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Review Article

Proton-pump Inhibitors (PPIs) in Management of NSAID-induced Gastrointestinal Side Effects: A Clinical Perspective

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Abstract

Non-steroidal anti-inflammatory drugs (NSAIDs) are used for alleviating pain and inflammation, particularly in the primary management of musculoskeletal disorders. Prolonged or frequent use of NSAIDs affects gastric acid levels and causes damage to the gastrointestinal (GI) system. NSAID users report GI endoscopic lesions such as petechiae, erosions, and ulcerations. Proton-pump inhibitors (PPIs) are the preferred pharmacotherapy to manage these NSAID-induced ulcers and other unfavorable GI adverse effects. PPIs offer better protection of the gastric mucosa from acid secretion and improve symptomatic indications. Rabeprazole, among all the PPIs, shows faster activation and provides beneficial action for a prolonged duration and thus exhibits a better efficacy profile. The current opinion document based on inputs from expert orthopedic professionals focuses on the NSAID-induced GI side effects, their prevalence in patients, and management using PPIs in their routine clinical practice.

Key words: Gastric ulcers, Gastrointestinal side effects, Non-steroidal anti-inflammatory drugs, Rabeprazole, Rheumatoid arthritis

INTRODUCTION

Non-steroidal anti-inflammatory drugs (NSAIDs) are one of the most widely accepted over-the-counter drugs across the world,[1] accounting for 8% of prescriptions worldwide, and are frequently used in patients over 65 years of age.[2] Major indications for the use of NSAIDs include conditions associated with pain and inflammation such as osteoarthritis, rheumatoid arthritis (RA), post-operative surgical conditions, and menstrual cramps and are also used for fever.[1] Furthermore, there has also been a rise in the use of NSAIDs that are not disclosed to medical professionals, with 26% using more than the advised dose.[2]

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NSAIDS IN RHEUMATIC DISORDERS

NSAIDs are a part of the primary pharmacotherapy for RA. RA is described as a systemic autoimmune pathology linked with a chronic inflammatory process that can injure both joints and extra-articular organs, involving the heart, kidney, lung, digestive system, eye, skin, and nervous system.[3]

NSAIDs aid in symptomatic management of RA. In the acute phase response, NSAIDs (naproxen, ibuprofen, and cyclo-oxygenase inhibitors [coxibs]) are used to decrease inflammation and thereby pain. They work pharmacologically by obstructing the activity of cyclo-oxygenase (COX), particularly COX-2, which is elevated in inflammatory conditions. The suppression of prostaglandins can have serious side effects such as bleeding, gastrointestinal (GI) ulcers, renal failure, heart failure, and rashes; thus, it is important to weigh the risk of injury.[3]

NSAID-INDUCED GI ADVERSE EVENTS

Since RA demands prolonged treatment, giving NSAIDs to patients for 1 month causes a significant increase in

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intragastric acidity when compared to baseline levels, which is one of the potential mechanisms linked to gastric injury. This is most likely due to the medication's blocking of prostaglandins' anti-secretory effect, a well-known target of NSAID therapy.[4]

GI complications are the most frequent unfavorable effects associated with the use of NSAIDs. The percentage of NSAID users reporting upper GI endoscopic lesions such as petechiae, erosions, and ulcerations lies between 30% and 50%.[5] Preventing the GI toxicity linked to NSAIDs has emerged as a significant clinical and public health concern.[6]

RISK FACTORS FOR NSAIDS-INDUCED GI EVENTS[7]

- Age >65 years
- History of peptic ulcer disease or bleeding from the GI tract
- Concomitant use of glucocorticoids may increase the risk of peptic ulcer disease
- Coexisting illness such as major cardiovascular disease
- Patients with prolonged or severe RA
- Increasing dose of specific and singular NSAIDs
- Combinations of NSAIDs.

Normal or reduced basal and stimulated acid productions are typically present in gastric ulcers, which may be primarily caused by altered gastric mucosal defense. An impaired and feeble mucosa could potentially account for the tendency for stomach ulcers induced by NSAIDs.[4] Symptoms of NSAID-induced ulcers are listed in [Figure 1].

When treating a stomach ulcer medically, the goal is to minimize acid secretion while also trying to eliminate the harmful substance.[4]

PROTON-PUMP INHIBITORS (PPIs) FOR MANAGEMENT OF NSAID-INDUCED GI INJURY

Primary preventive treatment for NSAID-induced ulcers includes drugs such as H2 receptor antagonists (H2RAs), proton-pump inhibitors (PPIs), and misoprostol. PPIs are preferred as they are associated with a lower risk of stomach ulcers than a standard dose of H2RA and show equal efficacy and better tolerance in comparison to misoprostol in reducing endoscopically-detected peptic ulcers.[5,6] PPIs are effective in preventing the GI toxicity in patients prescribed with the NSAID therapy.[6] PPIs can be also administered as co-therapy with NSAIDs to prevent the above-mentioned unfavorable effects as recommended by the guidelines and regulatory bodies of various countries.[4]

Proton-pump inhibitors act by irreversibly binding to the H^+/K^+ ATPase pump also known as the "proton pump," which is situated in the highly acidic lumen of parietal cells. Due to the acidic environment, PPIs are converted to their active protonated form and effectively suppress excessive gastric acid production. Thus, this action leads to increase in gastric pH.[8,9] Indications for the use of PPIs are shown in [Figure 2].

RABEPRAZOLE

Rabeprazole among the class provides efficient suppression of acid and a faster onset of action.[5] Rabeprazole suppresses the release of gastric acid by blocking the action of gastric H^+, K^+ ATPase at the secretory surface of the gastric parietal cell. Rabeprazole prevents the stomach acid from secreting in its ultimate stage [Figure 3]. Rabeprazole is protonated, accumulates, and changes into an active sulphenamide in the stomach parietal cells. Rabeprazole has a half-life of 78 s and is chemically activated at pH 1.2 when examined *in vitro*.[10]

EFFICACY AND BENEFICIAL EFFECTS OF RABEPRAZOLE

Rabeprazole shows the highest pKa (~ 5.0, the pH at which a drug becomes 50% protonated) amongst all the PPIs. Therefore, the drug can be activated at a higher pH. Higher pka of rabeprazole is the key reason for its faster activation and a longer duration of action than others in its class. The primary metabolic pathway of rabeprazole is a non-enzymatic

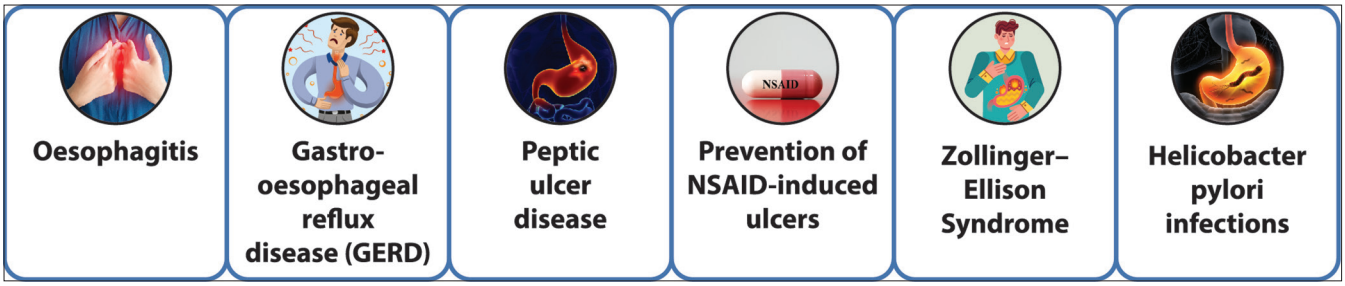

Figure 1: Symptoms of non-steroidal anti-inflammatory drugs-induced ulcers[2]

