

SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Attia 200 mg Modified-Release Capsules, Hard

Dipyridamole Dr. Reddy's 200 mg Modified-Release Capsules, Hard

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each modified-release capsule contains dipyridamole 200 mg.

Excipient(s) with known effect:

The capsules also contain ponceau 4R (E124).

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Modified-release capsule, hard.

Yellow to orange coloured pellets filled in size "0xel" hard capsules with opaque dark red cap and opaque dark orange body, imprinted 'DPM' on cap and '200' on body with white ink.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

- Secondary prevention of ischaemic stroke and transient ischaemic attacks either alone or in conjunction with aspirin.
- An adjunct to oral anti-coagulation for prophylaxis of thromboembolism associated with prosthetic heart valves.

4.2 Posology and method of administration

For oral administration

Adults, including the elderly

The recommended dose is one capsule twice daily, usually one in the morning and one in the evening preferably with meals.

The capsules should be swallowed whole without chewing.

Children

Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules is not recommended for children.

Alcohol

Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules should not be taken at the same time as an alcoholic beverage (see section 4.5).

4.3 Contraindications

Hypersensitivity to any component of the product

4.4 Special warnings and precautions for use

Among other properties, dipyridamole acts as a potent vasodilator. It should therefore be used with caution in patients with severe coronary artery disease including unstable angina and/or recent myocardial infarction, left ventricular outflow obstruction or haemodynamic instability (e.g. decompensated heart failure).

Patients being treated with regular oral doses of Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules should not receive additional intravenous dipyridamole. Clinical experience suggests that patients being treated with oral dipyridamole who also require pharmacological stress testing with intravenous dipyridamole, should discontinue drugs containing oral dipyridamole for twenty-four hours prior to stress testing.

In patients with myasthenia gravis readjustment of therapy may be necessary after changes in dipyridamole dosage (See Interactions).

Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules should be used with caution in patients with coagulation disorders.

A small number of cases have been reported in which unconjugated dipyridamole was shown to be incorporated into gallstones to a variable extent (upto 70% by dry weight of stone). These patients were all elderly, had evidence of ascending cholangitis and had been treated with oral dipyridamole for a number of years. There is no evidence that dipyridamole was the initiating factor in causing gallstones to form in these patients. It is possible that bacterial deglucuronidation of conjugated dipyridamole in the bile may be the mechanism responsible for the presence of dipyridamole in gallstones.

Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules capsules contain ponceau 4R (E124), a colouring agent, which may cause allergic reactions.

4.5 Interaction with other medicinal products and other forms of interaction

Dipyridamole increases the plasma levels and cardiovascular effects of adenosine. Adjustment of adenosine dosage should therefore be considered if use with dipyridamole is unavoidable.

There is evidence that the effects of acetylsalicylic acid and dipyridamole on platelet behaviour are additive.

When dipyridamole is used in combination with any substance impacting coagulation such as anticoagulants and antiplatelets, the safety profile for these medications must be observed. Addition of dipyridamole to acetylsalicylic acid does not increase the incidence of bleeding events. When dipyridamole was administered concomitantly with warfarin, bleeding was no greater in frequency or severity than that observed when warfarin was administered alone.

Dipyridamole may increase the hypotensive effect of blood pressure lowering drugs and may counteract the anticholinesterase effect of cholinesterase inhibitors thereby potentially aggravating myasthenia gravis.

Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules should not be taken at the same time as alcohol, as alcohol may increase the rate of release of dipyridamole from the modified-release preparation.

4.6 Fertility, pregnancy and lactation

Pregnancy

There is inadequate evidence of safety in human pregnancy, but dipyridamole has been used for many years without apparent ill-consequence. Animal studies have shown no hazard. Nevertheless, medicines should not be used in pregnancy, especially the first trimester unless the expected benefit is thought to outweigh the possible risk to the foetus (see section 5.3).

Breast-feeding

Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules should only be used during lactation if considered essential by the physician.

Fertility

No studies on the effect on human fertility have been conducted with dipyridamole. Non-clinical studies with dipyridamole did not indicate direct or indirect harmful effects with respect to fertility (see section 5.3).

4.7 Effects on ability to drive and use machines

No studies on the effects on the ability to drive and use machines have been performed.

However, patients should be advised that they may experience undesirable effects such as dizziness during treatment with Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules. If patients experience dizziness they should avoid potentially hazardous tasks such as driving or operating machinery.

4.8 Undesirable effects

Adverse reactions at therapeutic doses are usually mild and transient. As a result of its vasodilating properties, Attia/Dipyridamole Dr. Reddy's Modified-Release Capsules may cause hypotension, hot flushes and tachycardia. Worsening of the symptoms of coronary heart disease such as angina and arrhythmias.

