

# New Zealand Datasheet

## 1 PRODUCT NAME

DICLOFENAC 25 Tablets

## 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Diclofenac potassium tablets 25 mg

## 3 PHARMACEUTICAL FORM

Each Diclofenac 25 tablet contains 25 mg of diclofenac potassium. The tablets are white to off-white, round, biconvex film-coated. The diameter is about 6.15 mm with a thickness of about 3.2 mm.

## 4 CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Diclofenac 25 tablets are indicated for the short-term treatment of the following acute conditions:

- post-traumatic pain, inflammation and swelling, e.g. due to sprains;
- post-operative pain, inflammation and swelling, e.g. following dental or orthopaedic surgery;
- painful and/or inflammatory conditions in gynaecology, e.g. primary dysmenorrhoea or adnexitis;
- migraine attacks;
- painful syndromes of the vertebral column;
- non-articular rheumatism;
- as an adjuvant in severe painful inflammatory infections of the ear, nose, or throat, e.g. pharyngotonsillitis, otitis. In keeping with general therapeutic principles, the underlying disease should be treated with basic therapy, as appropriate. Fever alone is not an indication.

Diclofenac should only be prescribed when the benefits are considered to outweigh the potential risks (see section 4.4).

### 4.2 Dose and method of administration

After assessing the risk/benefit ratio in each individual patient, the lowest effective dose for the shortest possible duration should be used.

#### Adults

Following an initial loading dose of 50mg, 25-50mg is to be taken every eight hours if necessary. The maximum daily dose is 150mg.

#### MIGRAINE

An initial loading dose of 50mg, then if necessary a further 25-50mg after 2 hours. The maximum daily dose is 150mg.

The tablets should be swallowed whole with liquid, preferably before meals.

#### Children

Children over 14 years of age: up to 75mg daily in divided doses.

The dosage strength is such that Diclofenac 25 tablets are not recommended for use in children 14 years of age or below.

### 4.3 Contraindications

- Gastric or intestinal ulcer.
- Known hypersensitivity to diclofenac or any of the excipients.
- Like other non-steroidal anti-inflammatory drugs (NSAIDs), Diclofenac 25 is also contraindicated in patients in whom attacks of asthma, urticaria, or acute rhinitis are precipitated by acetylsalicylic acid or other NSAIDs.
- Patients with previous myocardial infarction, within the last 6 to 12 months (see section 4.4 – Cardiovascular events).
- Cardiac failure (see 'Warnings and Precautions – Use in cardiac failure).
- Severe hepatic impairment (see section 4.4 – Hepatobiliary effects).
- Renal impairment (see section 4.4 – Renal effects).
- Active gastric or intestinal ulcer, bleeding or perforation (see section 4.4 – Gastrointestinal effects).
- Last trimester of pregnancy (see section 4.6).
- Treatment of perioperative pain in setting of coronary artery bypass surgery (CABG).

### 4.4 Special warnings and precautions for use

As with other NSAIDs, allergic reactions, including anaphylactic/anaphylactoid reactions, can also occur in rare cases without earlier exposure to the drug.

Like other NSAIDs, Diclofenac 25 may mask the signs and symptoms of infection due to its pharmacodynamic properties.

Diclofenac 25 is recommended for short-term treatment. However, patients receiving long-term diclofenac treatment should be advised of the need to be regularly reviewed with regards to efficacy, adverse effects, the development of risk factors and the ongoing need for therapy. Consideration should be given to monitoring blood pressure, haemoglobin levels and renal function in long term use.

#### **Cardiovascular Thrombotic Events**

Treatment with NSAIDs, including diclofenac, particularly at high dose and in long-term use, may be associated with an increased risk of serious cardiovascular thrombotic events (including myocardial infarction and stroke). Adverse cardiovascular events can occur with both short term and long term use.

Patients with previous myocardial infarction (within the last 6 to 12 months) should not use diclofenac.

