



Original Article

A Study of Ursodeoxycholic Acid for Dissolution of Gallstones

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Abstract

Background: Gallstone disease one of the major health problems and causes of morbidity in Bangladesh as well as worldwide. Ursodeoxycholic acid is a bile acid which is used for dissolving gallstones.

Objectives: To observe dissolution of gallstones among the patients of gallstone disease by use of ursodeoxycholic acid.

Methods: It was a cross-sectional observational study carried out in the Department of Medicine, Rajshahi Medical College Hospital, Rajshahi from July, 2014 to June, 2016. According to inclusion and exclusion criteria 12 people having gallstone disease were selected whose stone size were <10mm and were treated with Ursodeoxycholic acid (Dosage of 8-12mg/kg/day). Thorough history, physical examination along with Ultrasonographical assessment were done for this study.

Results: Complete gallstonedissolution with Ursodeoxycholic acid occurred in 08(66.67%) cases whereas dissolution did not occur in 04(33.33%) cases among the patients of gallstone diseases.

Conclusion: In this study, complete dissolution of Gallstones (<10mm) occurred in 66.67% patients.

Keywords: Gallstone disease, Ursodecholic acid

TAJ 2014; 27: No-2: 27-29

Introduction

For about 35 years the naturally occurring bile acid Ursodeoxycholic acid have provided an alternative therapeutic strategy to cholecystectomy for treating Gallstones- as sole treatment to extracorporeal shock-wave lithotripsy for larger stones.¹ Oral administration of this bile acid reduces cholesterol secretion and lowers cholesterol saturation of gall-bladder bile.²⁻⁶ Clinical trials have shown that Ursodeoxycholic acid is effective in inducing gallstone dissolution

and dosage is 8-12mg/kg/day.⁶⁻⁷ This agent has different and in some respects complementary metabolic and pharmacological effects. A major problem arises with studies on gallstone dissolution if results are expressed only as the proportion of patients achieving complete dissolution because this requires a long follow-up period.

Material and Methods

Type of study: It was a cross-sectional observational study.

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Place of study: Department of Medicine, indoor and outdoor, Rajshahi Medical College Hospital, Rajshahi.

Period of study: 02 years (July,2014 to June, 2016)

Study population: Gallstone disease patients fulfilling the inclusion and exclusion criteria. Patients aged 18years and above were enrolled according to standard criteria namely gallstones <10mm in diameter and a history of biliary pains.

Sample size: Sample size was 12 cases having gallstone disease. In case of Gallstone disease prevalence in Bangladesh = 5.4%¹²

Exclusion criteria: Body mass index ≥ 35 kg/m², Stones in the common bile duct, previous bile acid treatment.

Results

A total of 12 patients (4 males and 8 females) volunteered for this study.

Table 1. Demographic and gallstone characteristics of patients. Data are means (S.E.M.) where

As shown in Table 1, the treated groups were matched for gender, age and body mass index and also for Gallstone size and number.

Gender	male	4
	female	8
Age	years	46.9 (1.7)
BMI	kg/m ²	24.4 (0.4)
Stone no.	single	4
	multiple	4
Stone size	mm	<10mm

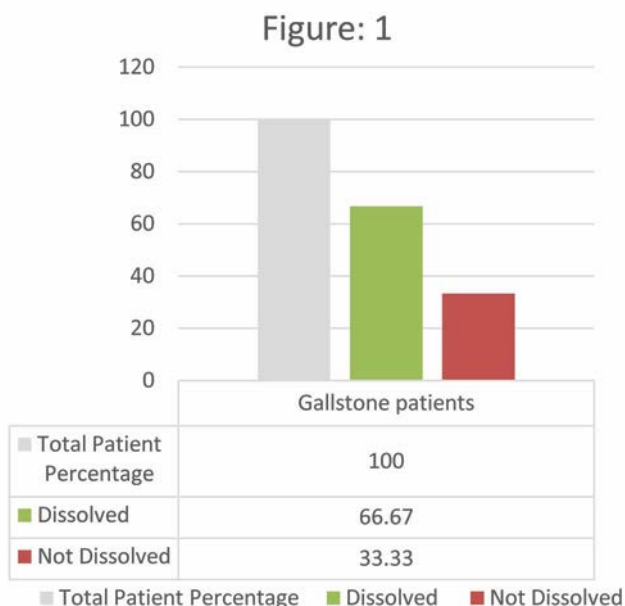


Figure 1. Percentage of patients with complete gallstone dissolution and of patients with no gallstone dissolution

As shown in Figure 1, Out of 12 patients 8(66.67%) patients show gallstones completely dissolved whose sizes were <10mm, whereas 4(33.33%) patients reveal no dissolution with Ursodeoxycholic acid therapy. Gallstone

dissolution rate was assessed by ultrasonography. This dissolution occurs within 24 months. After 24 months, no dissolution occurred in case of 4 patients who were treated with Ursodeoxycholic acid.

Discussion

The overall Gallstone dissolution rate as an intention-to-treat basis was similar to that

previously reported for Ursodeoxycholic acid.⁶ Therapy with Ursodeoxycholic acid reduced similar rates of complete dissolution regardless of the initial stone size. Treatment was rapidly effective in reducing biliary pains. As for side effects, persistent diarrhea was rare and serum aminotransferase did not rise. This therapy has been reported to reduce biliary cholesterol secretion and cholesterol saturation in bile.⁸ The present findings differ from those of Podda et al. who used similar enrollment criteria and bile acid dosage and showed superior efficacy with Ursodeoxycholic acid.⁹ It must be noted that the methods used Podda et al. first generation ultrasound is liable to false negative result, whilst in the present study the diagnosis of complete dissolution required ultrasound scans 3 months interval using second generation equipment.¹⁰ Sachmann and colleagues treated with Ursodeoxycholic acid in 282 patients treated with extra corporeal shock-wave lithotripsy (ESWL).¹¹ Ursodeoxycholic acid was as effective for complete fragment dissolution at all follow up interval. Since fragment size following ESWL was ≤ 5 mm these findings agree with the present ones in the sub-group of patients with small stones. It has been suggested that this therapy (ESWL) works faster with Ursodeoxycholic acid therapy in terms of speed of dissolution rate.⁹ In case of cost effectiveness, Ursodeoxycholic acid is recommended as the most cost-effective approach to Gallstone dissolution.

Conclusion

In this study, complete dissolution of Gallstones (<10mm) occurred in 66.67% patients.

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