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Metoclopramide (Primperan®) in the Treatment of Ureterolithiasis

A Prospective Double-Blind Study of Metoclopramide Compared with Morphotropin on Ureteral Colic

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Key Words

Metoclopramide
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Abstract

A prospective double-blind study was performed to compare metoclopramide (Primperan®) with morphotropin in the treatment of ureteral colic. Twenty-one patients (10 in the morphotropin group and 11 in the metoclopramide group) entered the study and diagnosis was confirmed radiologically. Using the Mann-Whitney rank sum test, no significant difference was found in the pain-relieving effect 10, 20, or 30 min after treatment with either 1 ml morphotropin s.c. or 20 mg metoclopramide i.v. Two patients in the morphotropin group developed nausea and giddiness, respectively, and 1 patient from this group was omitted due to the development of urticaria. No side effects occurred in the metoclopramide group. Thus metoclopramide seems to be an alternative to the traditional treatment of ureteral colic with morphia.

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Introduction

In this country the majority of patients use strong analgesics of the morphine type, either alone or in combination with spasmolytics, in the treatment of ureteral colic [1]. Most patients tolerate this treatment well, but quick and effective pain relief is not always achieved, and there is no considerable effect on nausea in connection with attacks. The pharmacological mechanism of metaclopramide is not known, but there is knowledge of the antiemetic central nervous system effect on the dopa-minergic receptors and, from gastroenterological use, it is known that it has a motility-regulating effect on hollow organs, e.g. choledochus, via a direct effect on the smooth muscles, possibly via added sensitivity for cho-linergic stimulation [2–4]. Schelin [5] suggested an increase in the coordinated peristalsis of the ureter and thereby a propulsion-promoting effect. Following this, it was of interest whether this effect on the ureter could be used in connection with ureterolithiasis. By using metoclopramide one could have a non-narcotic alternative with known antiemetic effects.

The object of the study was to evaluate the effect of metoclopramide (Primperan®, H. Lundbeck and Co. Ltd.) on pain and nausea in acute ureterolithiasis in comparison with the standard treatment using morphia in combination with spasmolytics.

Material and Methods

Forty-two patients took part in the examination between January 1, 1984, and August 31, 1986, and were admitted to the Para-chyma Surgery Ward within less than 24 h of anamnesis with flank pain radiating to the groin and hematuria. Patients with known allergy to one of the applied substances, patients with cardiovascular illnesses [8, 9], patients undergoing neuroleptic treatment, and pregnant patients were excluded from the study in advance.

The patients submitted verbal informed consent according to the Helsinki Declaration II. The examination was reported to the Scientific Ethical Committee in Copenhagen and Frederiksberg and the National Health Service.

The examination was carried out as a double-blind procedure as all patients received 1 ml of the 'blind' preparation subcutaneously and 4 ml of the 'blind' preparation intravenously, so that either 1 ml morphatropin (1 ml contains 0.5 mg atropin sulfate and 20 mg morphine hydrochloride, DAK Laboratories) and placebo or 20 mg Metoclopramide (Primperan®) in the Treatment of Ureterolithiasis

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metoclopramide and placebo was given initially (time 0). Following this the patient registered pain relief with the assistance of a visual analogue scale [6, 7], without graduation, after 10, 20 and 30 min. They were also asked to register the effect on nausea (positive or negative) and any subjective side effects after a period of 30 min. If necessary, the patients received 1 ml morphatropin after 30 min.

After this an intravenous pyelogram (IVP) was carried out and the urine filtered. Impartial doctors in the X-ray Department assessed the IVPs.

Statistics

The two groups of patients were compared with regard to the pain-relieving effect after 10, 20 and 30 min using a Mann-Whitney rank sum test, as pain relief marked on the visual analogue scale was converted to points from 1 to 10. Comparison of the groups with regard to the nausea-reducing effect was not statistically possible as only 4 patients in each group had nausea at time 0. Statistical comparison of the necessity to apply morphatropin after 30 min was not possible as only 1 and 2 patients from each group needed this.

Results

In 21 patients the examination confirming the diagnosis of urolithiasis was carried out either radiologically (20 patients) or by calculus discharge (1 patient). One patient was omitted due to urticaria development (morphatropin); 1 patient was omitted due to calculus discharge prior to termination of the study, and 19 patients were omitted because the diagnosis could not be verified. The patients who completed the study were divided into the morphatropin group (n = 10) and the metoclopramide group (n = 11).

10, 20 or 30 min after treatment, no significant difference in the pain-relieving effect was found (table 1). Apart from the above-mentioned urticaria which developed in 1 patient in the morphatropin group, 1 patient had nausea and vomiting after 20 min and 1 patient in the same group had slight giddiness. There were no side effects in the metoclopramide group.

Discussion

This pilot study supports that of Schelin [5] on the suggested pain-relieving effect of metoclopramide, as this was found to be equal to that of morphatropin. In this study no side effects were found with metoclopramide. Due to the small size of the examination material, it

was not possible to judge the antiemetic effect, as only one third of the patients had nausea at the time of admission.

Table 1. Classification of pain-relieving effect read on the 'visual analogue scale' at 10, 20 and 30 min.

Conclusion

Metoclopramide seems to be a good alternative to the current morphia treatment of ureterolithiasis, at least in patients where one is afraid of or has a knowledge of morphia abuse or morphine allergy/intolerance. It would be desirable to confirm the above results in a larger group of patients.

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References

- Andreassen, M.; Baden, H.; Videbæk, A.: Basisbog i kirurgi; 3rd ed., pp. 486–487 (Munksgaard, Copenhagen 1977).
- Schulze-Delrieu, K.: Metoclopramide. *Gastroenterology* 77: 768–779(1979).
- Koch-Weser, J.: Metoclopramide. *New Engl. J. Med.* 305:28–33 (1981).
- Pinder, R.M.: Metoclopramide: a review. *Drugs* 12: 81–131 (1976).
- Schelin, S.: Observations on the effect of metoclopramide on the human ureter. *Scand. J. Urol. Nephrol.* 13: 79–82 (1979).
- Huskinsson, E.C.; Scott, J.: Graphic representation of pain. *Pain* 2: 175–184(1976).
- Huskinsson, E.C.: Measurement of pain. *Lancet* ii: 1127–1131 (1974).
- Thorburn, C.W.: The haemodynamic effects of metoclopramide. *Post-grad. med. J.*, July, suppl., pp. 22–24 (1973).
- Shaklai, M.; Pinklas, J.; De Vries, A.: Metoclopramide and car-dial arrhythmia. *Br. med. J.* ii: 385 (1974).