Patients with established cardiovascular disease, or significant risk factors for cardiovascular disease (e.g. hypertension, hyperlipidaemia, diabetes mellitus or smoking) should be treated with diclofenac tablets/liquid capsules only after careful consideration.

As the cardiovascular risks of diclofenac may increase with dose and duration of exposure, the lowest effective daily dose should be used for the shortest duration possible. Patients should be advised to seek further medical advice if symptoms persist or do not improve within the recommended duration of treatment.

Healthcare professionals should inform patients with risk factors for cardiovascular disease of the possible increased risk of cardiovascular events when recommending diclofenac tablets, particularly if diclofenac is used at high doses and for long periods of time.

Patients should remain alert for the signs and symptoms of cardiovascular events (e.g. chest pain, shortness of breath, weakness, slurring of speech), which can occur without warning. Patients should be informed about signs and/or symptoms of serious cardiovascular toxicity and should be instructed to seek medical attention immediately if any of these symptoms occur.

There is no consistent evidence that the concurrent use of aspirin mitigates the possible increased risk of serious cardiovascular thrombotic events associated with NSAID use.

### **Hypertension**

Treatment is generally not recommended in patients with uncontrolled hypertension. NSAIDs may lead to the onset of new hypertension or worsening of pre-existing hypertension and patients taking anti-hypertensives with NSAIDs may have an impaired anti-hypertensive response. Caution is advised when prescribing NSAIDs to patients with hypertension. Blood pressure should be monitored closely during initiation of NSAID treatment and at regular intervals thereafter.

### **Heart failure**

Diclofenac 25 is contraindicated in patients with severe cardiac failure (see section 4.3). Fluid retention and oedema have been observed in some patients taking NSAIDs, therefore caution is advised in patients with fluid retention or heart failure.

### **Gastrointestinal Events**

Close medical surveillance is imperative and particular caution should be exercised when NSAIDs, including diclofenac, are used by patients with symptoms indicative of gastrointestinal (GI) disorders or with a history suggestive of GI ulceration, bleeding or perforation (see 'Adverse effects'). The risk of GI bleeding is higher with increasing NSAID doses. Caution is advised in patients with risk factors for gastrointestinal events who may be at greater risk of developing serious gastrointestinal events, e.g. the elderly, those with a history of serious gastrointestinal events or ulcer, particularly if complicated by haemorrhage or perforation, or a history of smoking and alcoholism.

Close medical surveillance should also be exercised in patients with ulcerative colitis, Crohn's disease, pre-existing dyshaemopoiesis or disorders of blood coagulation, as their condition may be exacerbated (see section 4.8).

Gastric or duodenal ulceration, GI bleeding or perforation, which can be fatal, has been reported in patients receiving NSAIDs, including diclofenac. Studies to date have not identified any subset of patients who are not at risk of developing these problems.

When gastrointestinal bleeding or ulcerations occur in patients receiving NSAIDs, the drug should be withdrawn immediately. Doctors should warn patients about the signs and symptoms of serious gastrointestinal toxicity and what steps to take if they occur.

To reduce the risk of GI toxicity in patients with a history of ulcer, particularly if complicated with haemorrhage or perforation, or in the elderly, treatment should be initiated and maintained at the lowest effective dose. GI bleeding, ulceration and perforation in general have more serious consequences in the elderly. These events can occur at any time during treatment with or without warning symptoms or a previous history. Patients with a history of GI toxicity, particularly the elderly, should report any unusual abdominal symptoms, especially GI bleeding. Caution is recommended in patients receiving concomitant medications which could increase the risk of ulceration or bleeding, such as systemic corticosteroids, anticoagulants, anti-platelet agents or selective serotonin reuptake inhibitors. The concurrent use of aspirin and NSAIDs also increases the risk of serious gastrointestinal events (see section 4.5).

Combination therapy with protective agents (e.g. proton pump inhibitors or misoprostol) should be considered for at risk patients, and also for patients requiring concomitant use of low-dose aspirin or other medicines likely to increase gastrointestinal risk.

