Objectives

The objective of this systematic review is to determine the effects of burst spinal cord stimulation on pain relief with eliciting paresthesia for various conditions including failed back surgery syndrome, painful diabetic neuropathy, and radiculopathy.

Introduction

Traditional tonic spinal cord stimulation (SCS) has been approved by FDA for chronic pain of intractable back and limb pain. However, it induces paresthesia in the area covered by SCS and pain marginally improved to some extent. Recently, burst SCS has been developed for pain reduction without the mandatory paresthesia.

Methods

The available literature on burst spinal cord stimulation in managing chronic pain without paresthesia was reviewed. The 2011 American Academy of Neurology (AAN) Classification of Evidence Guidelines Process Manual was used to grade the evidence and risk of bias. Data sources included relevant literature identified through searches of PubMed, MEDLINE/OVID, SCOPUS, and manual searches of the bibliographies of known primary and review articles. The primary outcome measure was pain relief and paresthesia status. Secondary outcome measures were improvement in functional status, burst SCS preference and safety.

Results

For this review, 5 studies including a total of 117 patients met the eligibility criteria. All studies were graded a Class IV study. (Table 1 and 2).

Discussion

Burst SCS is a new way to deliver energy to the spinal cord that possibly causes more pain reduction than tonic SCS without eliciting paresthesia for short-term relief. The evidence based on this systematic review for burst SCS in treating chronic intractable pain showed very low confidence in evidence and there is no sufficient evidence to recommend against or for burst SCS for chronic pain reduction without paresthesia. Further research is needed with a larger sample size and a standardized study design.

References