Change in Body Mass Index and the Success of Spinal Cord Stimulators: A Retrospective Review

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INTRODUCTION: With an increasing prevalence of obesity and a paucity of evidence regarding the effects of obesity on spinal cord stimulators’ (SCS) implantation success, there is great need in the literature to discuss body mass index (BMI) in the context of SCS implantation. In this retrospective review, we investigate the relationship between change in BMI after surgery and the self-reported success or failure of SCS.

METHODS: An IRB-approved retrospective review was conducted on the senior author’s patients whose names were confirmed by companies including Boston Scientific, Medtronic, Abbott, and Nevro between 2009 and 2023 for chronic pain syndrome including symptomatic back pain with or without associated preoperative radiculopathy. Electronic medical records were reviewed and demographic information obtained which included comorbidities, BMI at time of surgery, and at most the most recent clinic visit. Patients were also contacted telephonically and asked whether they felt the SCS implant was successful at reducing their pain. A univariate analysis was conducted on the relationship between change in BMI and the other variables gathered.

RESULTS SECTION: 463 patients were recruited into the study who had received an SCS implant between the years of 2009-2023. 70 patients responded to the phone survey. There was a significant difference between successful and non-successful pain management patients, with those who had successful management of pain gaining weight on average compared to those who did not have a successful management of pain who lost weight on average (p<0.001). There was no significant difference between successful and non-successful patients in BMI at surgery or BMI at most recent follow up, consistent with previous literature.

DISCUSSION: Success of SCS implantation is highly dependent on patient factors both modifiable and non-modifiable. Though BMI at surgery and at follow up is not a reliable indicator of whether SCS will be successful in a particular patient, our study indicates that an increase in BMI occurs in patients who have had a positive result from the SCS. Further investigation is necessary to determine if the increase in BMI is a factor in the improvement noted after surgery or an effect of the SCS implantation.

SIGNIFICANCE/CLINICAL RELEVANCE: This retrospective review lends credence to the monitoring of BMI during follow-up appointments after SCS implantation.