### **Severe Skin Reactions**

Serious skin reactions, some of them fatal, including exfoliative dermatitis, Stevens-Johnson syndrome and toxic epidermal necrolysis, have been reported very rarely in association with the use of NSAIDs, including Diclofenac 25 (see section 4.8). These serious adverse events are idiosyncratic and are independent of dose or duration of use. Patients appear to be at highest risk

of these reactions early in the course of therapy, the onset of the reaction occurring in the majority of cases within the first month of treatment. Patients should be advised of the signs and symptoms of serious skin reactions and to consult their doctor at the first appearance of skin rash, mucosal lesion or any other sign of hypersensitivity, and Diclofenac 25 should be discontinued.

### **Respiratory effects (pre-existing asthma)**

Reactions to NSAIDs such as asthma exacerbations (also called analgesic intolerance or aspirin-induced asthma), Quincke's oedema (angioedema) or urticaria are more frequent in patients with asthma, seasonal allergic rhinitis, swelling of the nasal mucosa (i.e. nasal polyps), chronic obstructive pulmonary disease or chronic infections of the respiratory tract (especially if linked to allergic rhinitis-like symptoms) than in other patients. Therefore, special caution is recommended in such patients (readiness for emergency). This is also applicable to patients who are allergic to other substances, e.g. with skin reactions, pruritus or urticaria.

### **Hepatobiliary effects**

Diclofenac 25 is contraindicated in patients with hepatic failure (see section 4.3). Close medical surveillance is required in patients with impaired hepatic function when using Diclofenac 25, as the condition may be exacerbated.

As with other NSAIDs, including diclofenac, elevations of one or more liver enzymes may occur during Diclofenac 25 therapy. These laboratory abnormalities may progress, remain unchanged, or revert to normal despite continued therapy. Borderline elevations (i.e. 1.2 to 3 times the upper limit of normal (ULN), or greater elevations of transaminases occurred in about 15% of diclofenac treated patients. In clinical trials, meaningful elevations (i.e. more than 3 times the ULN) of AST and/or ALT occurred in about 4% of patients treated for several months, including marked elevations (i.e. more than 8 times the ULN) in about 1% of patients. Transaminase elevations were reversible on cessation of therapy, and even among patients with marked elevations, signs and symptoms of liver disease occurred only in isolated cases. Most patients with borderline elevations did not have therapy interrupted, and transaminase elevations in most of these cases disappeared or did not progress. There were no identifying features to distinguish those patients who developed marked elevations from those who did not. Severe hepatotoxicity may develop without prodromal symptoms.

If, contrary to its recommended use for short term treatment, Diclofenac 25 is administered for a more prolonged period, monitoring of hepatic function is indicated as a precautionary measure. If abnormal liver tests persist or worsen, if clinical signs and/or symptoms consistent with liver disease develop, or if other manifestations occur (eosinophilia, rash), Diclofenac 25 should be discontinued.

Healthcare professionals should inform patients of the warning signs and symptoms of hepatotoxicity (nausea, fatigue, lethargy, pruritus, jaundice, abdominal tenderness in the right upper quadrant and 'flu-like' symptoms) and the appropriate action to take should these signs or symptoms appear.

Caution should be exercised when using Diclofenac 25 in patients with hepatic porphyria, since it may trigger an attack.

### **Renal effects**

As a class, NSAIDs have been associated with renal papillary necrosis and other renal pathology during long-term administration in animals.

Fluid retention and oedema have been reported in association with NSAID therapy, including diclofenac. Diclofenac 25 is contraindicated in patients with renal failure (see section 4.3). Due to the importance of prostaglandins in maintenance of renal blood flow, particular caution should be taken in the elderly, or in patients: with impaired cardiac function, with a history of hypertension, using diuretics or other medications that can significantly affect renal function, with extracellular

volume depletion from any cause, or in the peri- or post-operative phase of major surgical operations (see section 4.3).

Monitoring of renal function as a precautionary measure is therefore recommended when using Diclofenac 25 in such cases. Discontinuation of therapy typically results in a return to the pre-treatment state. Use of Diclofenac 25 in patients with kidney impairment or heart failure is not recommended (see section 4.3).