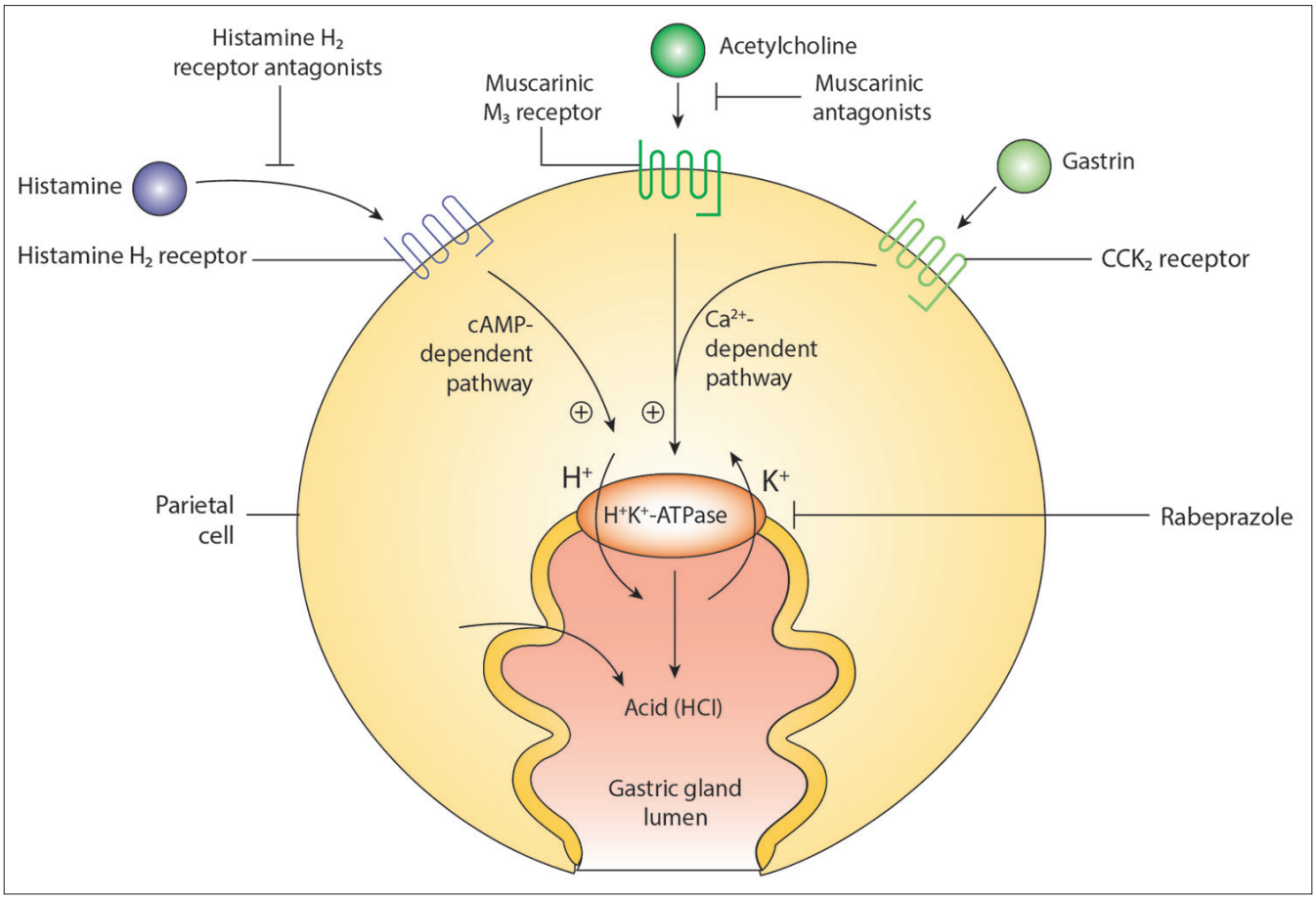

Figure 2: Indications of proton-pump inhibitors[9]

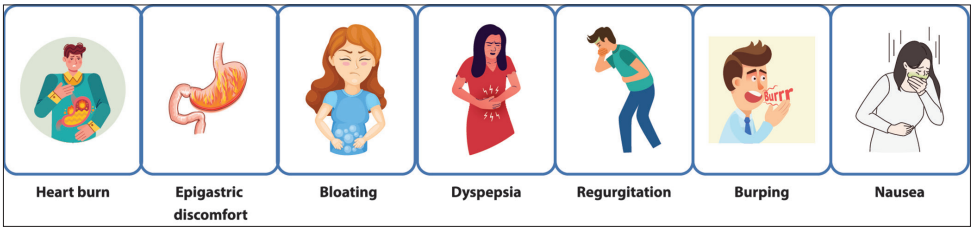

Figure 3: Site of action and mechanism of action of Rabeprazole[11]

conversion to rabeprazole-thioether. The largely non-enzymatic metabolism of rabeprazole is one of the reasons behind fewer drug–drug interactions between rabeprazole and other P450 isoenzyme-dependent medications.[11]

In patients consuming NSAIDs, maintaining an intragastric pH >4 heals gastric ulcers. In a study by Sugimoto *et al.*, Rabeprazole potentially inhibited acid secretion, irrespective of CYP2C19 genotypes, and reduced the chances of aspirin-related esophageal injury in relation to the increasing pH value.[12] Another study by Bruley des Varannes *et al.* revealed that median gastric pH was significantly higher with rabeprazole than with omeprazole. Rabeprazole maintained the gastric pH above 4 for a prolonged period of time than omeprazole. Thus, compared to omeprazole 10 mg, rabeprazole 10 mg provided faster acid inhibition.[13] A study by Ji *et al.* reported that low-dose rabeprazole 10 mg exhibited similar efficacy in rapid healing of active peptic ulcer disease and symptom improvement in comparison with the standard dose omeprazole 20 mg.[14] This, thus highlights the efficacy of rabeprazole.

HIGHER DOSE OF RABEPRAZOLE AND ITS EFFICACY IN ACID CONTROL

Further, it has been revealed through various studies that a higher dose of rabeprazole was efficient in maintaining the

gastric acid levels for prolonged duration than the lower doses.[15] A study done by Blanshard *et al.* reported that mean 24-h intragastric pH values were on the higher side post-consumption of 40 mg rabeprazole than the 20 mg dose. Rabeprazole 40 mg showed a potential decrease in acidity for a longer duration during which the intragastric pH was maintained at >3 (19.2 h vs. 17.3 h and 17.5 h) and >4 (17 h vs. 14.2 h and 15.2 h) in comparison to doses of 10 and 20 mg.[15]

A study performed by Hayato *et al.* highlights that once-daily dose of 40 mg rabeprazole might be efficacious for treating gastro-oesophageal reflux disease (GERD) with respect to controlling the acid secretion at night. On increasing the dose of rabeprazole from 20 mg to 40 mg, an increase in the duration of pH 4 holding time at night was observed in (hetero-Ems) heterozygous extensive metabolizers, and poor metabolizers (PMs). Thus, a 40 mg dose of rabeprazole results in better control of gastric acid secretion at night and thus an increased pharmacodynamic effect.[16]

EXPERT OPINION

Dr. Ganesh Sangale, MBBS, D. Ortho

The frequency of prescribing NSAIDs is on the higher side, the percentage being ≥70% in a day; however, >10% of those patients come back with complaints regarding GI-related side effects. Among patients suffering from adverse GI effects, <50% suffer from GI bleeding or serious GI damage. Less than 50% of patients visiting the clinic present with comorbid conditions such as diabetes mellitus, hypertension, and cardiac disorders. These are the patients who are prescribed NSAIDs for a duration of a few months. To tackle the issue of GI side effects, antacids, H2 receptor antagonists (H2RAs), or proton-pump inhibitors (PPIs) are helpful due to their property of long-lasting inhibition of gastric acid secretion. It is advisable to prescribe PPIs along with the NSAIDs at the beginning of the treatment. A high dose of PPI improves symptoms and reduces the occurrence of complications of peptic ulcer disease in those patients who are at higher risk. Out of many PPIs that interfere with the NSAIDs, Rabeprazole is the only one with mucus-protective action. Along with NSAIDS, bisphosphonates are the other culprit drugs in orthopedic practice that lead to GI-related side effects.

