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Comparing the Efficacy of 2% Diltiazem Gel with 0.2% Glyceryl Trinitrate in Anal Fissure

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To compare the efficacy of 2% diltiazem gel with 0.2% glyceryl trinitrate in patients presenting with chronic anal fissure at Tertiary Care Hospital, Larkana.
Methodology: This prospective comparative Study was conducted at department of Surgery ward-II Chandka Medical Hospital, Larkana from **14-01-19** to **14-07-19**. A total of 130 patients who were treated as OPD cases were included in this study. Each patient detailed history & clinical examination, details of symptomatology was recorded in a epically diagnosed proforma. These patients were randomly divided in two equal groups i-e group A 65 patients and group B 65 patients. Group A patients were treated with 02% glyceryl trinitrate and group B patients were treated with diltiazem gel 02%. All the patients of group A & B were followed up to 02 months after start of leadema as a OPD cases.

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Results: A total of 130 patients (65 each in 2% diltiazem gel with 0.2% glyceryl trinitrate group) were included. Mean age in both groups was 42.56±3.91 and 41.71±4.01. 46 (70.8%) and 19 (29.2%) were male and female in Group A and 39 (60%) and 26 (40%) were male and female in Group B. Efficacy of 2% diltiazem gel with 0.2% glyceryl trinitrate in patients presenting with chronic anal fissure was 76.9% and 50.8% respectively.
Conclusion: DTZ (2%) and GTN (0.2%) are equally effective in healing anal fissures. DTZ is better than GTN as it causes less side effects, low recurrence rate, healing rate and therefore better compliance.

Keywords: Efficacy; diltiazem; gel; glyceryl trinitrate and fissure in ano.

1. INTRODUCTION

Anal fissure affects particularly young peoples and it is most common disease which affects every age group [1]. It is caused due to persistent hypertonia which causes linear tea especially at the distal anal canal and also due to the internal sphincter spans which leads to mucosal ischemia [2]. Chronic fissures are categorized by an anal spasm, sentinel tag, fibrosis, anal papillae and hypertrophic [3]. Most of the acute fissures can be treated conservatively with bulking agents, stool softeners, local anesthesia creams, and sits bath.

GTN (Glyceryl Tri Nitrate) is being used for many years; the nitrious oxide cause increase in the blood flow and causes decrease in the resting tone [4]. NO (Nitric oxide) is the principle non-cholinergic, non-adrenergic neurotransmitter responsible for contraction of internal anal sphincter and when released locally causes relaxation of internal anal sphincter.

On the other hand benzothiozapine derived drug Diltiazem causes increase in tissue perfusion and dilation of blood vessels [5]. In also reduce the muscle tone and act as CCB (calcium channel pump blocker) [6]. Due to complication though prolong healing of the wounds the surgeries are been avoided and hence medical treatments for out patients are been given which are also cost effective [7].

2. METHODOLOGY

This prospective comparative Study was conducted at department of Surgery ward-II Chandka Medical Hospital, Larkana from **14-01-19** to **14-07-19**. A total of 130 patients who were treated as OPD cases. Each patients detailed history was taken & clinical examination was done, details of symptomatology were recorded in an epically diagnosed proforma. These patients were randomly divided in two equal groups i-e group A 65 patients and group B 65 patients. Group A patients were treated with 02% glyceryl trinitrate and group B patients were treated with diltiazem gel 02%. All the patients of group A & B were followed up to 02 months after start of leadema as an OPD cases.

3. RESULTS

A total of 130 patients (65 each in each group were treated 02% diltiazem gel and with 02% glyceryl trinitrate were included. Mean age in both groups was 42.56 $\pm$ 3.91 of group A & 46 (70.8%) were male & 19 (29.2%) were female in group B. 39 (60%) were male & 26 (40%) were female.

Duration of symptomatology showed that out of 65 patients in group A, 35 (53.8%) and 30 (46.2%) had duration of symptoms < 12 and > 12 weeks respectively. Similarly, out of 65 patients in group B, 30 (46.2%) and 35 (53.8%) had duration of symptoms < 12 and > 12 weeks respectively. As presented in Table 3.

Stratification for duration of symptoms with respect to efficacy in group A and B showed that 25 (71.4%) and 10 (28.6%) achieved and did not achieve efficacy and 12 (40%) and 18 (60%) achieved and did not achieve efficacy in duration of symptoms group < 12 weeks respectively. Whereas duration of symptoms with respect to efficacy in group A and B showed that 25 (83.3%) and 05 (16.7%) achieved and did not achieve efficacy and 21 (60%) and 14 (40%) achieved and did not achieve efficacy in duration of symptoms group > 12 weeks respectively. P-value was 0.03. As presented in Table 4.

4. DISCUSSION

Fissure of anus is the painful and most common disease. Its treatment is under discussion and several treatments have been proposed. In the

last decade the understating regarding it pathophysiology has resulted in reduction of invasive and treatments in favor of treatments which cause relaxation of anal sphincter muscle. Success of Medical treatment with diltiazem, calcium channel blockers, glyceryl trinitrite and nifedipine is about 50% to 90%.