### **Combination use of ACE inhibitors or angiotensin receptor antagonists, anti-inflammatory drugs and thiazide diuretics**

The concurrent use of an angiotensin-converting enzyme (ACE)-inhibitor or angiotensin II receptor antagonist, with an anti-inflammatory drug (NSAID or COX-2 selective inhibitor) and a thiazide diuretic increases the risk of renal impairment. This includes use in fixed-combination products containing more than one class of drug. Combined use of these medications should be accompanied by monitoring of serum creatinine, particularly frequently at the institution of the combination. The combination of drugs from these three classes should be used with caution, particularly in elderly patients or those with pre-existing renal impairment.

### **Use in infection**

Like other NSAIDs, Diclofenac 25 may mask the usual signs and symptoms of infection.

### **Haematological effects**

Use of Diclofenac 25 is recommended only for a few days. If, however, Diclofenac 25 is used for a prolonged period, monitoring of the blood count is recommended.

Like other NSAIDs, Diclofenac 25 may temporarily inhibit platelet aggregation. Patients with haemostatic disorders should be carefully monitored.

### **Hypersensitivity**

As with other NSAIDs, allergic reactions, including anaphylactic/anaphylactoid reactions, have been reported with diclofenac. These reactions can occur without earlier exposure to the drug.

### **Paediatric use**

Diclofenac 25 is not recommended for use in children under 14 years of age, as safety and efficacy in this age group have not been established.

### **Use in the elderly**

In patients of advanced age, caution is indicated on basic medical grounds. In particular, it is recommended that the lowest effective dosage be used in frail elderly patients or those with low body weight.

Treatment with Diclofenac 25 in the elderly usually proves necessary for only a few days.

### **Genotoxicity and carcinogenicity**

Diclofenac showed no mutagenic or carcinogenic, or teratogenic effects in the studies conducted, despite the induction of maternal and foetal toxicity.

## **4.5 Interaction with other medicines and other forms of interaction**

### **Pharmacokinetic interactions**

The following interactions include those observed with other pharmaceutical forms of diclofenac at high doses.

Lithium: when used concomitantly Diclofenac may raise plasma concentrations of lithium. Plasma concentrations of lithium should be monitored during treatment with diclofenac.

Digoxin: when used concomitantly Diclofenac may raise plasma concentrations of digoxin. Plasma concentrations of digoxin should be monitored during treatment with diclofenac

Drugs known to cause hyperkalaemia: Concomitant treatment with potassium-sparing diuretics, cyclosporin/ciclosporin, tacrolimus or trimethoprim may be associated with increased serum potassium levels, which should therefore be monitored frequently.

Other NSAIDs and corticosteroids: The concomitant use of Diclofenac 25 with other systemic NSAIDs, including COX-2 selective inhibitors, should be avoided due to the absence of any evidence demonstrating synergistic benefits and the potential for additive undesirable effects. Concomitant administration of Diclofenac 25 and other systemic NSAIDs or corticosteroids may increase the incidence of undesirable gastrointestinal effects. Concurrent treatment with aspirin lowers the plasma concentration, peak plasma levels and AUC values of diclofenac. The use of both drugs concurrently is not recommended.

Anticoagulants and antiplatelet agents: Caution is recommended since concomitant administration could increase the risk of bleeding (see section 4.3 – Gastrointestinal effects). The concurrent use of NSAIDs and warfarin has been associated with severe, sometimes fatal, haemorrhage. The exact mechanism of the interaction between NSAIDs and warfarin is unknown, but may involve enhanced bleeding from NSAID-induced gastrointestinal ulceration or an additive effect of anticoagulation by warfarin and inhibition of platelet function by NSAIDs. Diclofenac 25 should be used with caution in combination with warfarin and such patients should be closely monitored.

Selective serotonin reuptake inhibitors (SSRIs): Concomitant administration of systemic NSAIDs, including diclofenac, and SSRIs may increase the risk of gastrointestinal bleeding (see section 4.3 – Gastrointestinal effects).