Dr. Suneel Kumar, MBBS, FRCS (Glasgow), Mch Ortho (Liverpool)

The percentage of NSAIDs prescriptions goes up to 50% and more in a day. However, the percentage of patients coming back with complaints regarding GI-related side effects is >10%. Among patients suffering from adverse GI effects, <50% of patients report cases of GI bleeding or serious GI damage. >50% of the patients visiting my clinic suffer from comorbid conditions such diabetes, hypertension, and cardiac diseases. In my orthopedic practice, I have observed that NSAIDs are the only class of drugs that cause GI side effects a few days after initializing the treatment. Long-lasting inhibition of gastric acid secretion and protection of the gut mucosa are the properties of PPI, which make them favorable for the treatment of GI conditions. I prefer to prescribe PPI with the NSAIDs at the beginning of the treatment. A higher dose of PPIs can improve symptoms of GI conditions and reduce the occurrence of complications of peptic ulcer disease in high-risk patients. PPIs interfere with the NSAIDs due to their mechanism of action. I am aware that among the PPIs, rabeprazole is the only one that shows mucus-protective action.

Dr. Sanjay Verma, D. Ortho, DNB

More than 90% of the patients are prescribed NSAIDs in a span of 24 h. However, more than 10% of these patients start suffering from GI-related side effects and come back to me with this complaint a few months after the initiation of NSAIDs. Amongst these patients, <50% of the patients suffer from severe GI damage and GI bleeding. >50% of the patients coming to my OPD, show comorbid cardiac conditions and other conditions such as diabetes mellitus, and hypertension. PPIs have a good ability to interfere with NSAIDs due to their mechanism of action. However, the only PPI exhibiting mucus-protecting action is Rabeprazole. The signs of GI side effects and complications such as peptic ulcer disease can be reduced by increasing the dose of PPI. Along with NSAIDs, bisphosphonates are the other class of drugs used for treating orthopedic conditions, which also cause adverse GI conditions. Thus, the preferred treatment for me to tackle these adverse GI conditions is antacid, H2RAs, or PPIs. Starting PPIs once daily is an effective treatment, as PPIs provide long-lasting inhibition of gastric acid secretion and protection of the gut mucosa.

Dr. Surendra Shukhla, MS Ortho

In the span of 24 h of my clinical practice, >70% of the patients are prescribed NSAIDs. Out of all the patients prescribed with NSAIDS, <10% show adverse GI effects, and among them, <50% show serious GI damage and GI bleeding. Among all the patients visiting my OPD in a day, <50% report of coexisting conditions such as cardiac conditions, diabetes, and hypertension. NSAIDs are the only drugs that cause adverse GI effects. Adverse GI effects appear a few days after the initiation of NSAID therapy. The preferred way of managing GI conditions is through the use of PPIs along with NSAIDs, starting from day 1 of NSAID therapy. A higher dose is preferable as improves symptoms and reduces the

occurrence of complications of peptic ulcer disease in those at higher risk. PPIs interfere with the NSAIDs due to their mechanism of action and relieve GI conditions by inhibiting gastric acid secretion for prolonged periods and protecting the gut mucosa. However, rabeprazole, among all the PPIs, is the only one to offer mucus-protecting action.

Dr. Amaresh Kumar, MS Ortho

More than 70% of the patients are prescribed with NSAIDs daily. Among them, <10% come back with the complaint of GI side effects and out of these patients who report GI-related side effects, <50% complain of serious GI damage and GI bleeding a few days after initiating the NSAID therapy. These GI adverse effects are treated by using PPIs in adjunction with NSAIDs from day one of the NSAID therapy. PPIs manage the adverse effects of NSAIDs by protecting the gut mucosa and providing long-lasting protection against acid secretion. It is also advisable to prescribe PPIs at a higher dose, especially in high-risk patients, as it leads to the alleviation of symptoms and reduces the chances of occurrence of complications like peptic ulcer. PPIs are able to interfere with NSAIDs due to their mechanism of action. However, Rabeprazole is the only PPI to provide mucus-protective action. Bisphosphonates, used for treating orthopedic patients along with NSAIDs, adversely affects GI system. Among all the patients visiting the clinic in a day, more than 50% exhibit the presence of comorbidities such as diabetes, cardiac conditions, and high blood pressure.

Dr. Dijoe Davis, MS Ortho

In a span of 24 h, more than 50% of the patients visiting clinic for their orthopedic problems are advised to take NSAIDs for pain, swelling, or inflammation. Out of all the patients taking NSAIDs, 10% report of NSAID-induced GI side effects. Further, severe damage to the GI system or GI bleeding is reported in <50% of the patients coming back with GI tract issues. The side effects arise on few days after initiating the NSAID treatment. 50% of the patients visiting the clinic also report prevalence of comorbidities such as hypertension, diabetes mellitus, and other cardiac conditions. Thus, PPIs are initiated along with the NSAIDs at the beginning of the therapy. Further, a higher dose of PPI alleviates the symptoms and avoids further occurrence of GI complications of peptic ulcer. PPIs inhibit acid secretion for prolonged periods, and protect gut mucosa and some of them interfere with the NSAIDs due to their mechanism of action. Both NSAIDs and bisphosphonates exhibit adverse effects on the GI system.

Dr. Anil Rathi, MS Orthopaedic

In a span of 24 h, above 70% of the patients visiting the orthopedic clinic are advised to take NSAIDs to deal with pain, swelling, or inflammation. However, NSAIDs exhibit serious adverse effects on the GI system. These adverse effects are shown by >10% of the patients receiving NSAIDs and among them, <50% of the patients report of severe damage to the GI system or GI bleeding. More than 50% of the patients present with comorbidities such as diabetes mellitus, cardiac conditions, and high blood pressure. GI side effects start developing a few months post initiating the NSAID therapy. These adverse effects are treated using antacids or PPIs along with the NSAIDs. PPIs interfere with NSAIDs due to their mechanism of action, inhibit gastric acid secretion for a prolonged period, and protect the gut mucosa. Rabeprazole over other PPIs offers the advantage of exhibiting mucus-protecting action. Another class of drug to exhibit GI-related side effects is bisphosphonates. In high-risk patients, improvement in symptoms and decreased chances of complications can be achieved by prescribing PPIs at a higher dose.

