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A cross-sectional survey of Indian orthopaedicians to understand the place in therapy for the latest soft gel formulation of etoricoxib

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ABSTRACT

Background: Nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly prescribed for arthritis (RA), osteoarthritis (OA), low back pain (LBP) and other musculoskeletal disorders. Novel formulations such as soft gel formulations are being introduced for NSAIDs in place of the traditional tablet formulation. The objective of this study was to quantify orthopaedicians insights for the recently available soft gel formulation of Etoricoxib.
Methods: The questions for the survey instrument (Google forms) were developed by researchers upon review of scientific literature and subsequent discussions with practicing orthopaedicians. This was a cross-sectional digital survey involving 506 orthopaedicians across India via online responses collated via Google forms.
Results: 81.4% doctors agreed that etoricoxib soft gel capsules are faster acting than the tablet formulation, whereas 89.6% of the doctors agree/strongly agreed that etoricoxib soft gel capsules would have better compliance because of its bitter taste masking ability. More than 96% doctors acknowledged that etoricoxib soft gel capsule's characteristics such as higher drug dissolution and absorption would benefit their patients more than the etoricoxib tablet formulation.
Conclusions: Given its advantages, the etoricoxib soft gel formulation, in the days to come, could be one of the preferred options for the management of pain and other arthritic conditions for patients in India.

Keywords: Etoricoxib, NSAIDs, Osteoarthritis, Soft gel capsules

INTRODUCTION

NSAIDs are one of the most commonly used medications by orthopaedicians worldwide. NSAIDs are increasingly used for variety of indications like RA, OA, LBP and others. NSAIDs are associated with upper gastrointestinal (GI) tract complications, which if left untreated, can be life-threatening.

GI complications are known to occur in 1%-5% of patients taking NSAIDs for more than one year and result in high costs and mortality.[1-6] Selective COX-2 inhibitors are NSAIDS which were initially developed to provide anti-inflammatory and analgesic efficacy comparative to nonselective NSAIDs (effects attributed to COX-2 inhibition) with a reduction in gastro mucosal injury.

Etoricoxib is a potent selective inhibitor of COX-2 which does not inhibit prostaglandin synthesis in the gastric mucosa, even at doses above the clinical dose range of 60 to 120 mg.[7]

NSAIDs are commonly present in tablet formulations, which can have varied challenges. Etoricoxib tablets are known to have bitter taste. Other NSAID tablet formulation like Ibuprofen are poorly soluble in aqueous media and thus the rate of dissolution from the currently available solid dosage forms is limited. This leads to poor

bioavailability at high doses after oral administration, thereby increasing the risk of unwanted adverse effects.[8,9]

Compared to tablet formulations, soft gel capsules have certain distinct advantages including shorter time to peak plasma concentration, rapid GI absorption, faster analgesic effect, appealing dosage form: ease of swallowing and absence of taste.[10-12] Ibuprofen is an NSAID which has been introduced in the softgel formulation. The soft gelatin dosage form has an advantage of high-bioavailability which is achieved with a high degree of reliability and reproducibility and therefore patients can expect a fast and reliable display of its effects.[13]

In the present survey we had tried to collate responses from more than 500 orthopaedicians across India in order to gauge their insights for the recently introduced novel soft gel formulation of etoricoxib.

METHODS

At the initiation, a questionnaire was prepared for the survey. The survey consisted of 6 questions which were tested and validated by orthopaedicians from India before being utilized. The survey was conducted online with 506 orthopaedic doctors from across India.

The objective of the survey was to gauge the perception of the latest soft gel formulation of etoricoxib amongst the orthopaedicians from India. Responses were garnered from different prominent cities of India namely Mumbai, Ahmedabad, Bangalore, Chennai, Delhi, Ghaziabad, Kolkata and Guwahati. The percentage of responses from each city is depicted in Figure 1.

Questions included in the survey were: NSAIDs suitable to combat acute pain must display (multiple choice). Drug dissolution and absorption of soft gel capsules is significantly higher as compared to tablets.