Antidiabetics: Diclofenac can be given together with oral antidiabetic agents without influencing their clinical effect. However, isolated cases have been reported of both hypoglycaemic and hyperglycaemic effects necessitating changes in the dosage of hypoglycaemic agents. For this reason, monitoring of the blood glucose level is recommended as a precautionary measure during concomitant therapy.

Methotrexate: Caution should be exercised when NSAIDs are administered less than 24 hours before or after treatment with methotrexate, since blood concentrations of methotrexate may rise and increase its toxicity.

Cyclosporin: The effects of NSAIDs on renal prostaglandins may increase the nephrotoxicity of cyclosporin. In patients taking cyclosporin, dose reduction of Diclofenac 25 is required.

Glucocorticoids: The addition of glucocorticoids to NSAIDs, though sometimes necessary for therapeutic reasons, may aggravate gastrointestinal side effects.

Potent CYP2C9 inhibitors: Caution is recommended when Diclofenac 25 is concomitantly used with potent CYP2C9 inhibitors (voriconazole), which could result in a significant increase in peak plasma concentrations and exposure to diclofenac due to inhibition of diclofenac metabolism.

Phenytoin: When using phenytoin concomitantly with Diclofenac 25, monitoring of phenytoin plasma concentrations is recommended due to an expected increase in exposure to phenytoin.

Diuretics and antihypertensive agents: Like other NSAIDs, concomitant use of diclofenac with diuretics or antihypertensive agents, e.g. beta-blockers or ACE-inhibitors, may cause a decrease in their antihypertensive effect. Therefore, the combination should be administered with caution and patients, especially the elderly, should have their blood pressure periodically monitored. When NSAIDs, including diclofenac, are combined with diuretics, ACE-inhibitors or angiotensin II receptor antagonists, the risk of worsening renal function may be increased in some patients, especially when renal function is compromised, eg. dehydrated or elderly patients. This includes possible

acute renal failure, which is usually reversible. Patients should be adequately hydrated and consideration should be given to monitoring of renal function after initiation of concomitant therapy and periodically thereafter (see section 4.3 – Renal effects’).

Quinolone antibacterials: There have been isolated reports of convulsions which may have been due to concomitant use of quinolones and NSAIDs.

### **Pharmacodynamic interactions**

When taken with food, the rate of absorption of diclofenac was reduced (lower  $C_{max}$  and longer  $t_{max}$ ).

## **4.6 Fertility, pregnancy and lactation**

### **Effects on fertility**

As with other NSAIDs, the use of diclofenac may impair female fertility and is not recommended in women attempting to conceive. In women who have difficulties conceiving or who are undergoing investigation of infertility, withdrawal of diclofenac should be considered.

### **Use in Pregnancy**

The use of diclofenac in pregnant women has not been studied and safety in pregnancy has not been established. Therefore, Diclofenac 25 should not be used in pregnant women during the first two trimesters or in women who are likely to become pregnant unless the potential benefit to the mother outweighs the risk to the foetus.

Use of Diclofenac 25 during the third trimester of pregnancy is contraindicated due to the possibility of uterine inertia and/or premature closure of the ductus arteriosus (see section 4.3). NSAIDs inhibit prostaglandin synthesis and, when given during the latter part of pregnancy, may cause premature closure of the foetal ductus arteriosus, foetal renal impairment, inhibition of platelet aggregation, and delay labour and birth.

Inhibition of prostaglandin synthesis may adversely affect pregnancy and/or embryo/fetal development. Some data from epidemiological studies suggest an increased risk of miscarriage after use of a prostaglandin synthesis inhibitor (such as NSAIDs) in early pregnancy. In animals, administration of prostaglandin synthesis inhibitors has been shown to result in increased pre- and post-implantation loss. During the first and second trimester of pregnancy, Diclofenac 25 should not be given unless clearly necessary. If Diclofenac 25 is used by a woman attempting to conceive, or during the first and second trimester of pregnancy, the dose should be kept as low as possible and the duration of treatment as short as possible.