Out of a total of 130 patients (65 each in 2% diltiazem gel with 0.2% glyceryl trinitrate group) were included. Mean age in both groups was 42.56±3.91 and 41.71±4.01. 46 (70.8%) and 19 (29.2%) were male and female in Group A and 39 (60%) and 26 (40%) were male and female in Group B. Efficacy of 2% diltiazem gel with 0.2% glyceryl trinitrate in patients presenting with chronic anal fissure was 76.9% and 50.8% respectively.

In a study the healing with Diltiazem was found to be about eighty percentage and sixty two percentage with GTN and overall percentage of about seventy one. The total relief from pain was found to be 67.9%, mild pain complaints were about 26.1% and moderate pain complaints were 5.4%. a solitary patient with GTN complained about severe pain with no healing after 1 month of followup [8].

A polish study included 43 outpatients with chronic anal fissure, 22 patients were randomized to topical diltiazem (2%) ointment and 21 patients to glyceryltrinitrate (GTN) (0.5%) ointment twice daily for 8 weeks. Those who were treated with nitroglycerin ointment developed headache and dizziness developed after GTN in 33.3% of cases while no patient had any side-effects after diltiazem [9].

Table 1. Age distribution in group A and B n=130

AGE (YEARS)	GROUP A	GROUP B
20-40	30 (46.2%)	29 (44.6%)
41-60	35 (53.8%)	36 (55.4%)
TOTAL	65 (100%)	65 (100%)

Table 2. Gender distribution in group A and B n=130

GENDER	GROUP A	GROUP B
MALE	46 (70.8%)	39 (60%)
FEMALE	19 (29.2%)	26 (40%)
TOTAL	65 (100%)	65 (100%)

Table 3. Duration of symptoms distribution in group A and B n=130

DURATION OF SYMPTOMS (WEEKS)	GROUP A	GROUP B
< 12	35 (53.8%)	30 (46.2%)
> 12	30 (462%)	35 (53.8%)
TOTAL	65 (100%)	65 (100%)

Table 4. Efficacy of efficacy of 2% diltiazem gel with 0.2% glyceryl trinitrate in chronic anal fissue according to duration of symptoms (n=130)

DURATION OF SYMPTOMS (WEEKS)	EFFICACY GROUP A		EFFICACY GROUP B		P VALUE
	YES	NO	YES	NO	
< 12	25 (71.4%)	10 (28.6%)	12 (40%)	18 (60%)	0.01
> 12	25 (83.3%)	05 (16.7%)	21 (60%)	14 (40%)	0.03

Table 5. Efficacy of efficacy of 2% diltiazem gel with 0.2% glyceryl trinitrate in chronic anal fissue n=130

EFFICACY	GROUP A	GROUP B	P-VALUE
YES	50 (76.9%)	33 (50.8%)	**0.00**
NO	12 (23.1%)	52 (49.2%)	

Treatments were given BD for six to eight weeks and were applied perianally. Consent was taken from the patients. Both of the groups were comparable in patients clinical characteristics and demographs. 12 patients were found to be violating the protocols which include their withdrawal and not willingness to attend follow-ups. More said effects were found with GTN i.e. twenty one patients out of twenty nine compared with DTZ i.e. thirteen out of thirty one patients (relative risk (RR) 1.84 (95 per cent confidence interval (c.i.) 1.11 to 3.04), P = 0.01). Headaches were frequently observed with GTN i.e. seventeen out of twenty nine patients compared with DTZ which were about eight out of thirty one (RR 2.06 (95 per cent c.i. 1.18 to 3.59), P = 0.01).They didnt found any significance in symptomatic improvement rates and healing rates between patients receiving GTN (25 of 29) and DTZ (24 of 31) [10].

Another study was conducted on 60 patients having fissure of anus treated uniformly with either Glyceryl trinitrate or Diltiazem at Aga Khan University Hospital, Karachi. Patients who used Diltiazem reported more relief compared with glyceryl trinitrate ($p < 0.01$) with later found to have more side effects i.e. about forty percent which are 12 patients. Cost was not statistically significant between both arms ($p < 0.28$) [11].

Chemical sphincterotomy with topical Diltiazem gel is an effective first-line treatment for early symptomatic relief of anal fissures, owing to negligible side effects.

In our study efficacy in group A patients who achieved efficacy was 50 (76.9%) and 15 (23.1) patients did not achieved efficacy, in group B in 33 (50.8%) and 32 (49.2%) patients achieved and did not achieve efficacy respectively. As presented in Table 5.

5. CONCLUSION

Diltiazem (2%) and Glycerinetrinitrate (0.2%) are equally effective in healing anal fissures. DTZ is better than GTN as it causes less side effects, low recurrence rate, healing rate and therefore better compliance. We conclude that both provide rapid pain relief and healing of fissure, and it offers an effective treatment choice. This evidence would also enable us in setting standards and clinical guidelines in order to provide good care to our patients. This study can serve as preliminary study to be followed by other large scale studies which can provide the required data to health care authorities for planning appropriate strategies.

CONSENT

Consent was taken from the patients.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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