Intravenous Tenoxicam to Treat Acute Renal Colic: Comparison with Buscopan Compositum

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Abstract

Forty-seven patients with acute renal colic were treated with either tenbxicam 20 mg i.v. or buscopan compositum (hyosclne butyibromide 20 mg and dipyrone 2.5 g) i,v. in a double blind study. Renal colic was diagnosed with use of a general urine examination, intravenous urogram, ultrasonography or voiding of calculus. The severity of symptoms were assessed by a verbal six point scale. Results demonstrated that 80% of patients treated with tenoxicam and 72.7% of patients treated with buscopan compositum showed significant improvement after 1 hour. Sixty-two percent of the patients who showed initial response to buscopan composltum had pain relapse during next 24 hours and required rescue treatment with pethidine 100mg i.m. None of the patients treated with tenoxicam i,v. had pain relapse. No side effects were reported with use of tenoxicam, It is concluded that tenoxicam i.v. was more effective than antispasmodics and has rapid onset of analgesia and prolonged action in the treatment of acute renal colic (JPMA 48:370,1998).

Introduction

Severity of pain in renal colic necessitates rapid and effective therapeutic measures. Dipyrone, atmpine, hyoscine butylbmmide and naxvotics have been widely used. Recently, calcium antagonist, nifedipine, has been used successfully to alleviate pain and facilitate passage of uretenc stones[1-3]. Non-steroidal anti-inflammatoiy drugs have also been extensively investigated regarding their ability to control pain of acute renal colic. We have shown that indomethacin and diclofenac sodium have therapeutic effects in the treatment of acute renal colic, subacute or chronic obstruction, polyuria, nephrotic syndrome, nocturnal frequency of micturition and primaiy enuresis[4-8]. Piroxicam, a non-steroidal anti-infiammatoiy drug, has a faster and sustained action in controlling the pain of acute renal colic in comparison with diclofenac[9]. Other NSALDs like ketorolac, ketoprofen are also used to alleviate acute renal colic[10,11].

An apparent beneficial effect of intramuscular tenoxicam in the treatment of acute renal colic was reported recently[12]. Thirty patients were treated with intramuscular tenoxicam, of whom 24 had good relief of pain within 1 hour. No patient needed other treatment over period of 24 hour follow-up. This encouraged usto test efficacy, safety and onset of action of 20mg of tenoxicam given intravenously to patients with acute renal colic and compare it with spasmolytic buscopan compositum (hyoscine buty lbromide 20 mg and dipyrone 2.5 g).

Patients and Methods

Forty-seven patients (40 men, 7 women, mean age 36 years, range 20-45 years) presenting with acute renal colic were studied. They were initially examined and investigated at the casualty department. They complained of acute loin pain, nausea and vomiting. The diagnosis of acute renal colic was based ona urinalysis, intravenous urography, ultrasonography and the voiding of a calculus, Patients who received anti-spasmodic, pethidine or any otherprostaglandin synthesis inhibitors within 2 hours and

those with renal or hepatic impairments, cardiovascular diseases, glaucoma, allergy to other non-steroidal anti-inflammatory drugs were excluded. The patients underwent rapid assessment and their symptoms, blood pressure, pulse rate and state of dehydration were recorded. The occurrence and severity of their symptoms including pain, nausea and vomiting were rated by the patients using a categorical scoring method with a score rate assigned to the main symptoms of 0; no pain: 4: mild pain; 8: moderate pain; 12: severe pain and 16 very severe pain and with 4 each for nausea and vomiting. The seventy of renal colic ranged from none (zero) to very severe (24 points). After informed consent the patients were allocated randomly to receive either 20 mg of i.v. tenoxicam or i.v. buscopan compositum. Twenty-five patients received tenoxicam and 22 patients Buscopan compositum. There was no statistical difference between two groups regarding age, sex and severity of the symptoms, The patients recorded their pain severity and relief on the scale at 10 min intervals for 2 hours and at 60 min intervals for 24 hours. If there was no satisfactory response after the first hour following the injection of either treatment then 100 mg pethidine was given and the failure of treatment recorded. Patients were observed forany side effects including allergy, palpit.ation, tachycardia, headache, gastro-intestinal symptoms, drowsiness, urinary retention and dryness of the mouth. However, any new symptoms appearing after treatment were regarded as side effect. Student t-test and Chi-square test were used for statistical analysis.

