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Comparative Study between the use of Topical Glyceryl Trinitrate vs. Topical Calcium Channel Blocker in Treatment of Acute Anal Fissure

Thesis

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ABSTRACT

Background: Acute anal fissure is a painful condition commonly results due to an increase in internal anal sphincter pressure. It is a painful condition which leads to significant morbidity mostly in young adults. It is a split in the mucosa of the distal anal canal that can progress to form a chronic linear ulcer. The common symptoms are severe pain on or after defecation and bleeding per anus.

Objectives: The main aim of this study is to evaluate the efficacy and adverse effects of topical 2% Diltiazem (Calcium channel blocker) and topical 0.2% Glyceryl trinitrate (GTN), when administered as single agents in the treatment of acute anal fissure.

Patients and Methods: 40 Patients with acute anal fissure were enrolled in the study. They were randomized using a closed envelop technique into two group (20 patients each) : Group A (2% Diltiazem users), and Group B (0.2% Glyceryl trinitrate users). pain was evaluated using a pain visual analog scale (VAS), we also evaluated the anal bleeding, constipation, perianal itching (anal pruritus) before, during and after the topical medications are used, and the results of each topical medications as healing, recurrence rates, onset of relief of symptoms, onset required to achieve complete healing, number and severity of side effects as (Headache, postural hypotension, flushing, allergy, GIT upset) or ineffectiveness.

Results: Both 0.2% glyceryl trinitrate ointment and 2% diltiazem ointment are equally effective concerning pain relief, and recurrence rates , while higher healing rates with topical Diltiazem (DTZ) than topical glyceryl trinitrate (GTN) were recorded (85% compared to 75% respectively). However, headache is a troublesome side effect with topical glyceryl trinitrate. Accordingly, topical 2% diltiazem is preferable as the treatment of choice for acute anal fissure.

Conclusion: Although surgical management like anal dilatation and open or closed sphincterotomy are a one-time solution with good symptomatic relief, it may be complicated by complications of wound healing, and permanent incontinence of flatus or faeces. The preferable treatment of acute anal fissure is becoming more medical since it is cost-effective. Both 0.2% glyceryl trinitrate ointment and 2% diltiazem ointment are equally effective in concerning pain relief, healing and recurrence rates. However, headache is a troublesome side effect in patients treated with topical glyceryl trinitrate . Therefore, when considering medical management for treating acute anal fissure, topical 2% diltiazem is the treatment of choice.

Keywords: Topical Glyceryl Trinitrate, Topical Diltiazem, Acute Anal Fissure

INTRODUCTION

Anal fissure is a common, painful condition that causes significant morbidity mostly in young adults. It is a split in the skin of the distal anal canal that may progress to form a chronic linear ulcer. The classic symptoms are intense pain on or after defecation and anal bleeding ***(Stewart et al., 2017).***

The primary abnormality in fissure may be the persistent hypertonia of the internal anal sphincter (IAS), raising the maximal anal resting pressure (MARP), and this may result from psychological stress ***(Barnes et al., 2015).***

Anal fissures are nearly always single, and they have predilection for the posterior midline location and less commonly for the anterior midline where one of ten fissures is located ***(Bansal et al., 2018).***

The exact etiology of anal fissure is still unknown. The current theories suggest that anal fissure may be an ischemic ulcer. Sometimes, there is a specific cause for anal fissure, such as Crohn's disease, ulcerative colitis, AIDS, syphilis, tuberculosis, or malignancy ***(Glover et al., 2015).***

Glyceryl trinitrate (GTN) has been used for several years; the nitric oxide lowers the resting tone and increases the blood flow. Diltiazem on the other hand has been derived from the benzothiozapine group; it dilates blood vessels and increases tissue perfusion. It acts as a calcium channel pump

blocker and lowers the resting tone of the muscle. There have been several recent studies that have shown that Diltiazem is very effective in treating patients with anal fissures that have not responded to GTN. Diltiazem has also shown to reduce the number of patients requiring surgery ***(Bielecki et al., 2013).***

Anal fissure may be either acute or chronic. Chronic anal fissures usually need surgical interference ***(Malik et al., 2017).***

Conservative treatment is the first line of treatment for acute anal fissure. Chronic fissures do not respond to conservative treatment ***(Emile et al., 2017).***

Conservative treatment consisted of three main components: bulk laxatives, Sitz baths (sitting in warm bath after defecation) and topical GTN 0.2% ointment ***(Gagliardi et al., 2010)*** or other topical preparation.

Surgery, including lateral internal sphincterotomy, anal stretch, posterior sphincterotomy, fissurectomy, dermal advancement flap and autologous fat transplantation, is potentially associated with risk of a transient continence disturbance. Pharmacological agents, such as glyceryl trinitrate (GTN), diltiazem (DTZ) and botulinum injection, can be successful treatments but they have a significant recurrence rate ***(Sajid et al., 2013).***