Exploring the clinical efficacy of an innovative chronic pain treatment: A comprehensive assessment.

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Introduction

The recent development of new therapies that do not rely on paresthesia has left the field without a clear mechanism of action that could serve as a strong foundation to further improve clinical outcomes. Consequently, multiple theories have emerged to explain how electrical pulse applied to the spinal cord could alleviate pain, including activation of specific supraspinal pathways, and segmental modulation of the neurological interaction. Recent systematic reviews also have shown the clinical effectiveness of spinal cord stimulation in managing chronic spinal pain, phantom limb pain, complex regional pain syndrome, and other chronic painful conditions [1].

This study proposes methods for blending design components of clinical effectiveness and implementation research. Such blending can provide benefits over pursuing these lines of research independently; for example, more rapid translational gains, more effective implementation strategies, and more useful information for decision makers. This study proposes a "hybrid effectiveness-implementation" typology, describes a rationale for their use, outlines the design decisions that must be faced, and provides several real-world examples. An effectiveness-implementation hybrid design is one that takes a dual focus a priori in assessing clinical effectiveness and implementation. We propose 3 hybrid types: testing effects of a clinical intervention on relevant outcomes while observing and gathering information on implementation; dual testing of clinical and implementation interventions/strategies; and testing of an implementation strategy while observing and gathering information on the clinical intervention's impact on relevant outcomes [2].

Spinal Cord Stimulation (SCS) is a minimally invasive therapy used for the treatment of chronic neuropathic pain. SCS is a safe and effective alternative to medications such as opioids, and multiple randomized controlled studies have demonstrated efficacy for difficult-to-treat neuropathic conditions such as failed back surgery syndrome. Conventional SCS is believed mediate pain relief via activation of dorsal column Aβ fibers, resulting in variable effects on sensory and pain thresholds, and measurable alterations in higher order cortical processing. Although potentiation of inhibition, as suggested by Wall and Melzack's gate control theory, continues to be the leading explanatory model, other segmental and supraspinal mechanisms have been described. Novel, non-standard, stimulation waveforms such as high-frequency and burst have been shown in some studies to be clinically superior to conventional SCS, however their mechanisms of action remain to be determined. Additional studies are needed, both mechanistic and clinical, to better understand optimal stimulation strategies for different neuropathic conditions, improve patient selection and optimize efficacy [3].

Electronic literature databases were searched from inception to May 2016 for randomised controlled trials that assessed the effectiveness of TAP blocks following caesarean section. Trials were eligible if comparisons were made against no block or placebo, and/or intrathecal morphine. Risk of bias was assessed using the Cochrane tool. Data for consistent outcomes were subject, where possible, to meta-analysis and presented as either mean differences with 95% confidence intervals or incidence of a particular event. This paper reviews the clinical information on antihistaminic agents as analgesics and as analgesic adjuvants. The evidence indicates a direct analgesic effect of various antihistaminics. In clinical studies, diphenhydramine, hydroxyzine, orphenadrine and pyrilamine have been shown to produce analgesia as simple entities but chlorpheniramine has not and results with phenyltoloxamine have been equivocal when tested alone. Analgesic adjuvant effects of several antihistaminics have been reported. Clinically, orphenadrine and phenyltoloxamine have shown adjuvant effects with acetaminophen and aspirin. The mechanism of action remains speculative. The most recent trends in the classification of histamine receptors and how these receptors may interact with pain modulation are also considered [4, 5].

Conclusion

The optimal medical regimen for the treatment of cocaine associated myocardial ischemia has not been defined. While animal and human data demonstrate the risks of beta-adrenergic blockade, studies in the cardiac catheterization laboratory suggest a beneficial role of nitroglycerin. We performed a prospective multicenter observational study to evaluate the clinical safety and efficacy of nitroglycerin in the treatment of cocaine associated chest pain at six municipal hospital centers. Of 246 patients presenting with

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cocaine associated chest pain, 83 patients were treated with nitroglycerin at the discretion of the treating physician. Relief of chest pain and/or adverse hemodynamic outcome were the primary endpoints.

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