SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

NIOPAM 300, solution for injection

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

61.2 % w/v Iopamidol equivalent to 300mg iodine/ml. Each contains 612 mg iopamidol.

For the full list of excipients, see 6.1.

3 PHARMACEUTICAL FORM

Solution for injection

Clear aqueous solution filled into colourless glass ampoules or bottles.

4.1 Therapeutic indications

This medicinal product is for diagnostic use only.

X-ray contrast medium f or use in lumbar and thoraco-cervical myelography, cerebral angiography, peripheral angiography, venography, computer tomography enhancement, urography and arthrography.

4.2 Posology and method of administration

Route of administration:
Intra-ventricular Intra-arterial Intra-venous Intra-articular Intra-thecal Intra-cisternal

Posology
NIOPAM 300: DOSAGE SCHEDULE

Procedure	Dosage	
Lumbar Myelography	Adults	5 - 10 ml
Thoraco-Cervical Myelography	Adults	5 - 10 ml

Cerebral Angiography	Adults 5 - 10 ml * Children **
Peripheral Arteriography Venography	Adults 20 - 50 ml * Children ** Adults 20 - 50 ml * Children ** **Do not exceed 250 ml**
Computer Tomography Enhancement	Adults: Brain scanning 50 - 100ml Whole body scanning 40-100ml
Intravenous Urography	Adults 40 - 80 ml In severe renal failure the usual high dose methods should be employed. (up to 1.5 mg/kg) Children 1 - 2.5 ml/kg or **
Arthrography	Adults 1 - 10 ml according to the joint being examined.

* repeat as necessary; ** according to body size and age;

The dosage must be adapted to the examination, the age, body weight, cardiac output, renal function, general condition of the patient and the technique used. Usually the same iodine concentration and volume are used with other iodinated x-ray contrast in current use.
As with all contrast media, the lowest dose necessary to obtain adequate visualisation should be used.

Method of administration
Non-ionic contrast media have less anti-coagulant activity *in-vitro* than ionic media. Meticulous attention should therefore be paid to angiographic technique. Non-ionic media should not be allowed to remain in contact with blood in the syringe and intravascular catheters should be flushed frequently, to minimise the risk of clotting, which rarely has led to serious thromboembolic complications after procedures. Factors such as length of procedure, catheter and syringe material, underlying disease state, and concomitant medications may contribute to the development of thromboembolic events.

As experience shows that warmed contrast media are better tolerated, the contrast medium should be warmed up to body temperature before administration.

No other drugs or contrast media should be mixed with the iopamidol solution for injection.

Lumbar myelography
A slow sub-arachnoid injection is made through a fine lumbar puncture needle into one of the lower lumbar interspinous spaces (L3-L4 or L4-L5). Optimum contrast appears immediately after injections and films should be obtained promptly.

Thoraco-cervical myelography
Following a slow sub-arachnoid injection the patient should be turned on his side and tilted 10°-20° head down under fluoroscopic control. In this manner it is possible to control movement of the contrast medium column into the dorsal region.
If the cervical region is to be examined, the contrast medium should be run into the cervical region first, before the examination of the dorsal areas where it is progressively diluted.

Niopam may also be injected sub-occipitally or by lateral cervical puncture technique. Care should be taken to ensure that the contrast medium does not move intracranially.
After completion of direct cervical or lumbo-cervical procedures:
- Raise head of table steeply (45° angle) for about two minutes so that the contrast medium flows towards the caudal end.
- Avoid excessive and particularly active patient movement or straining, maintain the patient under close observation, quiet and in a head up position especially in the first few hours.
- Patients suspected of having a low seizure threshold should be observed during this period.
- The patient should remain supine and at bed rest during this period. - Encourage the patient, if able, to take in fluids orally and eat.

Cerebral angiography
Any of the current techniques is suitable for radiological visualisation of the cerebral vasculature with Niopam 300. Carotid and vertebral angiography, performed by catheterisation or percutaneous injection techniques, require rapid injection, which, if necessary may be repeated.