Dr. Amit Ahluwalia, MBBS, MS, MCh

The percentage of NSAIDs prescribed during the day is 90% or more. However, more than 10% of these patients return with complaints of GI side effects, and amongst them >50% experience severe GI bleeding or GI injury. These adverse effects start appearing within a few days of initiating the NSAID treatment. More than 50% of patients visiting the clinic for orthopedic issues suffer from comorbidities such as diabetes, high blood pressure, and heart disease. To address the problem of GI side effects, PPIs are useful as they inhibit gastric acid secretion in the long term and protect the gut mucosa. It is recommended to prescribe PPIs while initiating treatment with NSAIDs to reduce the chances of GI side effects. A high dose of PPI relieves symptoms and reduces the occurrence of peptic ulcer complications in patients at increased risk. Among the many PPIs that interact with NSAIDs, rabeprazole is the only one that has a mucus-protective effect. In addition to NSAIDs, bisphosphonates are the other class of drugs used in orthopedic practice that cause GI side effects.

Dr. M. Manoj, MS Ortho

Many patients prescribed NSAIDs complained of GI side effects a few days after initiating the treatment. Within 24 h, >50% of patients are recommended to take NSAIDs for pain, swelling, or inflammation in orthopedic practice. Among them, <10% report GI side effects. Among them, <50% of patients report serious damage to the GI system or GI bleeding. More than 50% of patients also report existing comorbidities such as high blood pressure, diabetes mellitus, and other heart diseases. Therefore, PPIs are used together with the NSAIDs at the beginning of therapy. In addition, a higher dose of PPI relieves symptoms and prevents the development of GI complications of peptic ulcer disease. PPIs are a preferred option to treat GI side effects as they

inhibit acid secretion for long periods, protect the intestinal mucosa, and interfere with the action of NSAIDs. Among all the PPIs, rabeprazole offers the additional advantage of mucoprotective action. Both NSAIDs and bisphosphonates have harmful effects on the GI system.

Dr. Anish Kumar Jain, MBBS, D. Ortho

In daily clinical practice, NSAIDs are prescribed to >50% of the patients. It is observed that less than 10% of the patients develop GI side effects, and out of them, up to 50% of the patients experience sever damage to GI system and GI bleeding. Adverse GI effects are experienced by patients within a few days of initiating the NSAID treatment. These GI side effects of NSAIDs are managed by using antacids, PPIs, or H2 receptor antagonists. PPIs offer the best protection when prescribed along with the NSAIDs. Some PPIs interfere with the NSAIDs due to their mechanism of action and all PPIs commonly act by inhibiting gastric acid secretion for longer durations and protecting the gut mucosa. However, Rabeprazole is the only PPI to offer mucus-protective action. Not all PPIs are metabolized by the same pathway. It is advisable to prescribe PPIs at a higher dose in high-risk patients to reduce the intensity of the symptoms and the chances of occurrence of complications of peptic ulcer disease. Bisphosphonate use also leads to GI-related side effects. More than 50% of the patients visiting clinic also suffer from comorbid conditions such as hypertension, diabetes mellitus, and cardiac disorders.

Dr. Vikrant Vijay, MBBS, D. Ortho, MS Ortho

The daily percentage of prescriptions for NSAIDs can reach 50% or more. More than 10% of patients return complaining of GI side effects. And out of them, patients complaining of GI-related side effects, >50% of patients report severe GI damage or bleeding. Furthermore, over 50% of the patients visiting the OPD in a day have co-occurring illnesses such as diabetes, hypertension, and heart problems. Both NSAIDs and bisphosphonates are classes of drugs in orthopedics that induce GI adverse effects. These effects are experienced a few days post initiating the treatment with NSAIDs. PPIs have two characteristics that make them advantageous for the treatment of GI disorders: They protect the gut mucosa and provide long-lasting suppression of gastric acid output. Among all the PPIs, rabeprazole is the only one to exhibit mucus-protective action. NSAIDs and PPIs should be prescribed together at the start of the course of treatment. Increased PPI dosages can lessen the likelihood of complications from peptic ulcer disease in high-risk patients and help with GI symptoms. PPIs are not metabolized by a common metabolic pathway.

Dr. K. Mahendra Kumar, MBBS, MS Ortho

In daily clinical practice, NSAIDs are prescribed to >70% of the patients per day and <50% show the presence of comorbid conditions such as diabetes mellitus, hypertension, and cardiac disorders. More than 10% of the patients receiving NSAIDs complain of adverse GI effects, and among them, <50% complain of GI bleeding and significant damage to the GI tract. NSAIDs are the only prescribed drugs in orthopedic practice that show adverse effects on the GI system, which appear a few days after initiating the treatment. To manage these adverse effects, antacids, PPIs, or H2 receptor antagonists are the preferred mode of treatment. There is no single common metabolic pathway for PPIs. Some PPIs interfere with NSAIDs due to their mechanism of action, but rabeprazole is the only one to interfere with NSAIDs by offering mucus-protecting action. PPIs are chosen for treating GI-related conditions as they offer long-lasting inhibition of acid secretion and protect the gut mucosa. Thus, PPIs should be given in combination with NSAIDs at the beginning of the NSAID therapy.

Dr. P. Rajunaidu Pothula, MS Ortho

More than 90% of NSAID prescriptions are written during the day. More than 10% of them return complaining of GI side effects and among them, <50% develop significant GI bleeding or GI damage. Within a few days of starting NSAID therapy, these side effects begin to manifest. Over half of patients visiting OPD in a day also have cooccurring conditions such as diabetes, hypertension, and heart disease. PPIs are helpful in treating GI side effects because they can prevent gastric acid secretion over an extended period of time and preserve the mucosa in the gut. To lessen the possibility of GI side effects, it is advised to give PPIs along with NSAIDs at the onset of treatment. In individuals who are more vulnerable, a high dose of PPI minimizes the likelihood of complications from peptic ulcers and soothes symptoms. Rabeprazole is the only PPI having a mucus-protective effect among all the PPIs. The other class of medication used in orthopedic practice that causes GI adverse effects is bisphosphonates, in addition to NSAIDs.

Dr. Manmohan Singh Deol, MS Ortho

In my daily clinical practice, NSAIDs are prescribed to over 50% of patients per day. Among these patients, more than 10% complain of GI side effects. Out of the patients showing NSAID-induced GI side effects, more than 50% complain of GI bleeding and significant damage to the GI system. Less than 50% of patients visiting in a day suffer from comorbidities such as diabetes mellitus, hypertension, and heart disease. Along with NSAIDs, bisphosphonates also show side effects on the GI system. GI side effects occur a few days after the beginning of NSAID treatment. To control these side effects, antacids, PPIs, or H2 receptor antagonists are the preferred treatment methods. There is no single common metabolic pathway for PPIs. Some PPIs interfere with the action of NSAIDs due to their

mechanism of action, but rabeprazole is the only agent that interferes with the action of NSAIDs by having an expectorant effect. PPIs are used to treat diseases of the GI tract because they inhibit acid secretion for a long time and protect the intestinal mucosa. Therefore, PPIs should be administered in combination with NSAIDs on initiating the treatment. A higher dose of PPIs should be prescribed to high-risk patients to improve symptoms and reduce the occurrence of complications of peptic ulcer disease.

