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A Comparative Study of Various modalities of Treatment for Chyluria

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I. INTRODUCTION :

Chyluriais described as the passage of milky appearing white urine due to the presence of chyle composed of albumin, emulsified fat and fibrin in varying proportions that are absorbed by intestinal lacteals.Chyluria is associated with abnormal retrograde or lateral flow of lymph from the intestinal lymphatics to the kidney, ureter or bladder allowing chylous material to be discharged into the urinary collecting system. On anatomical basis, the renal lymphatics follow the renal vein and end in lateral aortic glands; efferents from which flow to the lumbar trunks. The intestinal trunks receive lymph from stomach, intestine, pancreas, spleen and liver. Physiologically chyle travels from the lacteals to the cisterna chyli or thoracic duct. Pathological obstruction and/ or insufficiency of the valvular system of lymph channels leads to retrograde flow to lumbar lymph glands draining renal lymphatics. Thus there is a short circuiting of chyle drainage from intestinal lacteals to renal lymphatics. Its prevalence is high in areas where infections with Wuchereriabancrofti are endemic. Approximately 120 million people worldwide are affected by lymphatic filariasis.

AIM & OBJECTIVES

- To compare the responses of medical and surgical treatment of chyluria.
- To achieve better results through combination of conservative and surgical treatment or by individually one.

II. MATERIALS & METHODS

The study was conducted in the department of General Surgery, Chettinad hospital and research institute conducted from January 2022 to December 2022.

Total number of cases were 25 on which this study was carried out, out of which 6 were female and rest were male (19)from age group of 13 years to 70 years. Methods to confirm diagnosis will be applied according to protocol.

SELECTION OF CASE :

Patients attending outdoor, admitted in indoor with chief complaints of passing milky urine were selected randomly.Patients were allocated for conservative or sclerotherapy or combination of them on the basis of clinical history, examination and final diagnosis, with comorbid conditions and predicted response of treatment.

EXCLUSION CRITERIA :

- Patient not given consent.
- Patient in whom drugs cannot be given : hypersensitivity to drugs, liver diseases.
- Patient not fit for sclerotherapy : deranged renal function test.
- Patient in whom operative intervention is contraindicated.

Specific investigations included intravenous urography (IVU) in 7 patients, ultrasonography in 24 patients. Patients with a structural or functional abnormality of the kidney (e.g. poor function, stone, hydronephrosis, and medical diseases) were excluded from the sclerotherapy study. All patients selected for sclerotherapy, were undergone cystoscopy under local anesthesia after a fatty meal. The chylous efflux was observed to identify the affected side, chyluria was unilateral in 5 patients and bilateral in 2 patients.

The conservative treatment given in 18 patients, out of which 14 were males and 4 were females. In conservative treatment for 14 patients given drugs and dietary modification and rest 4 patients with drugs only which is selected randomly. Drugs only given to patients, those have mild grade of chyluria and have no associated symptoms.

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Dietary modifications: As absorption of dietary fat, leads to chyleformation, hence fat restricted diet is recommended (<25g/day). Diet rich in protein recommended to make up albumin lost in form of chyle. Hematinics, multivitamins and green leafy vegetables were recommended.

In drugs: Diethyl carbamazine (DEC),the dose was 6mg/kg in three divided doses (100 mg TDS) after meal for 21 days and then 15 days gap given. Such three courses were repeated. Ivermectin 400µg/kg single dose & Albendazole 400 mg given single doseat 15 days interval along with DEC.

Sclerotherapy: was given for 7 patients. The 1% $AgNO_3$ was the sclerosant of choice in treatment of chyluria, provided following precautions and prerequisites are fulfilled. Silver nitrate is colourlessodorless crystalline material highly soluble in water. It is light sensitive and is darkened by sunlight hence is dispensed in amber coloured bottles.

III. OBSERVATION & RESULTS

Table 1 : Distribution of patients according to taking treatment:

Patients	Conservative	Sclerotherapy
Male	14(77.7%)	5(71.43%)
Female	4(22.3%)	2(28.57%)
Total	18(72%)	7(28%)

Above data of conservative versus sclerotherapy management shows most patients treated with conservative management. Above data is statistically in significant ($p > 0.05$ using chi square test, $x^2 = 0.11$, df = 1).

Table-2 : Distribution of patients in conservative management:

Patients	Dietary modification + drugs (DEC + Ivermectin + Albendazole + lycopene + medium chain triglycerides)	Drugs only (DEC+ Ivermectin + Albendazole+ lycopene)
Male	11(78.56%)	3(75.0%)
Female	3(21.44%)	1(25%)
Total	14(77.7%)	4(22.3%)

This is not statistically significant.