Results

The mean symptom score for the patients on admission in tenoxicam-treated group was 18.24±3.99 and in buscopan compositum - treated group was 17.13±4.46 (P<0.001).
Sixteen patients (64%) showed marked pain relief within 30 min after i.v. tenoxicam and their mean symptom score was 2.35±4.01, p<0.001 (Figure 1).

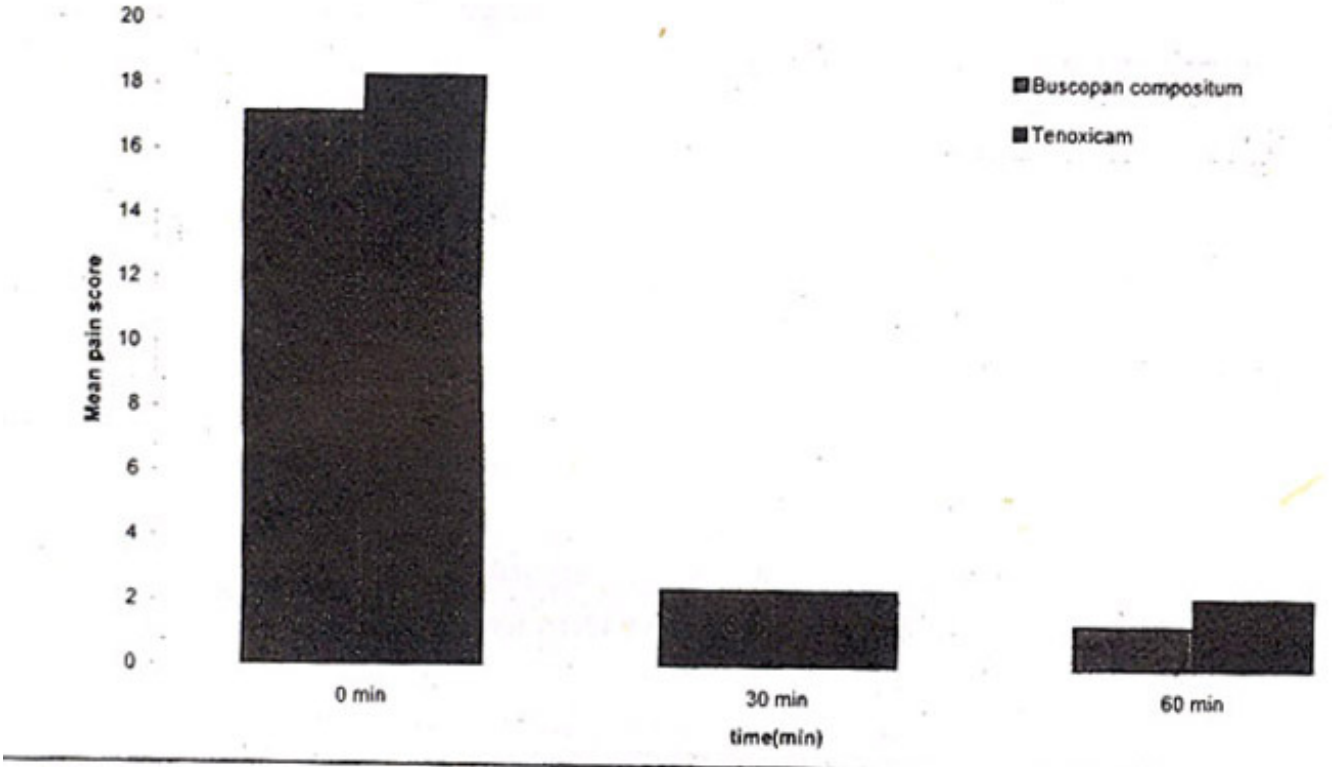

Figure 1. Response of acute renal colic to buscopan compositum or tenoxicam (P<0.001).