Dr. C. Hariprasad Rao, MS Orthopaedics

In daily clinical practice, NSAIDs are prescribed to >50% of patients per day. Less than 10% of these patients return with complaints of GI side effects, and among them, >50% report GI bleeding and significant damage to the GI system. Out of all the patients visiting OPD in a span of 24 h, >50% of patients have comorbidities such as diabetes mellitus, hypertension, and heart disease. In orthopedic practice, along with the NSAIDs, bisphosphonates also show side effects on the GI system. In treatment with NSAIDs, adverse effects occur a few days after initiating the treatment. To control these side effects, antacids, PPIs, or H2 receptor antagonists are the preferred treatment methods. There is no single common metabolic pathway for PPIs. Some PPIs interfere with the action of NSAIDs due to their mechanism of action, but rabeprazole is the only agent that interferes with the action of NSAIDs by having a mucus-protecting effect. PPIs are used to treat diseases of the GI tract because they inhibit acid secretion for a long time and protect the intestinal mucosa. Therefore, PPIs should be administered in combination with NSAIDs from day one of the treatment.

Dr. Alok Patil, MBBS, MS Orthopaedics

Above 90% of the patients are prescribed NSAIDs in a day in clinical settings. Less than 50% of the patients visiting the clinic have coexisting disorders such as diabetes mellitus, high blood pressure, and other cardiac disorders. After a few months of treatment, <10% of the patients report GI side effects, and among them, 50% of the patients report severe GI damage and GI bleeding. To treat these GI side effects, antacids, PPIs, or H2 antagonists are used. PPIs are started with NSAIDs starting on day 1 of the NSAID therapy. PPIs exhibit long-lasting gastric acid secretion and protection of the gut mucosa. PPIs can be prescribed at a higher dosage to high-risk patients to avoid the elevation of symptoms and the occurrence of complications of peptic ulcer disease. Each drug in the PPI class shows a different metabolic pathway. Some PPIs interfere with NSAIDs due to their mechanism of action. Rabeprazole is the only PPI to offer mucoprotective effects. Bisphosphonates are the other culprit drugs in orthopedics practice, leading to GI-related side effects.

Dr. Anant Jinsiwale, MS Orthopaedics

In clinical settings, NSAIDs are recommended to more than 90% of patients. More than 10% of individuals experience GI adverse effects after a few days of the NSAID treatment; amongst these, <50% of patients experience serious GI damage and GI bleeding. More than 50% of patients also have comorbid conditions such as high blood pressure, diabetes mellitus, and other heart problems. H2 antagonists, PPIs, and antacids are used to treat these GI adverse effects. From the 1st day of NSAID medication, PPIs are started together with them. PPIs show sustained stomach acid production and mucosal protection. For patients who are at a higher risk of developing complications from peptic ulcer disease, PPIs may be taken at a larger dosage. Every medication in the PPI class exhibits a unique metabolic route. The way some PPIs work makes them incompatible with NSAIDs. The only PPI that has a mucus-protective effect is rabeprazole. The other medications that cause GI-related side effects in orthopedic practice include bisphosphonates.

Dr. Konatham Bhaskar, MS Orthopaedics

Among the total number of patients visiting in a day, >70% of the patients are prescribed NSAIDs. Out of which, >10% suffer from GI-related side effects. Among the patients suffering from GI-related side effects, <50% of the patients suffer from GI bleeding and severe GI damage. These side effects start developing a few months after initiating the NSAID therapy. Less than 50% of the patients visiting the clinic suffer from comorbidities such as diabetes, hypertension, and cardiac disorders. To combat these issues, antacids, H2 antagonists, or PPIs are prescribed. PPIs are started along with NSAIDs from day one of the NSAID therapy. PPIs offer protection of the gut mucosa and long-lasting inhibition of acid secretion. A higher dose of PPI can offer further protection, help in alleviating the symptoms, and reduce the occurrence of complications of peptic ulcer disease in those at higher risk. Each drug in the PPI class follows a different metabolic pathway. Some PPIs are able to interfere with NSAIDs due to their mechanism of action. In orthopedic therapeutics, bisphosphonates are another class of drugs that exhibit GI-related side effects.

Dr. Arumugapandiyan, D. Ortho, MCh Ortho

More than 50% of patients who visit my clinic are treated with NSAIDs on a given day. Of them, <10% suffer from GI-related side effects. Out of all the patients suffering from GI-related side effects, more than 50% of the patients are affected by GI bleeding and severe GI injury. Several days after beginning NSAID therapy, these adverse effects start to manifest. Diabetes, hypertension, and heart disease are comorbidities that are reported by <50% of individuals visiting OPD. PPIs, H2 antagonists, or antacids

are prescribed to treat these issues. PPIs are initiated on the first day of NSAID treatment. PPIs prevent acid secretion for prolonged periods of time and help manage side effects caused by NSAIDs. For those who are more susceptible, a greater dose of PPI may offer better protection, aid in symptom relief, and lower the frequency of complications from peptic ulcers. Every medication in the PPI class has a unique metabolic route. Because of the way, some PPIs work, they may reduce the efficacy of NSAIDs. Rabeprazole is the only PPI that has the ability to protect mucus. NSAIDs are the only class of medication to cause GI adverse effects in orthopedic practice.

Dr. Mihir Kakka, D. Ortho

Of the total number of patients coming in a day, >70% are prescribed NSAIDs. Less than 10% suffer from GI-related adverse effects after initiating the NSAID treatment, amongst them less than 50% of patients suffer from GI bleeding and severe GI damage. These side effects begin to develop a few days after starting the NSAID treatment. More than 50% of patients also have comorbidities such as diabetes, hypertension, and heart disease. To combat these problems, antacids, H2 antagonists, or PPIs are prescribed. It is advisable to wait for GI side effects to occur before prescribing the PPIs during the NSAID therapy. PPIs protect the intestinal mucosa and sustainably inhibit acid secretion. A higher dose of PPI may provide better protection, help relieve symptoms, and reduce the incidence of peptic ulcer complications in people at higher risk. Each drug in the PPI class has a different metabolic pathway. Some PPIs may interfere with the effectiveness of NSAIDs due to their mechanism of action. Amongst PPIs, Rabeprazole is the only one to offer mucus-protecting action. Bisphosphonates are another class of drugs prescribed for orthopedic issues that cause GI side effects.

Dr. Jefferson George, MS Ortho

Patients who are prescribed NSAIDs return with the complaint of gastric side effects. Over 70% of the patients that visit in a day are prescribed NSAIDs. Among them, more than 10% report GI adverse effects and out of these patients showing GI-related side effects, <50% report GI bleeding and GI damage. More than 50% of patients visiting orthopedic clinics have comorbidities such as hypertension, diabetes mellitus, and heart disorders. These side effects generally start appearing after a few days of initiating the NSAIDs. To manage the gastric side effects, antacids, PPIS, and H2 antagonists are the chosen therapeutics. PPIs are chosen because they provide prolonged inhibition of gastric acid secretion and protect the gut mucosa. To gain maximum benefits, it is advisable to prescribe PPIs along with NSAIDs starting from day one of the NSAID therapy. Higher doses of PPIs may provide better protection, help relieve symptoms, and reduce the rate of gastric ulcer complications in people at higher risk. The metabolic pathway for each PPI is different. Bisphosphonates, which are class of drugs that are used in orthopedic practice, also exert adverse effects on GI system.

