

A Compendium

Mefenamic Acid in Management of Pediatric Fever



Index

1

Safety & Efficacy of Paracetamol, Ibuprofen, and Mefenamic Acid in Febrile Children - IJSS

Reddy GT, Gobbur RH, Patil SV

2

Evaluation of Efficacy & Safety of Paracetamol and Mefenamic Acid as Antipyretic in Pediatric Patients - IJMRHS

Kunkunol RR, Aishwayra C, Chavva AK

3

Choice of Antipyretic in Children: Relative Efficacy of Mefenamic Acid, Ibuprofen and Paracetamol - JAPI

Khubchandani RP, Ghatikar KN, Keny S, Usgaonkar NGS

4

Mefenamic Acid: Efficacy & Tolerability in the treatment of Fever in Children - The Indian Practitioner

Dabholkar KM

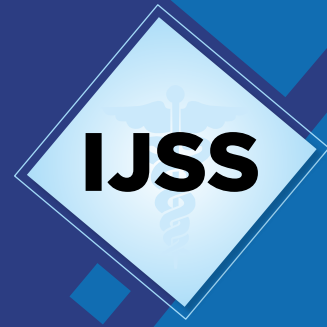
5

Pyrogenic Cytokines & Role of Mefenamic Acid in Pediatric Practice - IJCP

Gambhir A, Suchit T, Prasad SM, Inamdar NR



Randomized Open-Label Study to Compare the Safety and Efficacy of Paracetamol, Ibuprofen, and Mefenamic Acid in Febrile Children



Reddy GT, Gobbur RH, Patil SV

International Journal of Scientific Study | September 2020 | Vol 8 | Issue 6 | Page 58-62

Abstract

Background: Fever is the most common symptom presenting in the OPDs. Antipyresis is one of the most usual therapeutic interventions done. The present study compares the efficacy and tolerability of three antipyretics: Paracetamol, Ibuprofen, and Mefenamic acid.

Methodology: We performed a prospective study involving children with fever admitted in the general ward. Children were blocked randomized into three groups based on antipyretic treatment. Each of the children received either oral Paracetamol/ibuprofen/Mefenamic acid. The temperature was recorded at admission, hourly for the first 3 h and thereafter 6th hourly for 24 h.

Results: The fall in mean temperature from the baseline at different observation points for the study groups are evaluated and shown in Table below. At the end of 2 h, the fall in mean temperature from the baseline for the Mefenamic acid group is maximum (1.85°F) as compared to the other two groups and is statistically significant ($P = 0.028$). Even at the end of 6 h, the fall in mean temperature for the Mefenamic acid group is more (2.60°F) and is statistically significant (0.028).

Conclusion: Mefenamic acid has better efficacy and tolerability when compared to Paracetamol and ibuprofen.

Key Findings

“There is a trend of increased use of Mefenamic acid as antipyretic in children”

- Children in the age group of 1 month - 14 years were studied.
- At the end of 2 and 6 hours, fall in temperature from baseline with Mefenamic acid was maximum & was statistically significant as compared to Paracetamol & Ibuprofen.
- Faster onset of action was achieved with Mefenamic acid.

Mefenamic Acid is a better antipyretic than Paracetamol & Ibuprofen, providing faster onset of action & prolonged effect.

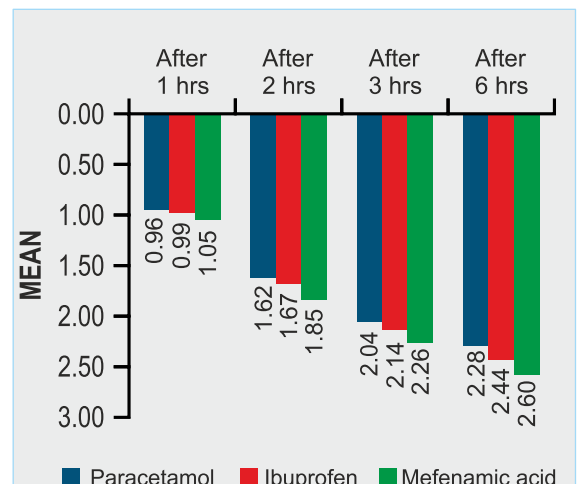


Figure 2: Difference of mean temperature between study groups

Evaluation of Efficacy and Tolerability of Acetaminophen (Paracetamol) and Mefenamic Acid as Antipyretic in Pediatric Patients with Febrile Illness: A Comparative Study