Table-3 : Distribution of patients according to cured and recurrence or failure:

Patients	Sclerotherapy	Conservative	
		Drugs Only	Dietary Modification with drugs
Cured	5(71.43%)	3(75%)	13(92.29%)
Recurrence	2(28.57%)	1(25%)	1(7.14%)
Total	7	4	14

SUCCESS RATE OF MANAGEMENT:

1. Dietary modification with drugs (DEC + Ivermectin with Albendazole+ + Lycopene) :

Success rate	Failure rate (recurrence rate)
13(92.29%)	1(7.14%)

2. Drugs only success rate (DEC + Ivermectin + Albendazole + lycopene):

No. of cases cured	No. of cases recurred
3(75%)	1(25%)

3. Aggregate success rate of conservative management :

No of cases cured	No of cases recurred
16(88.88%)	2(16%)

The above results of conservative management

4. Success rate of sclerotherapy:

No. of cases treated	No. of cases recurred
5(71.43%)	2(28.57%)

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After instillation of 1% silver nitrate many patients complained of flank pain (28.57%), nausea and vomiting (57.14%) and occasionally haematuria (7.14%) table-14.these symptoms varied in severity but all subsided in 1 to 2 days. Although the symptoms were subjective, it was noted that patients respond well to symptomatic management.

Intravenous urography and ultrasonography carried out after treatment failed to show any structural or functional renal damage.

IV. DISCUSSION

Chyluria is a chronic debilitating condition possesses a significant health problem. According to obstructive theory, chyluria occur as a result of mechanical obstruction in the lymphatic between the intestinal lacteals and thoracic duct, leading to dilatation. Proliferation and lymphangiectasis of veno-lumber lacteals. Thus chyle enters the urinary system as a result of fistulous communications between the renal lymphatics and pelvicalyceal system. It is common in South-East Asia, China, Japan, India, Taiwan and part of Africa and South America.Chyluria, hematochyluria, the passage of chylous clots in urine and dysuria are common modes of presentation. Although disease is not life threatening, it can lead to considerable weakness and weight loss and persistent of chyluria can cause abnormalities in the immune system.

The most commonly used method for treatment of mild cases of chyluria is conservative. In our study conservative methods were used:

(a) Dietary modification (fat restricted diet with addition of medium chain triglycerides) with drugs (DEC + Ivermectin + Albendazole +lycopene).
(b) Drugs only (DEC, Ivermectin, albendazole and lycopene).

In our study 88.88% of cases treated conservatively were cured, but maintain a fat free diet and quite a tough task. Medium chain triglycerides, which are recommended for treatment process, an unpalatable and costly. Ohyama et al. reported a cure rate of 61%. To avoid relapse, the world health organisation technical data report of 1985 recommended long term DEC therapy in patient suffering from chronic sequelae of filariasis.

In sclerotherapy, the indications are failure of conservative management - DEC therapy and dietary modifications, willing of patients and according to surgeon. Various sclerosants have been described as effective in renal pelvis instillation sclerotherapy (RPIS). Sclerosant reaches the lymphatics through pyelolympahtic fistulae and produces chemical lymphangitis. The resultant oedema blocks the lymphatic channels, giving immediate relief in chyluria. Subsequent healing fibrosis leads to permanent remission.

In conservative managment with dietary modification and drugs (DEC+ Ivermectin+Albendazole +lycopene) has got better result with minimal side effects but it taken some times with gradual disappearance of chyluria and required taking regular drugs. In our study no any complication detected during conservative management.

V. CONCLUSION

Chyluria is a significant health problem in certain part of world which is known for endemicity of filarial and other diseases. It is a condition with varying severity. On one end of spectrum, this is a mild disease with long period of remission and at the other end this is acute intractable chyluria with metabolic complications.

Various treatment modalities are now available for management of chyluria; e. g. conservative management with dietary modification and drugs in combination or drugs only, is one of modality for management of chyluria. Other modalities of treatment consist of use of sclerosants such as 1% silver nitrate and povidone iodine in sclerotherapy ,open and laparoscopic and microsurgical technique for management of refractory chyluria.

Our study has shown that conservative management of chyluria In form of dietary modification (fat restricted diet with supplement of Medium chain triglyceride with high protein diet) along with drugs, (Diethyl carbamazine, Ivermectin and Albendazole and lycopene) was found highly beneficial with high cure rate (88.88%), on the other hand, in our study, another group of patients treated by sclerotherapy with 1% AgNO3 showed somewhat lesser cure rate (71.24%) as compared with group of patients treated with Conservative treatment.

Our study concluded that treatment regimen of chyluria in form of drugs and dietary modification is much safer, non-invasive and better option with minimal side effects. Overall comparison to sclerotherapy management which shows lesser cure rate and associated with more complications than conservative management of chyluria. This study is also supported by retrospective observation for last 4, years for conservative management of chyluria by drugs.

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