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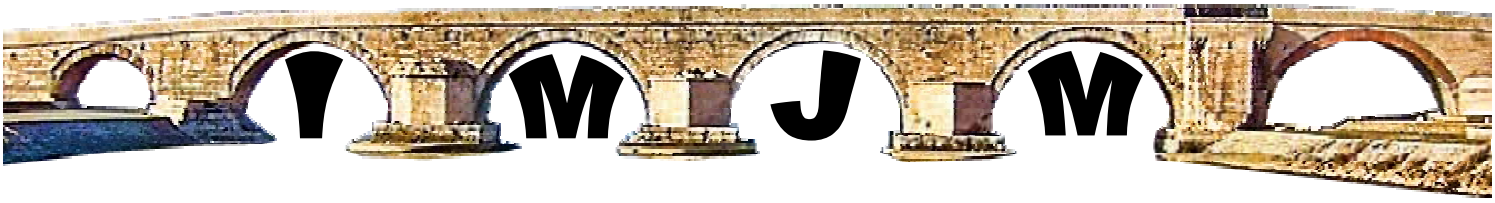

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Original scientific paper

MANAGEMENT OF ACUTE RENAL COLIC ACCORDING GUIDELINES IN GENERAL HOSPITALSAND UNIVERSITY HOSPITALS

ТРЕТМАН НА АКУТНА РЕНАЛНА КОЛИКА ВО ОПШТИТЕ И УНИВЕРЗИТЕТСКИ БОЛНИЦИ ВО Р.МАКЕДОНИЈА СПОРЕД ПРЕПОРАКИТЕ СОДРЖАНИ ВО ВОДИЧОТ

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ABSTRACT

Background: Renal colic is a frequent disorder with incidence of less than 1%. Guidelines are recommended as the best clinical practice , they facilitate decision-making in clinical diagnostic and therapeutic process, improve clinical practice, minimize the potential harms and reduce variations in the delivery of health care in the state.

Aim is to evaluate implementation of current guidelines for renal colic in general hospitals and university hospitals

Material and Methods: thirty-five urologists from eight general hospitals (GH) and sixteen urologists from two university hospitals (UH) were invited to participate in the survey.

Results: Application of renal colic guidelines in (GH) was 3/21 versus 5/9 in UH. Urinalysis was performed almost equally in both GH and UH.Regarding the imaging methods, majority performX-ray urography and ultrasound in both hospitals and CT is only used in UH. According to the therapy of acute renal colic in GH as first line treatment is trospium chloride unlike in UH, where NSAIDs are prescribed in 65%.

Conclusion: Administration of medicament therapy presents differences between GH and UH. Physicians in both type of hospitals need better implementation of guidelines.

Key words: renal colic, guidelines, general hospital, university hospital

INTRODUCTION

Approximately one in ten people will be affected by renal colic at some stage in their life.It is estimated that 12% of males and 6% of females will experience an episode of renal colic at some stage in their life, with incidence peaking between age 40 and 60 years for males, and in the late 20's for females [2]. Renal colic is caused by stones in the urinary tract (urolithiasis) predominantly upper tract calculi that obstruct the flow of urine [1]. The blockage in the ureter causes an increase in tension in the urinary tract wall, stimulating the synthesis of prostaglandins, causing vasodilatation and muscle spasm of the ureter resulting in the waves of pain (colic). Individual urinary stones are aggregations of crystals in a noncrystalline protein matrix [2]. The pain of renal colic develops suddenly and is often described by patients as "the worst pain they have ever felt" [3] many patients with renal colic can be managed in primary care with a watchful waiting approach where their pain can be controlled. Referring to an urologist is advisable in order to confirm the diagnosis [2]. If CT urogram is not available then a kidney-bladder ultrasound in combination with an x-ray can achieve detection rates for urinary stones that approach those

of CT urogram [2,4]. Ultrasound is the preferred imaging technique for patients who are unable to be x-rayed, e.g. a female who is pregnant, and is also useful for identifying urate stones which cannot be detected with standard x-ray [3,4]. NSAIDs are the first-line treatment for renal colic pain because they have been shown to achieve greater reductions in pain scores, have a longer duration of action and result in a reduced need for additional analgesia in the short-term, compared with patients treated with opioid analgesics [5]. Opioid analgesics can be prescribed in addition to, or as an alternative, to NSAIDs for patients with renal colic who are at risk of NSAID-induced adverse effects, e.g. in patients with chronic renal impairment, who are dehydrated or have a history of peptic ulcers. Paracetamol and a weak opioid, e.g. codeine or tramadol, can be prescribed for ongoing pain management if NSAIDs are not appropriate once any nausea and vomiting has passed [6]. Alpha-receptor blockers, e.g. doxazosin and terazosin can accelerate the passage of urinary stones by relaxing smooth muscle without preventing peristalsis [7,8]

All of the above is a content of our guidelines recommendations for the treatment of renal colic since 2014. In clinical practice it has proved to be the simplest and most effective type of treatment.

According to the use of renal colic guidelines we were interested if there are any differences in diagnosis, treatment and recommendations given to patients with renal colic in emergency departments (ED) in general hospitals (GH) and university hospitals (UH). Since 2014, the use of updated guidelines for renal colic is an obligation for all family doctors and urologists in the country. Previously there were wide differences in the treatment of this condition.