In your opinion, would this novel formulation of etoricoxib soft gel capsule benefit your patients? Do you agree that etoricoxib soft gel capsules are faster acting than etoricoxib tablets? Do you agree that etoricoxib soft gel capsules have better compliance because of bitter taste masking as compared to tablets? Do you agree that etoricoxib soft gel capsules have better GI tolerability as compared to tablets? Which of the following features of etoricoxib softgel formulation would you consider as beneficial for your patients (multiple choice).

RESULTS

506 orthopaedicians from India responded to the above questions through Google forms. Their responses are collated.

Majority of the orthopaedicians (79.4%) agreed that all the after of traits including good bio-availability, quick releases of the drug, faster dissolution and good palatability were essential features for an ideal NSAID.

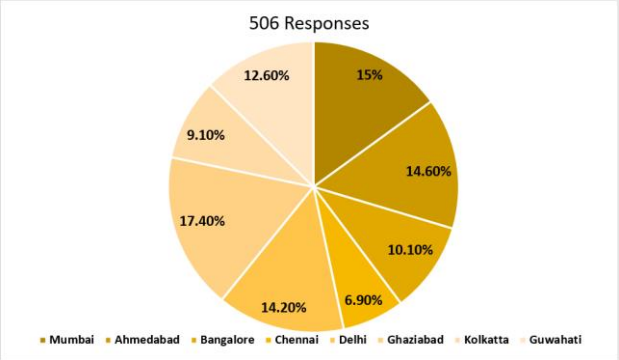

Figure 1: Questionnaire responses (in percentage) from different cities of India.

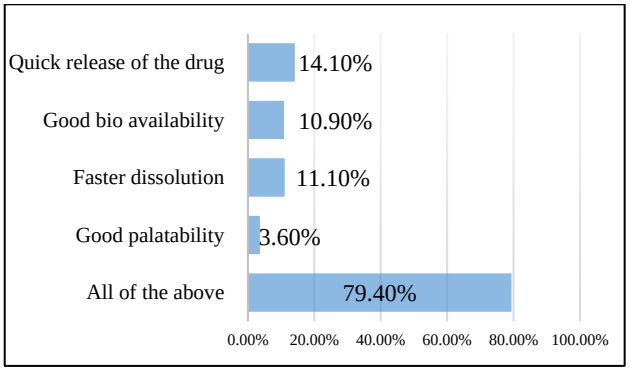

Figure 2: NSAIDs suitable to combat acute pain must display (multiple choice).

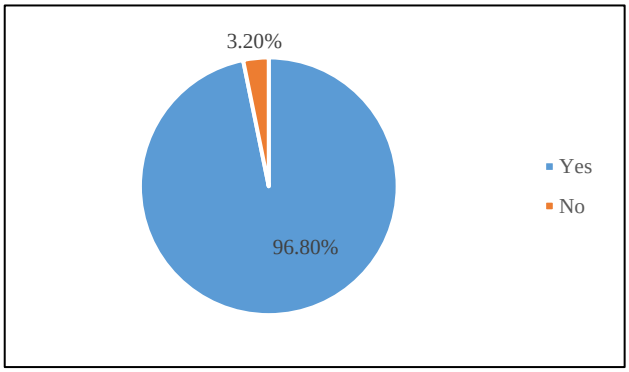

Figure 3: Drug dissolution and absorption of soft gel capsules is significantly higher as compared to tablets. In your opinion, would this novel formulation of Etoricoxib soft gel capsule benefit your patients?

More than 96% doctors agreed that etoricoxib soft gel capsule's characteristics such as higher drug dissolution and absorption would benefit their patients more when compared to etoricoxib tablets.

81.4% doctors agreed that etoricoxib soft gel capsules are faster acting than the tablet formulation, whereas 16.6% couldn't comment.