Kunkunol RR, Aishwayra C, Chavva AK

International Journal of Medical Research & Health Sciences | December 2012 | Vol 2 | Issue 1 | Page 23-29

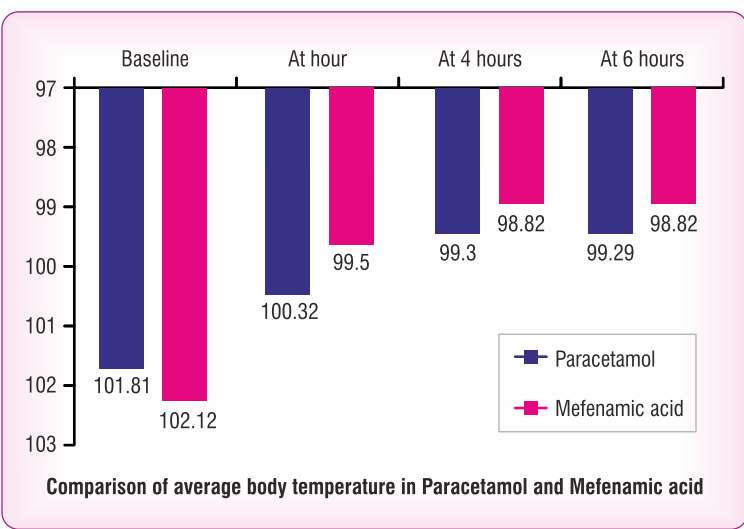
ABSTRACT

Objectives: With the increase in reports of the failure of Paracetamol as antipyretic in pediatric patients and the increase in the use of Mefenamic acid, the study was undertaken to recommend best among the both antipyretics by comparing the efficacy and tolerability of both these drugs.

Methods: It was a prospective, active treatment controlled study with follow up to 72 hours done over a period of 2 months after the Institutional Ethical committee approval. Total 124 pediatric patients with fever admitted to Pravara Rural Hospital, Loni having a body temperature >38.5 and fulfilling the inclusion and exclusion criteria were included. Patients included were categorized into two groups-group A and group B and administered Paracetamol and Mefenamic acid in the doses 15 mg/kg and 4 mg/kg body weight respectively. The parameters essential for comparing the efficacy and tolerability were observed and recorded. The collected data were subjected to 'paired t test' of significance and was analyzed statistically.

Results: Both drugs significantly decreased body temperature in pediatric patients with fever. The antipyretic efficacy of Mefenamic acid was highly significant than Paracetamol (<0.05). No significant differences in adverse effects were noted in both the groups. Conclusion-Mefenamic acid was found to be more effective and equally tolerable than Paracetamol as an antipyretic in pediatric patients with febrile illness and can be the best alternative to Paracetamol.

KEY FINDINGS



Highly significant antipyresis was achieved with Mefenamic acid at 1, 4 & 6 hours than Paracetamol.

Better and **faster** recovery of fever was observed with Mefenamic acid.

Mefenamic acid was demonstrated to be a more **potent & powerful** antipyretic.

“Mefenamic acid is a more effective and equally tolerable antipyretic than Paracetamol in pediatric patients”

Choice of antipyretic in children

Khubchandani RP, Ghatikar KN, Keny S, Usgaonkar NGS




JAPI

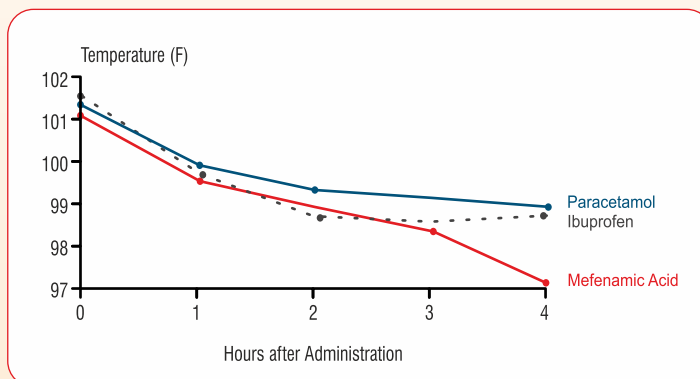
Journal of the Association of Physicians of India | September 1995 | Vol 43 | No. 9 | Page 614-616