The following side effects have been reported, frequencies have been assigned based on clinical trial (ESPS-2) in which 1654 patients received dipyridamole alone.

Frequencies

Very common	$\geq 1/10$
Common	$\geq 1/100 < 1/10$
Uncommon	$\geq 1/1,000 < 1/100$
Rare	$\geq 1/10,000 < 1/1,000$
Very rare	$< 1/10,000$

Blood and lymphatic system disorders

Thrombocytopenia	not known
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Immune system disorders

Hypersensitivity	not known
Angioedema	not known

Nervous system disorders

Headache	very common
Dizziness	very common

Cardiac disorders

Angina pectoris	common
Tachycardia	not known

Vascular disorders

Hypotension	not known
Hot flush	not known

Respiratory, thoracic and mediastinal disorders

Bronchospasm	not known
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Gastrointestinal disorders

Diarrhoea	very common
Nausea	very common
Vomiting	common

Skin and subcutaneous tissue disorders

Rash	common
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Urticaria not known

Musculoskeletal, connective tissue and bone disorders

Myalgia common

Injury, poisoning and procedural complications

post procedural haemorrhage not known

operative haemorrhage not known

Dipyridamole has been shown to be incorporated into gallstones (please refer to section 4.4 Special warnings and precautions for use).

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal products is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the Yellow Card Scheme at:

Website: www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store.

4.9 Overdose

Symptoms

Due to the low number of observations, experience with dipyridamole overdose is limited. Symptoms such as feeling warm, flushes, sweating, accelerated pulse, restlessness, feeling of weakness, dizziness, drop in blood pressure and anginal complaints can be expected.

Therapy

Symptomatic therapy is recommended. Administration of xanthine derivatives (e.g. aminophylline) may reverse the haemodynamic effects of dipyridamole overdose. ECG monitoring is advised in such a situation. Due to its wide distribution to tissues and its predominantly hepatic elimination, dipyridamole is not likely to be accessible to enhanced removal procedures.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Platelet aggregation inhibitors excluding heparin,

ATC code: B01AC07

Dipyridamole inhibits the uptake of adenosine into erythrocytes, platelets and endothelial cells in vitro and in vivo; the inhibition amounts to 80% at its maximum and occurs dose-dependently at therapeutic concentrations (0.5 - 2 µg/mL). Consequently, there is an increased concentration of adenosine locally to act on the platelet A₂-receptor, stimulating platelet adenylate cyclase, thereby increasing platelet cAMP levels. Thus, platelet aggregation in response to various stimuli such as PAF, collagen and ADP is inhibited. Reduced platelet aggregation reduces platelet

consumption towards normal levels. In addition, adenosine has a vasodilator effect and this is one of the mechanisms by which dipyridamole produces vasodilation.

Dipyridamole inhibits phosphodiesterase (PDE) in various tissues. Whilst the inhibition of cAMP-PDE is weak, therapeutic levels inhibit cGMP-PDE, thereby augmenting the increase in cGMP produced by EDRF (endothelium-derived relaxing factor, identified as NO).

Dipyridamole also stimulates the biosynthesis and release of prostacyclin by the endothelium.

Dipyridamole reduces the thrombogenicity of subendothelial structures by increasing the concentration of the protective mediator 13-HODE (13-hydroxyoctadecadienic acid).

5.2 Pharmacokinetic properties

For long-term treatments Dipyridamole 200 mg modified-release capsules, formulated as pellets have been developed. The pH dependent solubility of Dipyridamole 200 mg modified-release capsules which prevents dissolution in the lower parts of the gastrointestinal tract is overcome by means of a formula containing tartaric acid. Retardation of release is achieved by a diffusion membrane which is sprayed onto the pellets.

Absorption

Dipyridamole 200 mg modified-release capsules

Peak plasma concentrations are reached about 2 - 3 hours after administration. Mean peak concentrations at steady state conditions with 150 mg b.d. are 1.43 µg/mL (range 0.705 - 2.75 µg/mL), trough levels are 0.351 µg/mL (range 0.200 - 0.741 µg/mL). With a daily dose of 400 mg, the corresponding peak concentrations are 1.98 µg/mL (range 1.01 - 3.99 µg/mL), trough concentrations are 0.53 µg/mL (range 0.18 - 1.01 µg/mL). There is no clinically relevant effect of food on the pharmacokinetics of Dipyridamole 200 mg modified-release capsules. The absolute bioavailability is about 70%. The dose linearity of dipyridamole after oral b.i.d. administration of the modified release capsules containing 150 and 200 mg was demonstrated.