Dr. Venkata Ramana Uppalapati, MS Ortho

The percentage of patients prescribed NSAIDs in a day exceeds 70%. More than 10% of them come back within a few days to report gastric side effects that are caused after consumption of NSAIDs. Out of the patients suffering from GI-related adverse effects, 50% of the patients also report damage to the GI system or GI bleeding. The percentage of patients presenting to the clinic with comorbid conditions such as hypertension, diabetes mellitus, and cardiac disorders exceeds 50% in a day. Gastric side effects are alleviated using antacids, H2 antagonists, and PPIs. PPIs are preferred as they have the ability to inhibit acid secretion for longer durations and protect the gut mucosa. Thus, it is advisable to initiate NSAID therapy along with PPIs to avoid the occurrence of side effects. Furthermore, a higher dose of PPI is recommended in patients with high risk to avoid the occurrence of complications of peptic ulcer disease and the improvement of the symptoms. Some PPIs are able to combat the side effects induced by NSAIDs due to their mechanism of action; out of them, rabeprazole is the only one to offer mucoprotective action. Different PPIs show distinct metabolic pathways. Among the drugs used in orthopedic practice, bisphosphonates also exert adverse effects on the GI system, apart from the NSAIDs.

Dr. Murthy, MS Orthopaedics

More than 50% of patients are daily prescribed NSAIDs and more than 10% return with complaints of gastric side effects. Less than 50% of patients vising the clinic also suffer from comorbid diseases such as hypertension, diabetes, and cardiovascular disorders. Less than 50% of the patients complaining of NSAID-induced gastric side effects report GI bleeding and injury. These side effects usually begin within a few days of starting NSAID treatment. To control gastric side effects, antacids, PPIs, and H2 antagonists are the treatment of choice. PPIs were chosen because they have a long-lasting inhibitory effect on gastric acid secretion and protect the intestinal mucosa. Some PPIs interfere with the NSAIDs due to their mechanism of action. Out of these PPIs, the only one to offer mucus-protecting action is rabeprazole. To gain maximum benefits, it is advisable to prescribe PPIs along with NSAIDs starting from day one of the NSAID therapy. Higher PPI doses are recommended in high-risk patients to prevent the development of peptic ulcer complications and improve symptoms. Each PPI follows a different metabolic pathway. Bisphosphonates also exert adverse effects on the GI system.

Dr. M. Shakti Dora, MBBS, MS Orthopaedics

When NSAIDs are administered, patients come back with GI complaints. NSAIDs were prescribed to >50% of patients visiting the OPD each day. About half of the patients visiting the OPD have cooccurring conditions such as diabetes, hypertension, and cardiovascular illnesses. More than 10% of patients receiving NSAID treatment reported GI adverse events, and among them, 50% of patients experienced GI bleeding and damage. Usually, a few days after beginning NSAID therapy, these side effects start to appear. The preferred treatments for managing GI side effects are PPIS, H2 antagonists, and antacids. PPIs were selected because they shield the intestinal mucosa and have a long-lasting inhibitory effect on stomach acid output. Due to the way they work, some PPIs conflict with NSAIDs. Rabeprazole is the only one of these PPIs that has the ability to protect mucosal lining. Prescribe PPIs along with NSAIDs on the first day of NSAID therapy for optimal benefit. To alleviate symptoms and stop the progression of problems from peptic ulcers, higher PPI dosages are advised for high-risk individuals. Every PPI has a unique metabolic route. The GI system is negatively impacted by bisphosphonates, which are used in orthopedic practice.

Dr. Raghubabu M., MBBS, DNB Ortho

NSAIDs are prescribed to more than 70% of the patients in a span of 24 h. More than 10% of patients report symptoms of NSAID-induced GI side effects within a few days of initiating the NSAID treatment; among them, 50% report GI injury and bleeding. Less than 50% of patients, visiting OPD in a day, reported the presence of comorbidities such as hypertension, diabetes, and cardiac disorders. To protect the GI system, antacids, H2 antagonists, or PPIs are prescribed along with NSAIDs starting from the 1st day of the treatment. PPIs help reduce side effects by offering long-lasting acid secretion and protecting gut mucosa. A higher dose of PPIs helps reduce symptoms and the occurrence of complications of peptic ulcer disease in those at higher risk. PPIs do not exhibit a common pathway for their metabolism. Among the drugs used for bone disorders, both bisphosphonates and NSAIDs exert harmful effects on the GI system.

Dr. Arun R. Dash, MS Ortho

Above 90% of patients are prescribed NSAIDs within 24 h. More than 10% of these patients reported symptoms of NSAID-induced GI side effects within a few days of initiating NSAID therapy; out of which, 50% reported signs of GI damage and bleeding. Among patients visiting the clinic, approximately 50% and more reported comorbidities such as hypertension, diabetes, and heart disorders. To reduce damage to the digestive system, antacids, H2 antagonists, or PPIs are prescribed along with NSAIDs from the first day of treatment. PPIs help reduce harm by providing long-lasting acid secretion and protecting the intestinal lining. Few PPIs are able to combat the adverse effects exerted by NSAIDs due to their mechanism of action. Higher doses of PPIs help reduce symptoms and the occurrence of complications of peptic ulcer disease in people at higher risk. PPIs do not have a common metabolic pathway. Rabeprazole, out of all PPIs, is the only one to offer mucus-protective action. Among the drugs used to treat bone disorders, bisphosphonates, and NSAIDs have harmful effects on the digestive system.

Dr. Rajashekar Reddy Kandi, MS, MCh Ortho

The rate of NSAIDs prescribed during the day is 90% or more. More than 50% of patients visiting present with comorbidities such as diabetes, high blood pressure, and heart disease. However, more than 10% of the patients returned with complaints of GI side effects which were induced after consuming NSAIDs, and among them, less than 50% had serious GI bleeding or injury. These side effects begin to appear a few days after starting treatment with NSAIDs. To address the problem of GI side effects, PPIs are useful due to their ability to inhibit gastric acid secretion for a prolonged period of time and protect the intestinal mucosa. PPIs should be prescribed in combination with NSAIDs at the beginning of treatment to reduce the risk of GI side effects. High doses of PPIs reduce symptoms and reduce the occurrence of peptic ulcer complications in high-risk patients. Of the many PPIs that interact with NSAIDs, rabeprazole is the only one that has a mucoprotective effect. Besides NSAIDs, bisphosphonates are another group of drugs used in orthopedics that cause GI side effects.

Dr. Bhabani Shankar Lenka, MS Ortho

More than 70% of the patients visiting the clinic were daily prescribed NSAIDs. Approximately less than 50% of the patients also suffer from comorbidities such as hypertension, diabetes mellitus, and cardiac disorders. In my practice, <10% of patients came back with the symptoms of NSAID-induced gastric side effects and among them, <50% of patients report GI bleeding or injury to the GI system. This is observed after a few months of initiating the NSAID therapy. I use antacids, PPIs, or H2 antagonists to treat these symptoms. PPIs offer beneficial effects by inhibiting gastric acid secretion and protecting the gut mucosa. I prescribe PPIs along with the NSAIDs from day one after initiating the NSAID therapy. I prescribe a higher dose of PPIs to high-risk patients to reduce symptoms and the occurrence of complications of peptic ulcer disease. I am aware of different PPIs exhibiting different metabolic pathways. Some PPIs interfere with NSAIDs due to their mechanism of action. I prefer to prescribe rabeprazole, as it is the only PPI to offer mucus-protective action. Apart from NSAIDs, I have observed GI side effects induced by bisphosphonates.