ABSTRACT

The objective of this study was to evaluate the relative efficacy of 3 commonly used antipyretics viz. Mefenamic acid, ibuprofen and Paracetamol. The subjects were randomized to 3 groups to receive either Paracetamol 10 mg/kg or ibuprofen 7 mg/kg or Mefenamic acid 6.5 mg/kg. Axilla temperature was recorded just prior to drug administration and at hourly intervals for 4 hrs. The Mefenamic acid group (n = 29) showed a drop of 3.5 degrees F at the end of 4 hours as compared to the Paracetamol group (n = 29) (drop 2.44 degrees F) and ibuprofen group (n = 20) (drop 2.79 degrees F). Analysis of the area under the mean temperature vs. time curve showed that Mefenamic acid demonstrated significantly better antipyretic activity compared to Paracetamol (P < 0.05) over the entire period of observation and ibuprofen (P < 0.05) in the 2 to 4 hour range. Mefenamic acid continued to show antipyretic activity at the end of 4 hours in contrast to ibuprofen and Paracetamol. Since the period of observation was restricted to 4 hours, we were unable to quantify the precise duration of its extended antipyretic efficacy.

KEY FINDINGS

-  Highest temperature drop of 3.5°F was achieved with Mefenamic acid.
-  Mefenamic acid demonstrated better antipyresis in the 2-4 hour period.
-  Sustained fever reduction was obtained with Mefenamic acid which was not the case with Ibuprofen & Paracetamol.



"Superior antipyretic action of Mefenamic acid is thus evidenced over Paracetamol and Ibuprofen"

Mefenamic acid is an Effective and Well Tolerated Antipyretic in Children

Dabholkar KM

The
Indian
Practitioner

The Indian Practitioner | May 2002 | Vol 55 | No. 5 | Page 291-296

ABSTRACT

Objective: To assess the efficacy and tolerability of Mefenamic acid** in the treatment of fever in children.

Setting: Private nursing homes of 10 paediatricians.

Design: Open label, prospective study.

Patients: Children aged 2 months and above with fever of 100° F and over, but not critically ill, with no history of intolerance to non-steroidal anti-inflammatory drugs, and whose parents/guardians gave written informed consent for the study.

Interventions: Single oral dose of Mefenamic acid, 6.5 mg/ kg body wt., rounded off to nearest 25 mg. No other analgesic-antipyretic-anti-inflammatory agent or tepid sponging was allowed during the study period. Concomitant antibiotic, if considered necessary, was allowed provided it was recorded.

Outcome Measures: Time for onset of antipyretic action; time to normalization of body temperature (98.6 °F); duration of antipyretic effect; side effects, if any.

Results: Of 160 patients who completed the study, 98 (61%) were boys, and 62 (39%) were girls; 31 (19%) were aged < 2 years, 95 (59%) were aged 2-6 years and 34 (22%) were aged > 6 years. Among the 31 infants, 9 were below one year of age.

The antipyretic effect was evident one hour after the dose, and the temperature fell to normal by the third hour. The effect lasted till the end of study period of 8 hours.

There was no serious adverse event (SAE). Of 160 children, 151 (94 %) tolerated the drug very well and reported no side effect; 9 patients (6%) experienced adverse events: which were related mostly to gastrointestinal tract. The adverse events reported include nausea, vomiting, abdominal discomfort, loose motions and headache. These were mild and required either no treatment or symptomatic treatment.

89% of the investigating paediatricians rated the treatment with Mefenamic acid as excellent or good; 8% evaluated it to be fair and only 3% of the investigators rated it as poor.

KEY FINDINGS

- 1 Fever reduction was seen in one hour of administration of Mefenamic acid.
- 2 Sustained fever reduction was maintained for a duration of 8 hours with Mefenamic acid as against 4 hours with Paracetamol. This demonstrates prolonged duration of action of Mefenamic acid.
- 3 94% of the children tolerated Mefenamic acid very well with no side effects reported.
- 4 Mefenamic is an effective and safe antipyretic for children.