89.6% of the doctors agree/strongly agree that etoricoxib soft gel capsules would have better compliance because of bitter taste masking, whereas 12.8% doctors were neutral in their opinion, while 3% of the doctors disagreed.

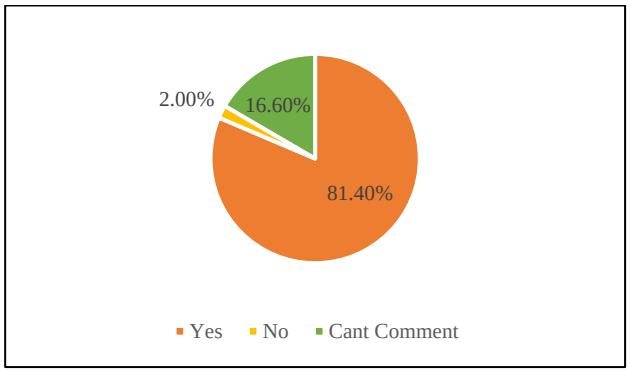

Figure 4: Do you agree that Etoricoxib soft gel capsules are faster acting than Etoricoxib tablets?

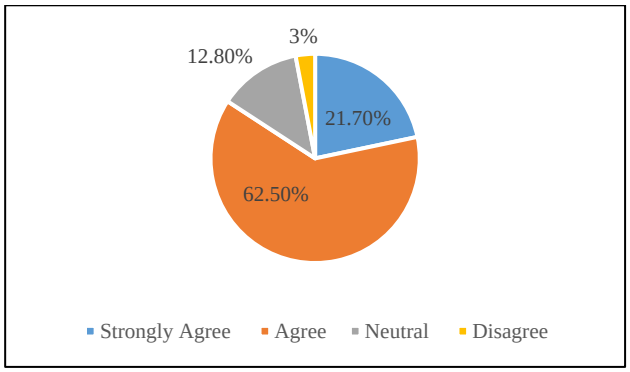

Figure 5: Do you agree that Etoricoxib soft gel capsules would have better compliance because of bitter taste masking as compared to tablets?

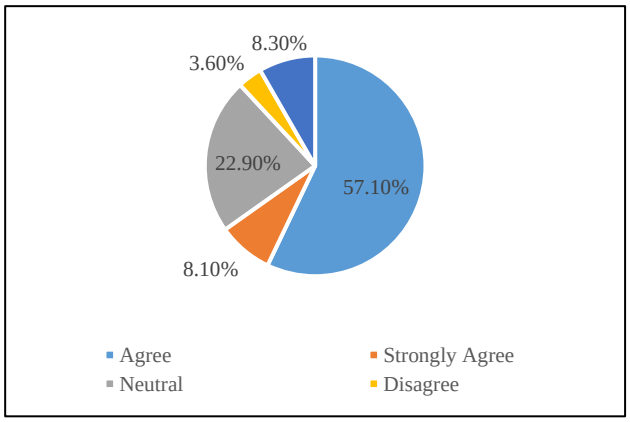

Figure 6: Do you agree that etoricoxib soft gel capsules have better GI tolerability as compared to tablets?

65.2% of the doctors surveyed believed etoricoxib soft gel capsules to have better GI tolerability as compared to tablets, whereas 22.9% of the doctors were neutral in their opinion.

Majority of the doctors surveyed (65.6%) agreed that all of the following features including shorter time to peak plasma concentration, rapid GI absorption, faster analgesic effect, appealing dosage form and masking of bitter taste were beneficial for their patients.

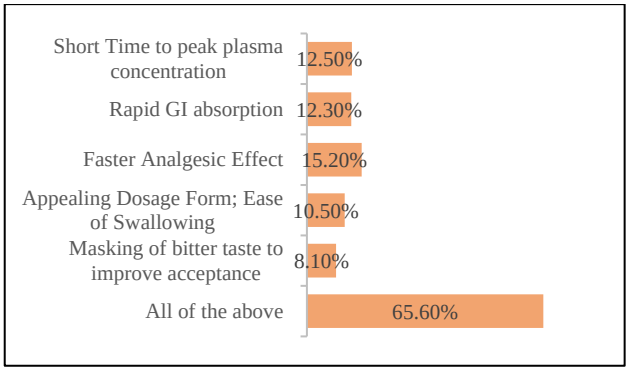

Figure 7: Which of the following features of etoricoxib softgel capsule formulation would you consider as beneficial for your patients?