Dysmorphogenic effects (rib defects in one rat foetus at 4 mg/kg and in one mouse foetus at 1 and 4 mg/kg doses) were observed at one of three laboratories in which embryogenesis studies were conducted.

### **Use in Lactation**

Following oral doses of 50 mg administered every 8 hours, the active substance passes into the breast milk. As with other drugs that are excreted in milk, Diclofenac 25 is not recommended for use in breastfeeding women.

## **4.7 Effects on ability to drive and use machines**

Diclofenac 25 is unlikely to produce an effect on ability to drive or operate machinery at the recommended dose and duration of treatment. Patients experiencing dizziness, vertigo, somnolence or other central nervous disturbances, including visual disturbances, should not drive or operate machinery.

## 4.8 Undesirable effects

While not all the reactions listed have been specifically reported with Diclofenac 25, similarities between the NSAIDs as a group require them to be considered as a possibility.

Adverse reactions are listed below by system organ class and frequency. Frequencies are defined as: common ( $\geq 1\%$ ); uncommon ( $< 1\%$  but  $\geq 0.1\%$ ); rare ( $< 0.01\%$  but  $\geq 0.01\%$ ); and very rare ( $< 0.001\%$ , including isolated reports). Within each frequency, adverse effects are presented in order of decreasing seriousness.

The following adverse effects include those reported with long-term use of higher doses of diclofenac.

### **Gastrointestinal tract**

Common: nausea, vomiting, diarrhoea, abdominal pain, dyspepsia, flatulence, decreased appetite.

Rare: gastritis, gastrointestinal haemorrhage, haematemesis, diarrhoea haemorrhagic, melena, gastrointestinal ulcer (with or without bleeding or perforation).

Very rare: stomatitis, glossitis, oesophageal disorder, intestinal diaphragm disease, colitis (including haemorrhagic colitis and exacerbation of ulcerative colitis or Crohn's disease), constipation, pancreatitis.

### **Nervous system disorders**

Common: headache, dizziness.

Rare: somnolence

Very rare: paraesthesia, memory impairment, convulsion, anxiety, tremor, meningitis aseptic, dysgeusia, cerebrovascular accident.

### **Psychiatric disorders**

Very rare: disorientation, insomnia, irritability, depression, nightmare, psychotic disorder.

### **Eye disorders**

Very rare: visual impairment, blurred vision, diplopia

### **Ear and labyrinth disorders**

Common: vertigo.

Very rare: impaired hearing, tinnitus.

### **Skin and subcutaneous tissue disorders**

Common: rash.

Rare: urticaria.

Very rare: dermatitis bullous, eczema, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic epidermal necrolysis), exfoliative dermatitis, alopecia, photosensitivity reactions; purpura, Henoch-Schönlein purpura, pruritis.

### **Renal and urinary disorders**

Very rare: acute renal failure, haematuria, proteinuria, tubulointerstitial nephritis, nephrotic syndrome, renal papillary necrosis.

### **Hepatobiliary disorders**

Common: transaminases increased.

Rare: hepatitis, jaundice, liver disorder.

Very rare: hepatitis fulminant, hepatic necrosis, hepatic failure.

### **Blood and lymphatic system disorders**

Very rare: thrombocytopenia, leucopenia, anaemia (including haemolytic anaemia, aplastic anaemia), agranulocytosis.



### **Immune system disorders**

Rare: hypersensitivity, anaphylactic and anaphylactoid reactions (including hypotension and shock).

Very rare: angioedema (including face oedema).

### **Cardiac disorders**

Uncommon:\* myocardial infarction, cardiac failure, palpitations, chest pain.

\* The frequency reflects data from long-term treatment with a high dose (150 mg daily). The frequency is expected to be lower for short-term treatment with lower dose.

### **Vascular disorders**

Very rare: hypertension, vasculitis.

### **Respiratory, thoracic and mediastinal disorders**

Rare: asthma (including dyspnoea).

