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Single versus multiple instillation of povidone iodine and urographin in the treatment of chyluria: A prospective randomised study

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KEYWORDS

Chyluria;
Urographin;
Povidone iodine;
Safety;
Complication

ABBREVIATIONS

DFD, Disease-free duration;
PI, Povidone iodine;
RPIS, Retrograde pelvic instillation of sclerosing agent

Abstract ***Objective:*** To compare the safety, efficacy and complications of single vs multiple instillations of povidone iodine (PI) and urographin as a sclerosing agent in the treatment of chyluria.

Patients and methods: The study included 58 patients diagnosed with chyluria between March 2006 and January 2013. The inclusion criteria were either severe attacks of chyluria or patients with mild-to-moderate chyluria who had failed conservative treatment. The patients were randomly allocated to one of two groups: those in Group A had a single instillation of a combination of PI 0.2% plus the contrast-agent urographin 76%, while those in Group B had multiple instillations of the same combination twice daily for 3 successive days.

Results: The mean (SD) age of the patients in Groups A and B was 38.22 (10.67) and 37.9 (10.86) years, respectively. Chyluria was severe in eight patients (14.8%),

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moderate in 25 (46.3%) and mild in 21 (38.9%). The success rate in Group A (single instillation) was 85.2% and in Group B (multiple instillation) was 88.9%. The recurrence rate in Group A was 14.8% with a disease-free duration (DFD) of 4–15 weeks, while in group B it was 11.1% with a DFD of 6–18 weeks.

Conclusion: There was no significant difference between a single instillation of a combination of PI 0.2% and urographin 76% as a sclerosing agent in the treatment of chyluria and multiple instillations. However, the single instillation protocol is more cost effective with a shorter hospital stay.

Introduction

Chyluria is a condition characterised by the passage of milky urine due to abnormal communication between the lymphatic system and pyelocalyceal system [1]. Chyluria has the characteristic of remission and exacerbation and this is apparently seen in the countries in which it is endemic, such as India, Japan, North Africa, South-east Asia and South America [2]. It is a debilitating condition due to the continuous loss of protein and fat in the urine, with subsequent weight loss and immune suppression. Chyluria can be classified according to its severity into three grades: mild (intermittent milky urine, no clots, no weight loss, a single calyx involved on retrograde pyelography), moderate (intermittent or continuous milky urine with occasional clots, no weight loss, two calyces involved on retrograde pyelography) and severe (continuous milky urine with clots, weight loss, most of the calyces involved on retrograde pyelography) [3]

The first line of treatment is conservative measures in the form of a low-fat and high-protein diet and antifilarial drugs, which are not effective in advanced conditions [4].

Renal pelvic instillation sclerotherapy (RPIS) using different agents [e.g. silver nitrate, povidone iodine (PI), potassium iodide, and contrast agents] is the most frequently treatment used for chyluria in the last three decades and it relies on producing fibrosis with subsequent closure of the pyelolymphatic connection [5]. Despite being highly effective, silver nitrate is no longer preferred due to its multiple side-effects [6].

The initial experience of using PI, as a sclerosing agent, for treating chyluria was reported by Shanmugam et al. [7]. Since then, multiple studies have used PI either in isolation or in combination with different agents, such as contrast agents or dextrose 50%. These studies also used PI either as a single instillation or in multiple instillation protocols [1,5,8]. Therefore, in the present study, we compared the safety, efficacy and complications of single vs multiple instillations of PI and urographin for the treatment of chyluria.

Patients and methods

This was a prospective randomised study from March 2006 to January 2013, including 58 patients diagnosed with chyluria using routine urine analysis, ether test, and urinary triglyceride assessment. Leucocyte esterase, urine culture and sensitivity were done routinely in all patients to exclude UTI. Pelvi-abdominal ultrasound and CT were performed in all patients.

- Inclusion criteria were either severe attacks of chyluria (continuous chyluria with clots and or considerable weight loss) or patients with mild-to-moderate chyluria and failed response to conservative treatment (in the form of a fat-restricted high-protein diet and diethylecarbamazebine 100 mg three times a day/21 days).
- Exclusion criteria were bilateral cases, mild-to-moderate cases with good response to conservative treatment, and cases with secondary chyluria.

All patients were consented with regards to the benefits and problems of the different lines of treatment, after approval of the study protocol by the Local Ethics Committee. The patients enrolled in the study were randomly allocated into two groups (randomised 1:1, i.e. one patient was allocated to Group A and the next one to Group B). Patients in Group A had a single instillation of a combination of PI 0.2% and the contrast-agent urographin 76% (Bayer™) and those in Group B had multiple instillations of the same combination twice daily for 3 successive days. All patients enrolled were given a heavy fatty meal the night before the procedure (250 mL full cream milk), a wide pore cannula was fixed the day of the procedure and local anaesthesia was given to patients. Initially, the patient is placed in the lithotomy position and the site of chyle efflux localised by diagnostic cystoscopy (Fig. 1). Four patients had bilateral efflux, two from each group and they were therefore excluded. In all the patients, a 6-F ureteric stent (open tip catheter) was inserted under fluoroscopy into the effluxing side and diluted contrast injected to delineate the pelvicalyceal system, detect pyelolymphatic fistula and to adjust the tip of the catheter at the renal pelvis