Peripheral arteriography and phlebography (venography)
Percutaneous injection into the appropriate blood vessel is used for visualisation of peripheral arteries and veins.

Computer tomography enhancement
Contrast enhancement for brain scans can be achieved between one and three minutes after i.v. injection. Niopam 300 is also used for total body scanning examinations after i.v. administration as a bolus, as a drip infusion or by a combination of the two methods.

Urography
The contrast medium is injected intravenously and rapidly eliminated through the kidneys. In patients with severe renal failure, high dose urography should be used.

Arthrography
Visualisation of joint cavities and articular surfaces can be achieved by either single or double contrast examination.

4.3 Contraindications

Hypersensitivity to the active ingredient iopamidol or to any of the excipients (see section 6.1).

Intrathecal administration

Because of overdosage considerations, immediate repeat myelography in the event of technical failure is contraindicated.

4.4 Special warnings and precautions for use

Diagnostic procedures which involve the use of any radiopaque medium should be carried out under the direction of personnel with the prerequisite training and with a thorough knowledge of the particular procedure to be performed.

Appropriate facilities should be available for coping with any complication of the procedure, as well as for emergency treatment of severe reaction to the contrast medium itself.

During the examination an intravenous route for emergency treatment in the event of a reaction is required.

After the administration of the contrast medium, competent personnel, drugs and equipment for emergency resuscitation must be available for at least 30 minutes.

Caution during injection of contrast media is necessary to avoid extravasation.

In patients who are known epileptics or have a history of epilepsy, anticonvulsant therapy should be maintained before and following myelographic procedures. In some instances, anticonvulsant therapy may be increased for 48 hours before the examination. If during the procedure a convulsive crisis occurs, it is recommended to administer intravenously diazepam or phenobarbital.

Iopamidol injection should be used with caution in patients with hypercalcaemia and cerebral vascular disease.

The administration of iodinated contrast media may aggravate the symptoms of myasthenia gravis.

General anaesthesia may be indicated in selected patients. However, a higher incidence of adverse reactions has been reported in these patients, probably due to the hypotensive effect of the anaesthetic.

As with all other contrast media this product may provoke anaphylaxis or other manifestations of allergy with nausea, vomiting, dyspnoea, erythema, urticaria and hypotension. Occasional severe reactions with fatal outcome have been reported.
A positive history of allergy, asthma or untoward reaction during previous similar investigations indicates a need for extra caution; the benefit should clearly outweigh the risk in such patients.
Pre-treatment with antihistamines or corticosteroids to prevent or minimise possible allergic reactions in such patients may be considered.
The risk of bronchospasm-inducing reactions in asthmatic patients is higher after contrast media administration.

In patients with suspected or known hypersensitivity to contrast media, sensitivity testing is not recommended, as severe or fatal reactions to contrast media are not predictable from sensitivity tests.
The patient should also be informed that allergic reactions may develop up to several days after the procedure; in such case, a physician should be consulted immediately.

Particular care should be exercised in patients with moderate to severe impairment of renal function (as reflected by a raised blood urea). Substantial deterioration in renal function is minimized if the patient is well hydrated. Renal function parameters, especially urinary output should be monitored after the examination in these patients. Pre-existing renal impairment may predispose to acute renal dysfunction following contrast media administration.
In patients with impairment of renal function, the administration of potentially nephrotoxic drugs should be avoided until the contrast medium is completely excreted. In such patients, renal function parameters should be monitored after the procedure. Further administration of contrast media should be postponed until renal function has returned to its previous level.
Patients on dialysis may receive contrast media such as iopamidol, which can be removed without difficulty by dialysis.
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The presence of renal damage in diabetic patients is one of the factors predisposing to renal impairment following contrast media administration. This may precipitate lactic acidosis in patients who are taking metformin (see section 4.5 - Interaction with medicaments and other forms of interaction).