As first pass removes approx. 1/3 of the dose administered, near to complete absorption of Dipyridamole 200 mg modified-release capsules can be assumed.

Dipyridamole 200 mg modified-release capsules given twice daily has been shown to be bioequivalent to the same total daily dose of Dipyridamole Tablets given in four divided doses.

Peak plasma concentrations are reached 2 - 3 hours after administration. Steady state conditions are reached within 3 days.

Distribution

Owing to its high lipophilicity, log P 3.92 (n-octanol/0.1 N, NaOH), dipyridamole distributes to many organs.

Non-clinical studies indicate that, dipyridamole is distributed preferentially to the liver, then to the lungs, kidneys, spleen and heart, it does not cross the blood-brain barrier to a significant extent and shows a very low placental transfer. Non-clinical data have also shown that dipyridamole can be excreted in breast milk.

-Protein binding of dipyridamole is about 97 - 99%, primarily it is bound to alpha 1-acid glycoprotein and albumin.

Metabolism

Metabolism of dipyridamole occurs in the liver. Dipyridamole is metabolized by conjugation with glucuronic acid to form mainly a monoglucuronide and only small amounts of diglucuronide. In plasma about 80% of the total amount is parent compound, 20% of the total amount is monoglucuronide with oral administration .

Elimination

Dominant half-lives ranging from 2.2 to 3 hours have been calculated after the administration of modified-release dipyridamole. A prolonged terminal elimination half-life of approximately 15 h is observed. This terminal elimination phase is of relatively minor importance in that it represents a small proportion of the total AUC, as evidenced by the fact that steady-state is achieved within 2 days with both t.d.s. and q.d.s., regimens. There is no significant accumulation of the drug with repeated dosing. Renal excretion of parent compound is negligible (< 0.5%). Urinary excretion of the glucuronide metabolite is low (5%), the metabolites are mostly (about 95%) excreted via the bile into the faeces, with some evidence of entero-hepatic recirculation. Total clearance is approx. 250 mL/min and mean residence time is approx. 8 h (resulting from an intrinsic MRT of approx. 6.4 h and a mean time of absorption of 1.4 h).

Elderly subjects

Plasma concentrations (determined as AUC) in elderly subjects (> 65 years) were about 50% higher for tablet treatment and about 30% higher with intake of Dipyridamole 200 mg modified release capsules than in young (<55 years) subjects. The difference is caused mainly by reduced clearance; absorption appears to be similar. A similar increase in plasma concentrations in elderly patients was observed in the ESPS2 study.

Hepatic impairment

Patients with hepatic insufficiency show no change in plasma concentrations of dipyridamole, but an increase of (pharmacodynamically inactive) glucuronides. It is suggested to dose dipyridamole without restriction as long as there is no clinical evidence of liver failure.

Renal impairment

Since renal excretion is very low (5%), no change in pharmacokinetics is to be expected in cases of renal insufficiency. In the ESPS2 trial, in patients with creatinine clearances ranging from about 15 mL/min to >100 mL/min, no changes were observed in the pharmacokinetics of dipyridamole or its glucuronide metabolite if data were corrected for differences in age.

5.3 Preclinical safety data

Dipyridamole has been extensively investigated in animal models and no clinically significant findings have been observed at doses equivalent to therapeutic doses in humans.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Capsule Contents:

Tartaric acid
Hypromellose
Povidone
Acacia
Talc
Methacrylic acid-methyl methacrylate copolymer (1:2)
Hypromellose phthalate
Dimethicone
Triacetin
Stearic acid

Capsule Shells (HPMC):

Hypromellose
Brilliant blue (E133)
Ponceau 4R (E124)
Quinoline yellow (E104)
Titanium dioxide (E171)
Potassium Acetate
Carrageenan

Printing Ink:

Shellac
Potassium Hydroxide
Titanium dioxide (E171)

6.2 Incompatibilities

Not applicable

6.3 Shelf life

Unopened shelf life: 3 years

In-use shelf life:

60 capsule pack size: Discard any remaining capsules 30 days after first opening the pack.

6.4 Special precautions for storage

Store in the original package in order to protect from moisture. Keep the bottle tightly closed.

This medicinal product does not require any special temperature storage precautions.

6.5 Nature and contents of container

White HDPE bottle with child resistant plastic cap with molecular sieve pillow pouch as a desiccant.

Packs contain 60 capsules.

6.6 Special precautions for disposal

No special requirements

7 MARKETING AUTHORISATION HOLDER

Dr. Reddy's Laboratories (UK) Ltd,
410 Cambridge Science Park,
Milton Road,
Cambridge,
CB4 0PE,
United Kingdom

8 MARKETING AUTHORISATION NUMBER(S)

PL 08553/0458

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