Very rare: pneumonitis.

### **General disorders and administration site conditions**

Rare: oedema.

### **Description of selected adverse drug reactions Arteriothrombotic events**

Meta-analysis and pharmacoepidemiological data point towards a small increased risk of arterial thrombotic events (for example myocardial infarction) associated with the use of diclofenac, particularly at high dose (150 mg daily) and during long-term treatment (see section 4.4).

#### Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare professionals are asked to report any suspected adverse reactions <https://nzphvc.otago.ac.nz/reporting/>.

## **4.9 Overdose**

### **Symptoms and signs**

There is no typical clinical picture associated with overdosage of diclofenac.

Overdose can cause symptoms such as vomiting, gastrointestinal haemorrhage, diarrhoea, dizziness, tinnitus or convulsions. In the event of significant poisoning, acute renal failure and liver damage are possible.

### **Treatment**

For information on the management of overdose, contact the National Poisons Centre on 0800 POISON (0800 764 766).

Management of acute poisoning with NSAIDs, including diclofenac, consists essentially of supportive and symptomatic measures.

The therapeutic measures to be taken in cases of overdose are as follows:

Activated charcoal may reduce absorption of the medicine if given within 1 or 2 hours after ingestion. In patients who are not fully conscious or who have impaired gag reflex, consideration should be given to administering activated charcoal via a nasogastric tube, once the airway is protected.

Supportive and symptomatic treatment should be given for complications such as hypotension, renal failure, convulsions, GI disorder and respiratory depression. Haematological and biochemical parameters, and the presence or absence of blood in the stools should be monitored.

Specific therapies such as forced diuresis, dialysis or haemoperfusion are unlikely to be helpful in eliminating NSAIDs, including diclofenac, due to high protein binding and extensive metabolism.

## 5 PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Anti-inflammatory and anti-rheumatic products, non-steroids, acetic acid derivatives and related substances (ATC code M01AB05).

Diclofenac 25 is a non-steroidal anti-inflammatory drug (NSAID) and contains the potassium salt of diclofenac, a non-steroidal compound with pronounced analgesic, anti-inflammatory, and antipyretic properties.

As with other NSAIDs, inhibition of prostaglandin biosynthesis, which has been demonstrated in experiments, is considered to be fundamental to the mechanism of action. Prostaglandins play a major role in causing inflammation, pain, and fever.

Diclofenac has been found to exert a pronounced analgesic effect in moderate and severe pain. In the presence of inflammation, e.g. due to trauma or following surgical interventions, it rapidly relieves both spontaneous pain and pain on movement and diminishes inflammatory swelling and wound oedema. Clinical studies have also revealed that in primary dysmenorrhoea the active substance is capable of relieving the pain and reducing the extent of bleeding. In migraine attacks Diclofenac has been shown to be effective in relieving the headache and in improving the accompanying symptoms nausea and vomiting.

Diclofenac 25 has a rapid onset of action which makes it particularly suitable for the treatment of acute painful and inflammatory conditions. Diclofenac 25 has been shown to have an onset of pain relief from 15 minutes and a duration of up to 8 hours.

Low concentrations of diclofenac inhibit the aggregation of platelets induced in vitro by collagen and by adenosine diphosphate.

### 5.2 Pharmacokinetic properties

#### Absorption

Diclofenac is rapidly and completely absorbed. When taken with food, the rate of absorption of diclofenac was reduced (lower  $C_{max}$  and longer  $t_{max}$ ). On this basis, for maximum efficacy, Diclofenac 25 should not be taken directly with, or immediately after, meals.

Following ingestion in the fasted state of one diclofenac 25 mg tablet, a mean peak plasma concentration of 1.8  $\mu\text{mol/L}$  is reached after 35 minutes.

The extent of absorption is in linear proportion to the size of the dose.

Since about half of diclofenac is metabolized during its first passage through the liver ("first pass" effect), the area under the concentration curve (AUC) is about half as large following oral administration as it is following a parenteral dose of equal size.