DISCUSSION

Majority of the doctors participating in this online survey agreed that etoricoxib soft gel capsules are not only faster acting than the tablet formulation but also have better compliance because of its taste masking ability. Lodha et al concluded a similar finding for the gel formulation of ibuprofen. When compared to the tablet formulation a high-bioavailability was observed with a high degree of reliability and reproducibility and hence, a fast and reliable display of effects by the soft gel formulation.

Approximately 14% of all primary care visits are for musculoskeletal pain or dysfunction.[14] These conditions place a huge burden on society in terms of lost productivity and the cost of treatment. RA, OA and spinal disorders (including chronic LBP) were among those musculoskeletal conditions with the greatest impact on society.[15] Traditional NSAIDs inhibit both constitutive COX-1 and inducible COX-2, two processes which were believed to be responsible for the adverse effects (primarily gastrointestinal toxicity) and clinical benefits of treatment, respectively.

In contrast, selective COX-2 inhibitors had greater affinity for COX-2 than COX-1. Clinical evidence has shown that selective COX-2 inhibitors had comparable efficacy to traditional NSAIDs in the treatment of arthritis and pain, but offered the major advantage of reduced gastrointestinal toxicity, thus providing physicians with an important therapeutic alternative.[15] Etoricoxib is an NSAID which exhibits a greater selectivity for COX-2 over COX-1 when compared with the COX-2 inhibitors such as rofecoxib, valdecoxib and celecoxib.[15] Clinical studies have also established the efficacy and tolerability of etoricoxib in arthritis and pain, and the drug is available in over 50 countries worldwide.[15] Etoricoxib has demonstrated a

more rapid effect with significantly more patients reporting a good or excellent response within 4 hours of the first dose compared with diclofenac.[16] Several clinical trials reported superior gastrointestinal tolerability with etoricoxib compared with traditional NSAIDs.[15] A study indicates that the favourable gastrointestinal tolerability of etoricoxib is maintained during long-term treatment over 138 weeks (0.8% versus 5.9% PUBs-perforations ulcerations bleeds, when compared to Naproxen) Reginster et al 2004. The EDGE study reported a lower rate of discontinuations due to gastrointestinal adverse events with etoricoxib 90 mg QD than with diclofenac 50 mg TID in patients with OA (relative risk [RR], 0.50; $p<0.001$).[17] Findings from the present survey indicated the preference for soft gel etoricoxib as compared to traditional NSAIDs and etoricoxib tablet formulation as well by Indian orthopaedicians. They also agreed that features such as faster dissolution, improved bioavailability, masking of bitter taste and quick pain relief were the hallmark of an ideal NSAID. Importantly, orthopaedicians acknowledged that the novel soft gel formulation of etoricoxib displayed all the above characteristics which would help improve outcomes and boost patient compliance as well.

CONCLUSION

This is the first time that etoricoxib has been introduced in the soft gel formulation in India and therefore this survey assumes significance as a guidance for the preferred formulation for NSAIDs in the days to come. Etoricoxib being a selective COX-2 inhibitor, has added advantage in terms of reduced gastrointestinal adverse events. Soft Gel formulation adds further benefits in terms of faster GI absorption and masking of bitter taste. A significant proportion of orthopaedicians (more than 96%) agree that the soft gel formulation of etorcoxib would benefit their patients. Given the advantages with Etoricoxib soft gel formulation, in the days to come, it can be one of the preferred options for the management of pain and other arthritic conditions for patients in India.

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Ethical approval: Not required

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