ORIGINAL ARTICLE

Comparison of the Analgesic Efficacy of Oral Ibuprofen at two Different Doses in Patients Presented with Acute Pain

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ABSTRACT

Aim: To compare the analgesic efficacy of two different doses of oral ibuprofen in patients with acute pain presented to emergency department.

Study Design: Randomized Controlled Trial

Place and Duration: Study was conducted in medicine department of Sheikh Zayed Hospital, Rahim Yar Khan for duration of six months from 1st October 2019 to 31st March 2020.

Methods: Two hundred and forty four patients of both genders with acute pain were enrolled in this study. Patient's ages were 18 to 60 years. Patients were divided into two equal groups. Group A consist of 122 patients and received 400mg ibuprofen and group B with 122 patients received 800 mg ibuprofen orally. Pain scores were analyzed byusing visual analogue scale at 1, 4, and 8 hours after medication. Data was analyzed by SPSS 24.0.

Results: Mean age in group A was28.56±6.47 years and in group B it was 27.54±7.25 years.No significant difference was observed regarding pain by VAS between both groups at1, 4,and 8 hours. Significant reduction was observed at 1,4,and 8 hours.No significant difference was observed regarding side effects such asdizziness, nausea, and vomiting between both groups. Patient's satisfaction rate was comparable between both groups.

Conclusion: Oral ibuprofen 400mg and 800mg both are effective in reduction of acute pain. No significant difference was observed regarding side effects of both groups.

Keywords: Emergency Department, Acute Pain, Ibuprofen, VAS.

INTRODUCTION

Paracetamol (acetaminophen) and ibuprofen are the cornerstones of nonprescription and prescription analgesics. In the 1950s,[1] paracetamol was found, followed closely by the 1962 patent for ibuprofen.[2] Both medications were used in a wide variety of painful conditions, and in many places in the world by the middle of the 1980s were available without a prescription. ibuprofen plus paracetamol analgesic combinations are effective medicinal products.[3]

An question for several years concerns the effectiveness of oral ibuprofen or paracetamol at normal doses.[4] The origins of the claim are incoherent outcomes in acute post-operative suffering in single-dose studies. For 20 years this is a product known as the comparatively small size of the trials and the broad effects of random chances in such small trials[5], while incorrect research methods have been tested over time for 50 years, too.[6] In order to address heterogeneity in impact measures in individual studies and obtain the best available information to sensitively compare them, systematic reviews are required of all quality randomized studies.

Fair evaluations of relative efficacy based on evidence require time to be generally accepted. Paracetamol is also cited as a first line treatment in many evidence-based recommendations, for example, the UK National Osteoarthritis Guidance. The implications are that paracetamol is a better pharmaceutical product than ibuprofen based on effectiveness or safety evaluation.

This was supported by research that showed no difference in non-pain care between paracetamol and ibuprofen.[7] Some reviews challenged the alternative supposition, for example, of ibuprofens superior to paracetamol by testing the few trials in which head-to-head (direct) comparisons,[8] even if restricted by a limited number of small studies.

We therefore attempted a systemic search for a systematic analysis of directly or implicitly effectiveness comparisons between the two to investigate the problem of ibuprofen versus paracetamol. Indirect comparative comparison interventions are sometimes more successful than direct comparisons since there is more knowledge available than comparison interventions for the same comparator, typically placebo.[9]

The question of possible harm is at least equivalent and perhaps more significant. Paracetamol has long been viewed as a 'safer' pharmacopoeia than ibuprofen, but this is doubtful now, based on a systematic analysis of non-prescription doses taken for seven days or less[10], and a large randomized study comparing protection directly for the next three months.[11] Long-term protection in use is considerably more problematic, particularly because of cardio-vascular harm to anti-inflammatory non-steroidal drugs (NSAIDs). Harm is addressed in terms of efficacy, but is no part of this comprehensive summary, as a complete harm evaluation involves a completely different set of searches, multiple research architectures and very

different results. In addition, short-term use must be compared with long-term use.

MATERIALS AND METHODS

This randomized controlled trial was conducted Sheikh Zayed Hospital, Rahim Yar Khan for duration of six months from 1st October 2019 to 31st March 2020. Patients detailed demographics including age, body mass index and blood pressure were recorded after taking written consent from all the patients.Patients with no consent, patients with hypersensitivity, pregnant women, patients with CVD and patients with pulmonary disease were excluded.

Patients were divided equally into two equal groups. Group A consist of 122 patients and received 400mg ibuprofen and group B with 122 patients received 800 mg ibuprofen orally at 1,4 and 8 hours.After medicationpain was examined by Visual Analogue Pain scale VAS and compares the findings between both groups. Side effects of medication and patients satisfaction between both groups were examine and compared.

All the data was analyzed by SPSS 24.0. Mean±SD was done. Frequencies and percentages were recorded in tabulation form. Chi-square test was done to compare the pain score, side effects and patients satisfaction between two groups. P-value <0.05 was taken as significant.