Four (16%) patients showed impmvement within 30-60 min after i.v. tenoxicani and their mean symptom score was 2.19±2.14 (P<0.001). Five patients (20%) had rescue treatment - pethidine 100 mg

i.m. 60 min after treatment. Hence 20/25 patients (80%) showed marked pain relief within first 1 hour after tcnoxicam i.v. These patients showed no relapse over next 24 hours. Intravenous fluid was not necessary since these patients started normal oral feeding shortly. Anti-emetics were not used. No side effects were reported and tenoxicam was tolerated well by the patients.
With use ofbuscopancompositum, 10 patients (45.4%) had significant pain relief and their mean symptomatic score was 2.36±3.2 (P<0.001) within first 30 min (Figure 1). Six patients (27.2%) had marked pain relief within 30-60 min and their mean symptomatic score was 1.33±2.06 (P<0.001). Therefore, 16/22 patients (72.7%) showed marked response with use of buscopan compositum within first 1 hour (Figure 2).

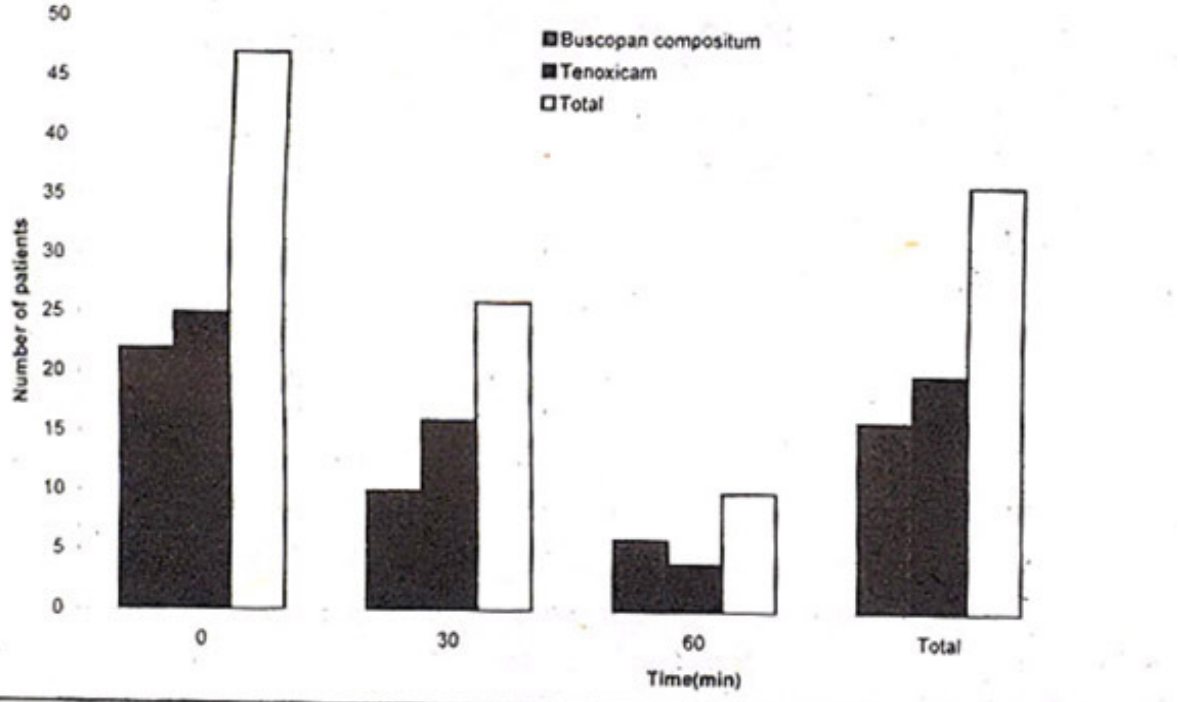

Figure 2. Number of patients responding to buscopan compositum or tenoxicam at 30 min and 60 min after injections, P<0.001.