Pharmacokinetic behaviour does not change after repeated administration. No accumulation occurs provided the recommended dosage intervals are observed.

#### Distribution

Diclofenac is highly bound to serum proteins (99.7%), mainly to albumin (99.4%). The apparent volume of distribution is calculated as 0.12-0.17 L/kg.

Diclofenac enters the synovial fluid, where maximum concentrations are measured 2 to 4 hours after peak plasma levels have been reached. The apparent half-life for elimination from the synovial fluid is 3 to 6 hours. Two hours after reaching peak plasma levels, the concentration of diclofenac is higher in the synovial fluid than in the plasma, and remains higher for up to 12 hours.

## Metabolism

The biotransformation of diclofenac takes place partly by glucuronidation of the intact molecule, but mainly by single and multiple hydroxylation and methoxylation, resulting in several phenolic metabolites, most of which are converted to glucuronide conjugates. Two of these phenolic metabolites are biologically active, but to a much lesser extent than diclofenac.

## Elimination

The total systemic clearance of diclofenac from plasma is  $263 \pm 56$  ml/min (mean value  $\pm$  SD). The terminal half-life in plasma is 1 to 2 hours. Four of the metabolites, including the two active ones, also have short plasma half-lives of 1 to 3 hours. A fifth metabolite, 3'-hydroxy-4'-methoxy-diclofenac, has a much longer plasma half-life. However, this metabolite is virtually inactive.

About 60% of the administered dose is excreted in the urine as the glucuronide conjugate of the intact molecule and as metabolites, most of which are also converted to glucuronide conjugates. Less than 1% is excreted as unchanged substance. The remainder of the dose is eliminated as metabolites via bile in the faeces.

## Special populations

**Paediatric patients:** There are no data concerning any pharmacokinetic parameters related to the use of diclofenac in children under 14 years of age.

**Elderly patients:** No relevant age-dependent differences in the drug's absorption, metabolism, or excretion have been observed.

**Patients with renal impairment:** No accumulation of the unchanged active substance can be inferred from the single-dose kinetics when applying the usual dosage schedule. At a creatinine clearance of  $< 10$  mL/min, the calculated steady-state plasma concentration of metabolites are about 4 times higher than in patients with normal renal function. However, the metabolites are ultimately cleared through the bile.

**Patients with hepatic impairment:** In patients with chronic hepatitis or non-decompensated cirrhosis, the kinetics and metabolism of diclofenac are the same as in patients without liver disease.

## 5.3 Preclinical safety data

Diclofenac did not influence fertility of the parent animals (rats) nor the pre-, peri-, and postnatal development of the offspring. No teratogenic effects were detected in mice, rats and rabbits. No mutagenic effects could be demonstrated in various *in vitro* and *in vivo* experiments, and no carcinogenic potential was detected in long-term studies in rats and mice.

## 6 PHARMACEUTICAL PARTICULARS

### 6.1 List of excipients

Core: Potassium hydrogen carbonate, Mannitol, Sodium lauryl sulphate, Macrogol 6000, Magnesium stearate.

Coat: Hypromellose, Macrogol 400

### 6.2 Incompatibilities

Not applicable

### 6.3 Shelf life

Shelf life is 36 months (3 years) from manufacture.

### 6.4 Special precautions for storage

Store below 30°C and protect from moisture.

## 6.5 Nature and contents of container

Blister packs of 30 tablets.

## 6.6 Special precautions for disposal

No special precautions required.

## **7 MEDICINE SCHEDULE**

Pharmacist Only Medicine

## **8 SPONSOR**

Dr Reddy's New Zealand Limited

82 Totara Crescent

Lower Hutt 5011

WELLINGTON

Tel: 0800 362 733

## **9 DATE OF FIRST APPROVAL**

13 December July 2001

## **10 DATE OF REVISION OF THE TEXT**

17 May 2019

## **SUMMARY TABLE OF CHANGES**

<b>Section changed</b>	<b>Summary of new information</b>
4.4	Addition of "Adverse cardiovascular events can occur with both short term and long term use."