RESULTS

Mean age in group A was 28.56±6.47 years and in group B it was 27.54±7.25 years, no significant difference was observed between both groups with p>0.05. Group A had 85 (69.7%) males and rest was 37 (30.3%) females. Group B had 80 (65.6%) males and 52 (34.4%) were females.In group A mean BMI was 25.21±1.24 kg/m^2 and in group B it was 24.68±2.09 kg/m^2, no significant difference was observed regarding body mass index between both groups with p value >0.05.Mean systolic and diastolic BP in group A was 111.17±12.24 mmHg and 78.45±4.65 mmHg. Mean systolic and diastolic BP in group B was 113.08±7.87 mmHg and 76.45±9.26 (Table 1)

Table 1: Baseline details of included patients

Characteristics	Group A	Group B
Mean Age (Yrs)	28.56±6.47	27.54±7.25
Mean BMI (kg/m^2)	25.21±1.24	24.68±2.09
Males	85 (69.7%)	80 (65.6%)
Females	37 (30.3%)	52 (34.4%)
Mean systolic BP(mmHg)	111.17±12.24	113.08±7.87
Mean Diastolic BP(mmHg)	78.45±4.65	76.45±9.26

A significant reduction of pain score between both groups was observed at 1,4 and 8 hours with p<0.05. No significant difference was observed between both groups at 1,4 and 8hours in term of pain score between both groups with p-value >0.05. (Table 2)

Regarding side effects of medication we found no significant difference between both groups p-value >0.05. (Table 3)

Regarding patient satisfaction 80 (65.6%) patients in group A and 82 (67.21%) patients in group B was very satisfied, 35 (28.7%) patients in group A and 35 (28.7%) patients in group B was satisfied, 7(5.73%) patients in group A and 5(4.09%) patients in group B were not satisfied. (Table 4)

Table 2: Comparison of pain between both groups

Variables	Group I	Group II	P-value
Baseline	8.62±1.06	8.34±1.48	N/S
At 1 hours	4.86±1.24	4.43±2.62	N/S
At 4Hours	2.51±1.24	2.74±1.1	N/S
At 8 Hours	1.86±0.42	1.76±0.32	N/S

Table 3: Comparison of side effects of medication between both groups

Side Effects	Group I	Group II	P-value
			>0.05
Diziness	15 (12.3)	20 (18.03)	
Nausea/Vomitting	18 (14.8)	16(13.11)	

Table 4: Patients satisfaction between both groups

Patient Satisfaction	Group A	Group B	P-value
Very Satisfied	80 (65.6%)	82 (67.21%)	N/S
Satisfied	35 (28.7%)	35 (28.7%)	N/S
Not Satisfied	7(5.73%)	5(4.09%)	N/S

DISCUSSION

This research was presented to compare the analgesic efficacy of two different doses of oral ibuprofen in patients with acute pain presented to emergency department. Total 244 patients of both genders were presented in this study. Patients were equally divided into two groups A and B. Mean age in group A was 28.56±6.47 years and in group B it was 27.54±7.25 years.Oral ibuprofen 400mg and 800mg both are effective in reduction of acute pain. No significant difference was observed regarding side effects of both groups. These results were comparable to the previous studies conducted by Motov S et al in 2019.[12] The same issue was posed in a recent major randomized trial which showed that the acute back pain did not differ from paracetamol or placebo. (Williams et al., 2014).[13]

Ibuprofen is commonly used in a number of hospital and ambulatory settings worldwide for treatment of pain. Ibuprofen is commonly used as a first line analgetic (alone or in conjunction with acetaminophene) to alleviate various acute traumatic/non-traumatic and chronic painful conditions of ED because of its analgesic and anti-inflammatory properties and its availability in parenteral, enteral and topical forms.[14-15] Often in dosage settings above the analgesic ceiling threshold, the ibuprofen is recommended in the ED.[16]

But the analgesic ibuprofen ceiling dose at 400 mg is enough to minimise pain and inflammation during the treatment of acute pain. This study has given a clear ivuprofen superiority for pain relief in traditional, pain-related doses in variety of painful conditions.[17] The overview has been a systematic review of effectiveness using directly or indirectly comparisons of ibuprofen and par-acetamol. Particularly acetaminophen and ibuprofen co-administering offers superior pain relaxation and is better tolerated than the opioid-containing fixed-dose combinations[18-20].

The summary has significant limitations. It is important to emphasise that evidence has been reviewed to compare the successful use of systematic reviews and meta-analyzes for ibuprofen and paracetamol in normal dosages in various circumstances. He didn't fully analyse damage, because a very different approach would have been needed. A systems comparison of ibuprofen and

paracetamol risks was not identified in our investigations. A comprehensive evaluation of harm would add to the argument, because this was beyond our reach and remains a challenge for future study.

CONCLUSION

Oral ibuprofen 400mg and 800mg both are effective in reduction of acute pain. No significant difference was observed regarding side effects of both groups.

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