Hydration

Patients must be well hydrated, and any relevant abnormalities of fluid or electrolyte balance should be corrected prior to and following contrast media injection. Especially patients with severe functional impairment of the kidneys, the liver or myocardium, myelomatosis, or other paraproteinaemias, sickle cell disease, diabetes mellitus, polyuria, oligouria, hyperuricaemia, infants, elderly patients, and patients with severe systemic disease should not be exposed to dehydration. Caution should be exercised in hydrating patients with underlying conditions that may be worsened by fluid overload, including congestive heart failure.

Patients with congestive heart failure should be observed for several hours following the procedure to detect delayed haemodynamic disturbances, which may be associated with a transitory increase in the circulating osmotic load.

In patients undergoing angiocardiographic procedures special attention should be paid to the status of the right heart and pulmonary circulation.Special care should be exercisedwhen X-ray contrast medium is injected in the pulmonary artery in patients with pulmonary hypertension. Right heart insufficiency and pulmonary hypertension may precipitate bradycardia and systemic hypotension, when the organic iodine solution is injected.
Right heart insufficiency and pulmonary hypertension may precipitate bradycardia and systemic hypotension, when the organic iodine solution is injected. Right heart angiography should be carried out only when absolutely indicated.
During intracardiac and/or coronary arteriography, ventricular arrhythmias may infrequently occur.

Caution should be exercised in performing iodinated contrast-enhanced examinations in patients with, or with suspicion of, hyperthyroidism or autonomously functioning thyroid nodule(s), as thyroid storms have been reported following administration of iodinated contrast media.

Niopam should be used with caution in patients with hyperthyroidism. It is possible that hyperthyroidism may recur in patients previously treated for Graves' disease.

In patients scheduled for thyroid examination with a radioactive iodine tracer, one must take into consideration that iodine uptake in the thyroid gland will be reduced for several days (up to two weeks) after dosing with an iodinized contrast medium that is eliminated through the kidneys.

Contrast induced encephalopathy

Encephalopathy has been reported with the use of iopamidol (see section 4.8). This may manifest with symptoms and signs of neurological dysfunction such as headache, visual disturbance, cortical blindness, confusion, seizures, loss of coordination, hemiparesis, aphasia, unconsciousness, coma and cerebral oedema within minutes to hours after administration and generally resolves within days. Factors which increase blood-brain barrier permeability will ease the transfer of contrast media to brain tissue and may lead to possible CNS reactions, for instance encephalopathy. If contrast encephalopathy is suspected, iopamidol should not be re-administered and appropriate medical management should be initiated.

Phaeochromocytoma

Patients with phaeochromocytoma may develop severe hypertensive crisis following intra-arterial iopamidol administration. Pre-medication with α and β--receptor blockers is recommended before intra-arterial injection of contrast media under the supervision of a physician.

In angiographic procedures, the possibility of dislodging plaque or damaging or perforating the vessel wall should be considered during catheter manipulation and contrast medium injection. Test injections to ensure proper catheter placements are recommended.
In examinations of the aortic arch the tip of the catheter should be positioned carefully to avoid hypotension, bradycardia and CNS injury due to excess pressure transmitted from the injector pump to the brachiocephalic branches of the aorta.
Angiography should be avoided whenever possible in patients with homocystinuria due to an increased risk of thrombosis and embolism.
In patients undergoing peripheral angiography, there should be pulsation in the artery into which the X-ray contrast medium will be injected. In patients with thromboangiitis obliterans or ascending infections in combination with serious ischemia the angiography should be performed, if at all, with special caution.

Serious neurological events have been observed following direct injection of contrast media into cerebral arteries or vessels supplying the spinal cord or in angiocardiography due to inadvertent filling of the carotids.