Dr. Kumar V.K., Professor, MBBS, D. Ortho, DNB Ortho, (MNAMS)

More than 50% are prescribed NSAIDs in a single day. Less than 50% of patients visiting the clinic have comorbidities such as hypertension, diabetes, and cardiovascular disorders. In my practice, I have observed <10% of patients returning with symptoms due to NSAID-induced gastric side effects, and among them, up to 50% of patients experience GI bleeding or damage. This was observed after a few days of starting treatment with NSAIDs. I use antacids, PPIs or H2 antagonists to treat these symptoms. PPIs are beneficial over others by demonstrating long-lasting inhibition of gastric acid secretion and protecting the gut mucosa. I prescribe PPIs along with the NSAIDs from day one. I prescribe a higher dose of PPIs in high-risk patients to reduce symptoms and the occurrence of complications of peptic ulcer disease. I am aware of different PPIs exhibiting different metabolic pathways. Some PPIs interfere with NSAIDs due to their mechanism of action. I prefer to prescribe rabeprazole because it is the only PPI that protects mucus. In addition to NSAIDs, I have observed GI side effects caused by bisphosphonates.

Dr. Pankaj Choudhary, Orthopaedic Surgeon

More than 50% of the patients who visit my clinic in a day are prescribed NSAIDs. Among patients visiting the clinic per day, more than half of the patients suffer from comorbid conditions such as diabetes mellitus, hypertension, and cardiac disorders. Out of all the patients prescribed NSAIDs, <10% come back complaining about irritation in GI system, and among them, <50% of them report GI bleeding or serious injury to the GI system. Patients start complaining about GI side effects within a few days of initiating the NSAID treatment. The preferred treatment to tackle these side effects is the use of antacids, H2RAS, and proton-pump inhibitors (PPIs). PPIs help reduce the side effects by protecting the gut mucosa and inhibiting gastric acid for a longer period of time. Hence, starting PPI along with the NSAID provides beneficial effects. I am aware that a higher PPI dose can improve symptoms and reduce the occurrence of complications of peptic ulcer disease in high-risk patients. I am mindful of different PPIs, their metabolic pathways, and the ability of some PPIs to interfere with NSAIDs due to their mechanism of action. Out of all the PPIs, rabeprazole offers effective action against GI side effects as it is the only one to show mucus-protective action. Bisphosphonates is the other class of drugs observed in my orthopaedic practice that exhibit unfavourable effects on the GI system.

Dr. Jitendra Kumar Rout, MS Ortho

In my orthopedic practice, NSAIDs are prescribed to over 90% of patients every day. Amongst them, more than 10% come back with side effects associated with GI tract. Out of all the patients reporting GI-related side effects, <50% complain of bleeding in GI system or injury to GI. Symptoms start appearing in few months of initiating the NSAID treatment. Along with NSAIDs, bisphosphonates is another class of drugs that show unintended effects on the GI system. Thus, to manage these symptoms, antacids, H2RAs, or proton-pump inhibitors (PPIs) can be used. To gain more effective action, it is preferable to start PPI along with NSAIDs from day 1 of the therapy. PPIs provide both long-lasting inhibition of gastric acid and protection of gut mucosa. Some PPIs interfere how NSAIDs act. More than half of the patients visiting my OPD report the presence of comorbidities such as hypertension, diabetes, and cardiac disorders. Different PPIs have different metabolic pathways. Among all the PPIs, rabeprazole is the only one to offer mucus-protective action. Also, a higher dose of PPI can be helpful in improving symptoms and reducing the occurrence of complications of peptic ulcer disease in high-risk patients.

Dr. Deepak Chaudhary, MS Orthopaedic

More than 70% of the patients that come into my clinic each day are prescribed NSAIDs. Over half of the patients coming to me experience comorbid illnesses such as diabetes mellitus, hypertension, and heart problems. More than 10% of all patients who are prescribed NSAIDs return complaining of GI irritation; amongst them, >50% also experience GI bleeding or severe GI damage. Within a few days of starting NSAID therapy, patients begin to complain about GI side effects. The recommended course of treatment for these side effects is the use of PPIs, antacids, and H2RAs. PPIs lessen adverse effects by shielding the mucosa of the gut and preventing stomach acid production for an extended amount of time. NSAIDs are the only class of drugs that show adverse effects on the GI system. Therefore, beginning PPI in addition to NSAIDs has positive consequences. I am aware that in high-risk patients, increased PPI dosage helps alleviate symptoms and lessen the likelihood of complications from peptic ulcer disease. I am aware of the various PPIs, their metabolic pathways, and the potential for some PPIs to interfere with NSAIDs because of how they work. Since rabeprazole is the only PPI that exhibits mucus protective action, it provides effective protection against GI side effects among all other PPIs.

Dr. Nirmalya Deb, MCh Orth UK, MSc Orth UK, D Orth (Cal), MBBS (Cal)

More than 70% of patients are recommended NSAIDs each day. Less than 10% return with side effects related to the GI system and out of these patients, <50% report bleeding in GI system injuries and damage to GI system. A few days after starting NSAID therapy, symptoms begin to manifest. Thus, PPIs, antacids, or H2RAS can be used

to control symptoms. It is best to begin PPI and NSAID together from the very beginning of therapy to get more effective activity. PPIs protect the mucosa of the gut while also inhibiting stomach acid for an extended period of time. The way some PPIs work makes them incompatible with NSAIDs. Over 50% of patients who visited my clinic had comorbid conditions such as diabetes, hypertension, and heart problems. I am aware of the various PPIs and their metabolic pathways. I also know that because of the way some PPIs work, they may interact with NSAIDs. Rabeprazole is unique among PPIs in that it provides mucus-protective effects. In high-risk patients, a greater dose of PPI may also be beneficial in easing symptoms and lowering the likelihood of complications from peptic ulcer disease. In my orthopedic practice, I have noticed that, in addition to NSAIDs, bisphosphonates are another class of medication that exhibits adverse effects on the GI tract.

Dr. Vivek Potadar, MBBS, D. Ortho

In a single day, over 70% of the patients received NSAID prescription. Over 50% of the patients visiting the clinic present with comorbid conditions such as diabetes, heart problems, or hypertension. In my clinical profession, more than 10% of patients returned with symptoms of stomach side effects caused by NSAIDs, and out of them, 50% experience GI bleeding or damage. This is seen a few days post initiation of NSAID treatment. I address these symptoms with H2 antagonists, PPIs, and antacids. PPIs prevent the release of gastric acid for prolonged periods of time. With NSAID therapy, I give PPIs. To lessen peptic ulcer disease symptoms and the likelihood of complications, I provide greater doses of PPIs to patients who are at high risk. I am aware that various PPIs have various metabolic profiles. Some PPIs interfere with NSAIDs due to their mechanism of action. Since rabeprazole is the only PPI that provides mucus protection, I prefer to prescribe it. In addition to NSAIDs, bisphosphonates have also caused GI adverse effects.

Dr. Raj Kumar Aggarwal, DNB Ortho

In a day, I advise more than 70% of the patients to take NSAIDs for pain or inflammation. Many of them come back with the complaint of symptoms of GI adverse events. Less than 50% of the patients visiting the clinic also suffer from comorbidities such as cardiac disorder, hypertension, and diabetes mellitus. In my practice, I have observed these gastric side effects only with the NSAID class. Out of the patients reporting unfavorable GI effects, >10% show gastric adverse effects, and among them, <50% of come with serious GI side effects such as GI bleeding or injury. Patients report the adverse effects a few days after starting the NSAID treatment. My preferred treatment to manage these indications is antacid or H2RAS or PPIs. PPIs offer long-lasting inhibition against acid secretion and protect gut mucosa. Different PPIs are differently metabolized; however, some PPIs might interfere with NSAIDs due to their mechanism of action. Rabeprazole is the only PPI in the class that protects the gut mucosa. I recommend starting PPIs along with NSAIDs to avoid GI complications. A higher dose of PPI can be used in high-risk patients for the betterment of the symptoms and reduction of complications of peptic ulcer disease.