The other 6 patients required pethidine. Ten out of 16 •patients who showed initial response to buscopan compositum relapsed during next 24 hours and they required pethidine treatment. Eleven patients including those who showed no response to buscopan compositum required antiemetics and i.v. fluids. All the patients showed dryness of the mouth and drowsiness following antispasmodics and no other side effects were reported.

Discussion

This study demonstrated that i.v. tenoxicam is effective in relieving pain of acute renal colic, it has rapid onset of analgesia and prolonged action as compared to buscopan compositum.
Tenoxicani is a thienothiazine derivative of the oxicam class which has anti-inflammatory, analgesic and antipyretic properties. It also inhibits platelet aggregation and neutrophil activation and may act as a scavenger for active oxygen radicals at the site of inflammation[13]. It is indicated for musculo- skeletal disorders[14,15] and it has also been used to control post-operative dental pain[16]. Intravenous tenoxicam was used successfully for treatment of acute biliary colic and post- operative pain[17,18]. It has been shown that prostaglandins increased renal blood flow and caused diuresis and their synthesis increased by ureteric obstruction due to stones[19,21]. This causes elevation of intrarenal pressure in the collecting

system proximal to stones. Pain of acute renal colic might be related to the elevated intrarenal pressure[19-22]. The mechanism of action of tenoxicam might be due to its ability to inhibit prostaglandin synthesis[23]. No side effect was reported and no antiemetics were used in our patients. Other studies demonstrated that tenoxicam has both a good clinical effectiveness and a good bearing in long-temi treatment and rarely causes gastrointestinal disturbances[24]. It has less side effects than other anti-inflammatory agents and it is safe and well tolerated[25,26], However, majority of side effects of tenoxicam are related to gastrointestinal tract, nervous system or skin[27]. On the other hand, buscopan compositum caused marked pain relief in 72.7% of the patients, 45.4% dunng first 30 min and 27.2% from 30 to 60 min after injection. The percentage of response was less than that of tenoxicam. In addition, there was high percentage of relapse in patients receiving buscopan compositum which contains both dipyrone and hyoscine butylbromide. Dipyrone has been used for treatment of acute renal colic[28]. It reduces renal pelvic pressure and exerts its inhibitory effects on prostaglandins through competitive inhibition of cyclooxygenase system[29-31]. Dipyrone has no effect on smooth muscle contraction though its analgesic action could be exaggerated with addition of buscopan[32]. It has many side effects as nausea, vomiting, increased risk of agranulocytosis, porphyria and hypersensitivity[33,34]. Hyoscine butyibromide has pmtective effect aganst muscle hypeiaigesia of ureteral origin in additionto its antispasmodic activity[35]. It can cause diyness of mouth, thirst, tachycardia, urinary retention,, mydriasis, constipation, dryness of skin, contact dermatitis, vomiting, drowsiness and psychosis[36]. The cost of single injection of tenoxicam is more than buscopan compositum. However, the number of patients responding to tenoxicam is higher than with buscopan compositum and the onset of analgesia is faster. Moreover, 67.2% of patients who responded to buscopancompositum showed pain relapse and needed pethidine injection. In addition to its side effects, pethidine is expensive in comparison to tenoxicam or buscopan compositum. Therefore, the overall cost of buscopan compositum therapy is higher than tenoxicam. We could conclude that intravenous tenoxicam will widen the alternative treatment for acute renal colic and also reduce the usage of opiates.

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