MATERIAL AND METHODS

In our study we used open format questionnaire. The methodology used is key informant approach, where the target group consists of urologists from different parts of the country. Statistical analysis is made by presenting results for each question in percents in tables.

Thirty-five (35) physicians from ED in eight general hospitals (GH) and sixteen (16) physicians from ED in two university hospitals (UH) were invited to participate in survey about their practice regarding Cochran's guidelines of the diagnosis, treating and counseling patients with renal/ureteral colic in September 2015. Twenty-one doctors from GH and nine from UH responded on a survey.

RESULTS

Table 1. Investigations performed in GH(General Hospital) and UH(University Hospital)

Hospital type	Number of responders	Urinalysis	Blood analysis	Urine culture	X-ray	NCT	IVU	Ultrasound	Guidelines
GH	60%	95%	20%	15%	87%	23%	5%	9%	14%
UH	56%	100%	55%	45%	90%	55%	66%	88%	55%

As shown in Table 1, implementation of urolithiasis guidelines in GH was 3/21 versus 5/9 in UH. In GH ninety-five percent (95%) urinalysis was performed, in 15% urine culture, blood analysis (number of leukocytes, serum creatinine and urea) was performed in 20%. Regarding imaging methods, eighty-seven percent (87%) of urologists prefer X-ray urography, twenty three percent (23%) use noncontrast CT, IVU in 35% and ultrasonography is performed in fifty-nine percent (59%).Physicians in UH performed in 100% urinalysis, laboratory analysis(blood analysis for leucocytes number, creatinine, uric acid, serum calcium)- 55%. 45% use urine culture test. From imaging procedures 55% of urologist use non contrast CT, X-ray urography in 90%, IVU in 60%, ultrasonography-95%.

Table 2. Medicament therapy in different hospitals

Hospital type	NSAIDs	opoides	trospium chloride 0.2 mg iv	tamsulosin	infusion therapy	NSAID+ Opoides
GH	30%	20%	90%	5%	71%	24%
UH	65%	45%	55%	10%	77%	44%

The first line therapy of acute renal colic in GH is trospium chloride-antimuscarins-90%, NSAID-30% and opioids in 20%, combination of NSAID and opioids in 25%, tamsulosin-5%. Physicians from UH prescribe NSAID in 65%, trospium chloride in 55%, opioids in 45%,combination of NSAID and opioids in 45% and tamsulosin-10%., as shown in Table 2. Patients with septic signs and obstructive finding were treated in UH.

DISCUSSION

According to the Guidelines,patients with an uncomplicated presentation of renal colic can often be managed in primary care, following prompt referral for imaging to confirm the diagnosis (same-day if possible). Non-steroidal anti-inflammatory drugs (NSAIDs) are generally preferred over morphine for pain management in patients with renal colic. Most urinary stones will pass spontaneously, however, alpha-blockers are now recommended to accelerate their passage.

There are a few studies that evaluate current practice patterns in different types of hospitals for the diagnosis, treatment, and counseling of patients with ureteral calculi. In an American study of current practices in an emergency department (ED) it is established a need for educational opportunities for ED physicians in the management of renal colic and establishing collaborative practice guidelines between urology and emergency medicine associations [9]

In the survey we performed during September 2015, we found out that urologists in GH are less likely to implement guidelines regarding the diagnostic and treatment options for renal/ureteral colic i.e. 15% in GH versus 60% in UH.

The rate of urinalysis performed in GH isclose to UH, urine culture was three times less investigated in GH 15% than in UH, where 45% of renal colic patients needed it. Blood analysis in GH revealedonly urea and creatinine measurement in 20% of the patients compared to UH where in 55% of patientscalcium and uric acidwere analyzed as well. There is great difference in implementation of imaging investigation especially ultrasonography, IVU and non-contrast CT; in GH in smaller percent then UH. Only X-ray urography is in a close percent.The difference in the diagnostic approaches might relay on the equipment which is poor in the regions where general hospitals are located.

Administration of medicament therapy presents differences between GH and UH. In GH Trospium chloride is the first line drug administrated in renal colic patients, after that follows NSAID, opioids,combination of NSAID and opioids and only 5% use expulsive therapy. On the other side in UH the first line of treatment are NSAIDs, after that follows trospium chloride and opioids and the combination of NSAIDs and opioids in similar percentage.

Hyperhidratation with intravenous fluids is dominant in both type of hospitals which is in contrast with recommendations from guidelines

It is a fact that both GH and UH have all kinds of pharmaceutical medicaments needed for renal colic treatment. It is only the familiarity and up to date with the guidelines instructions that is individual and varies in different types of hospitals. This is probably because of the fact is that University hospital's urologists are more likely to follow up to dates either by online advanced learning or intensively taking part of congresses and other teaching activities.

Physicians in both types of hospitals need better implementation of guidelines.

The development of collaborative practice guidelines between urologists in general hospitals and university hospitals may be warranted in order to establish unique approach in diagnosis and treatment of renal/ureteral colic.

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