Conclusion:

Mefenamic acid is an effective and well tolerated antipyretic for children with a rapid onset of action that lasts for at least 8 hours.

“Mefenamic is an ideal choice of antipyretic in children”

Pyrogenic Cytokines Mediated Pathophysiology of Fever and Role of Mefenamic Acid in Pediatric Practice

Gambhir A, Suchit T, Prasad SM, Inamdar NR

IJCP
Indian Journal of
CLINICAL PRACTICE

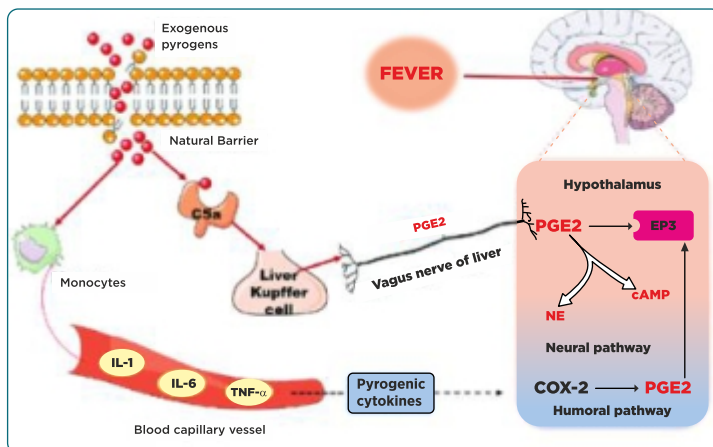
Indian Journal of Clinical Practice | September 2021 | Vol 32 | No. 4 | Page 229-236

ABSTRACT

While fever in most cases represents a normal physiological response to illness, many times it is presenting sign of a more serious underlying condition. Hence, it is important to assess a child who may be suffering with a serious condition and may require treatment in terms of antipyretic agents. The use of antipyretic agents is usually guided by the degree of fever, and the discomfort caused by fever and associated pain. Paracetamol and more recently, ibuprofen are the generally used over-the-counter drugs for antipyresis. However, of late, there is a trend of increased use of Mefenamic acid as antipyretic. Mefenamic acid has shown better efficacy and tolerability as compared to the other nonsteroidal anti-inflammatory drugs (NSAIDs) in use. In this review, authors have assessed the existing literature on the role of Mefenamic acid in pediatric fever. They have highlighted the role of Mefenamic acid in pediatric febrile illness in terms of clinical uses, efficacy, comparison with other NSAIDs and its safety in pediatric patients. Its probable action in inflammatory fever and febrile seizure due to its inhibitory action on the **NLRP3 inflammasome** and potential antiviral actions in viral infections are also highlighted, respectively.

KEY FINDINGS

UNIQUE ACTION	CLINICAL EFFICACY
<ul style="list-style-type: none"> Pyrogenic cytokines namely IL-1β, IL-6 & TNF-α are released by activation of NLRP3 inflammasome. 	<ul style="list-style-type: none"> Better efficacy as an antipyretic compared to Paracetamol in pediatric patients.
<ul style="list-style-type: none"> These mediate fever through neuronal & humoral pathways. 	<ul style="list-style-type: none"> Safe to be used in children above 6 months at a dose of 4-6.5 mg / kg three times daily.
<ul style="list-style-type: none"> Mefenamic acid possess a novel action of NLRP3 inflammasome inhibition & thereby blocks the release of pyrogenic cytokines. 	<ul style="list-style-type: none"> Better tolerability than Ibuprofen & Paracetamol.
<ul style="list-style-type: none"> Uniquely blocks E-type prostanoid receptors & prevents release of pre-formed prostaglandins (PGs) along with PG inhibition. 	<ul style="list-style-type: none"> Does not induce significant gastrointestinal side-effects.



“Fever is one of the most common reasons for visit to doctor in children”

Conclusion:

Mefenamic Acid has shown better efficacy & tolerability as compared to other NSAIDs.

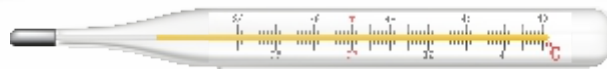
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**Gambhir A et al. IJCP, 2021; 32(4): 229-236

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