

This was a retrospective cross-sectional service evaluation, with data collected from patients who received SCS implants at LTHT between September 2015 to December 2016. Data was collected from hospital electronic records and paper files. Themes including IPG site pain, infection and hardware failure were coded and analysed using Microsoft Excel and STATA.

Results

A cohort of n=185 participants were trialled with SCS, of these n=161 were fully implanted and data analysed for complication rates. The age range was 18-92, there were 92 males and 93 females.
40 (25%) of the 161 patients complained of IPG site pain. 19 of the 40 patients reporting pain went on to have a revision to reposition the device. Rate of IPG site revision surgery was therefore 11.8%.
Further data is summarised in the tables.

Pain/Discomfort at IPG site			IPG location site in initial implants n=161 (%)
Pain reported	N (n=161)	%	
No	121	75.16	
Yes	40	24.84	
Location of IPG			
Abdomen	4	17.4%	23 (14.29%)
Buttock	16	38.1%	42 (26.09%)
Chest Wall	19	21.5%	88 (54.66%)
Missing data	1	12.5%	8 (4.97%)

IPG System Implanted	Percentage of IPG systems in those with IPG discomfort (%) (n=40)	Percentage of Implanted systems n=161 (%)
Small Rechargeable	32.5	32.92
Large Rechargeable	60	49.69
DRG (non-rechargeable)	7.5	17.39

Discussion

This study found that IPG site pain was a common problem with SCS implantation. Even when not requiring revision, this complication will influence patient satisfaction and hence success of SCS.
When analysing IPG location sites, it was found that the number of participants with pain at implant in the buttock was disproportionately high when compared with the implant locations of the total cohort. Abdomen was rarely used due to the complexity of turning the patient to a lateral position and the need for extension. Some of the IPG site pain at the chest wall was under garment related in female patients.
We classified the devices based on primary cell vs rechargeable and within rechargeable, whether it was small or large cell.

Conclusion

IPG site pain is a common problem which needs exploring. There could be some advances in IPG less systems in the future.

References
1. Hayek SM, Veizi E, Hanes M. Treatment-limiting complications of percutaneous spinal cord stimulator implants: a review of eight years of experience from an academic center database. Neuromodulation. 201