Dr. K. Gunneswara Sai, MS, DNB

More than half of the patients visiting my clinic are prescribed NSAIDs. Within a few days of the NSAID treatment, >10% of these patients come back and report GI system-related side effects, and out of the patients suffering from GI-related adverse effects, <50% report severe GI damage and bleeding. Less than 50% of patients visiting my OPD also report co-existing illnesses such as diabetes mellitus, hypertension, and cardiac disorders. My preferred pharmacotherapy to treat these unfavorable GI side effects includes the use of antacid or H2RAs or PPIs. PPIs offer the benefits of protection of gastric mucosa and prolonged inhibition of gastric acid secretion. I recommend starting PPIs along with NSAIDs to avoid GI complications. A higher dose of PPI can be used in high-risk patients for the betterment of the symptoms and reduction of complications of peptic ulcer disease. I am aware of different PPIs and their metabolic pathways, and some PPIs might interfere with NSAIDs due to their mechanism of action. Rabeprazole among the class is the only PPI to offer an added advantage of protection of gut mucosa. I recommend starting PPIs along with NSAIDs to avoid GI complications. A higher dose of PPI can be used in high-risk patients for betterment of the symptoms and reduction of complications of peptic ulcer disease. In my practice, I have observed that in addition to NSAIDs, bisphosphonates have also caused GI adverse effects.

Dr. Anil Nelvigi, MS Ortho

Over 90% of patients that I see in a day are advised to take NSAIDs for pain or inflammation. More than 10% return complaining of GI discomfort. Approximately more than 50% of the individuals who report adverse GI effects experience GI bleeding or severe GI damage. More than half of the patients visiting the OPD suffer from comorbidities such as diabetes mellitus, hypertension, and heart disorders. Bisphosphonates also cause these stomach adverse effects. A few months into their NSAID medication, patients start noticing the side effects. My first choice for managing these indications is to use proton-pump inhibitors (PPIs), antacids, or H2RAs. PPIs provide the gut mucosa with protection and long-lasting suppression of acid secretion. I am aware that different PPIs have distinct metabolic routes, and that because of how they work, some PPIs may interact negatively with

NSAIDs. The only PPI in the class that has the further benefit of protecting the gut mucosa is rabeprazole. To prevent GI issues, I advise starting PPIs in addition to NSAIDs. For high-risk patients, a greater dose of PPI may be administered to improve symptoms and lessen the severity of peptic ulcer disease consequences.

Dr. I.K. Wangnoo, MS Ortho, D. Ortho

Approximately, more than 50% of NSAID prescriptions are written during the day. More than 10% of them return complaining of GI side symptoms; and out of these, less than 50% develop significant GI bleeding or damage. Within a few days of starting NSAID therapy, these side effects begin to manifest. Less than 50% of the patients who visit OPD in a day, also have cooccurring conditions such as diabetes, hypertension, and heart disease. PPIs are helpful in treating GI side effects because they can prevent stomach acid output over an extended period of time and preserve the mucosa in the gut. To reduce the GI side effects, it is advised to give PPIs along with NSAIDs at the onset of treatment. A high dose of PPI relieves symptoms and reduces the occurrence of peptic ulcer complications in patients at increased risk. Some PPIs can interact with NSAIDs due to their mode of action; rabeprazole is the only one that restores gastric mucus. In addition to NSAIDs, bisphosphonates are the other class of drugs used in orthopedic practice that cause GI side effects.

Dr. Manimaran Jayaraman, DNB, D. Ortho

More than 50% of the patients visiting my clinic are prescribed with NSAIDs. More than 10% of these patients do come back with a complaint of GI-related side effects within a few days of initiation of NSAID treatment. However, among patients experiencing GI-related side effects, 50% of the patients report serious GI damage and bleeding. I prefer to treat these NSAID-induced GI side effects using antacids or H2 receptor antagonists or PPIs. PPIs offer long-lasting inhibition of acid secretion and protection of gut mucosa. Thus, it is better to start PPIs along with NSAIDs, starting from day one of the NSAID therapy. I am aware that high doses of PPI can improve symptoms and reduce the occurrence of complications of peptic ulcer disease in high-risk patients. Around 50% of the patients visiting my clinic also suffer from diabetes mellitus, hypertension, and cardiac disorders. I am also aware of different PPIs and their metabolic pathways and that some PPIs also interfere with NSAIDs due to their mechanism of action. Amongst these PPIs, rabeprazole is the only one to protect mucosal lining. Other drugs leading to GI-related side effects are bisphosphonates.

Dr. Asutosh Mohapatra, MBBS, MS Ortho

In a day, I prescribe NSAIDs to approximately 50% and more patients visiting my clinic. More than 10% of patients do come back with a complaint of GI-related side effects, usually, a few days after prescribing the NSAIDs. Among them, up to 50% experience GI bleeding and severe damage to the GI system. The preferable treatment to treat the symptoms of GI-related side effects is using antacid or H_2 antagonists or PPIs. PPIs are helpful in alleviating the side effects as they offer long-lasting inhibition of acid secretion and protection of gut mucosa. Thus, it is advisable to prescribe PPIs along with NSAIDs starting from day 1 of the therapy. Furthermore, I am aware that prescribing PPIs at a higher dose can improve symptoms and reduce occurrence of complications of peptic ulcer disease in high-risk patients. More than 50% of the patients visiting my clinic in a day also report pre-existing comorbid conditions such as diabetes mellitus, hypertension, and cardiac disorders. I know about various PPIs and their metabolic pathways and that some PPIs might interfere with NSAIDs due to their mechanism of action. Rabeprazole is the only PPI to provide gastroprotection. Apart from NSAIDs, bisphosphonates also show unfavorable GI side effects.

Dr. Kannan, D. Ortho, MS, DNB

More than half of the patients visiting my clinic in a day are prescribed with NSAIDs. More than 10% of these patients come back with a complaint of GI-related side effects within a few months of starting with the NSAID therapy. Whereas, up to 50% of the patients suffering from adverse gastric side effects, are suspected of GI bleeding or severe damage to the GI system. I prefer to treat these NSAID-induced GI side effects with the help of antacid or H2 antagonists or PPIs. PPIs offer the dual benefits of long-lasting inhibition of acid secretion and protection of gut mucosa. I advise starting PPIs along with NSAIDs, right from the beginning of NSAID therapy. However, I am aware that a higher dose of PPIs can be advised as it helps in the improvement of symptoms and reducing the risk of complications of peptic ulcer disease in high-risk patients. More than 50% of the patients visiting my clinic report comorbid diseases such as hypertension, cardiac disorders, and diabetes mellitus. I know that some PPIs interfere with NSAIDs due to their mechanism of action and different pathways of different PPIs. I am aware that among all these PPIs, rabeprazole is the only PPI to prevent mucosal damage. Apart from NSAIDs, bisphosphonates also exert unintended adverse effects on the GI system.

CONCLUSION

NSAIDs that are used to treat pain and inflammation, are linked to unintended and severe adverse effects on GI system. This issue is addressed by prescribing PPIs

in combination with NSAIDs. PPIs inhibit gastric acid secretion and protect gastric mucosa from any injury. Rabeprazole amongst all the PPIs proves to be a more beneficial choice to manage symptoms of NSAID-induced GI damage. Further, a higher dose of rabeprazole up to 40 mg can further help in better control of gastric acid level secretion and thus, helps in protection of the gut.

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