Niopam should be administered with caution in elderly patients, in patients with CNS disorders and altered permeability of the blood-brain barrier, increased intracranial pressure, suspicion of intracranial tumour, abscess or hematoma/hemorrhage, history of convulsive disorder, chronic alcoholism or multiple sclerosis. Patients with these conditions have an increased risk of neurological complications.
Vasospasm and subsequent cerebral ischemic phenomena may be caused by intra-arterial injections of contrast media.

Severe cutaneous adverse reactions

Severe cutaneous adverse reactions (SCARs), such Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (Lyell's syndrome or TEN) and acute generalised exanthematous pustulosis (AGEP), which can be life threatening, have been reported in patients administered Niopam (see section 4.8, undesirable effects). At the time of initiation, patients should be advised of the signs and symptoms and monitored closely for severe skin reactions. If signs and symptoms suggestive of these reactions appear, further use of Niopam should be withheld. If the patient has developed a severe cutaneous adverse reaction with the use of Niopam, Niopam must not be re-administered in this patient at any time.

Intrathecal administration

An accurate evaluation of the risk/benefit ratio is needed if from clinical history there is a previous history of epilepsy or in the presence of blood in the cerebrospinal fluid or presence of local or systemic infection where bacteremia is likely. An accurate evaluation of benefit risk should be performed in those with known CNS disorder.

Anticonvulsant therapy should be maintained before and following myelographic procedures in patients who are known to suffer from convulsions. If during the procedure a convulsive crisis occurs, it is recommended to administer intravenously diazepam or phenobarbital.
Concomitant administration of an iodinated contrast medium and corticosteroids may increase the risk of neurotoxicity and aseptic meningitis.

The contrast medium should be removed as much as possible in case of spinal fluid blockage
See Section 4.2 regarding instructions post-completion of direct cervical or lumbo-cervical procedures.

Use in Special Populations

Newborns, children
Infants (age<1year), and especially newborns are particularly susceptible to electrolyte imbalances and haemodynamic alterations..
When examining small children or babies, do not limit fluid intake before administering a hypertonic contrast solution. Also, correct any existing water and electrolyte imbalance.
In paediatric roentgenology, one should proceed with great caution when injecting the contrast medium into the right heart chambers of cyanotic neonates with pulmonary hypertension and impaired cardiac function.

Transient thyroid suppression or hypothyroidism has been observed in children after exposure to iodinated contrast media. Following a diagnostic procedure, this has been more frequently observed in neonates and premature infants and also following procedures associated with higher doses. Neonates may also be exposed via maternal exposure. In neonates, especially preterm infants, who have been exposed to iopamidol, either through the mother during pregnancy or in the neonatal period, it is recommended to monitor thyroid function. If hypothyroidism is detected, the need for treatment should be considered and thyroid function should be monitored until normalised.

Elderly
The elderly are at special risk of reactions due to reduced physiological functions, especially when high dosage of contrast medium is used.
Women of child-bearing potential
X-ray examination of women should if possible be conducted during the pre-ovulation phase of the menstrual cycle and should be avoided during pregnancy. Appropriate investigations and measures should be taken when exposing women of child-bearing potential to any X-ray examination, whether with or without contrast medium.

4.5 Interaction with other medicinal products and other forms of interaction

Following administration of iopamidol, the capacity of the thyroid tissue to take up iodine is reduced for 2-6 weeks.

Thyroid function tests: use of iodinated contrast media may interfere with tests for thyroid function which depend on iodine estimations, such as Protein Binding Iodine and radioactive iodine up take. As a consequence they will not accurately reflect thyroid function for up to 16 days following administration of iodinated contrast media. Thyroid function tests not depending on iodine estimations, e.g. T3 resin uptake and total or free thyroxine (T4) assays are not affected.

To prevent onset of lactic acidosis in diabetic patients under treatment with oral anti-diabetic agents of the biguanide class (Metformin), these agents should be stopped prior to an intraarterial contrast medium administration with first pass renal exposure, or in patients with acute kidney injury, and re-instated only after 48 hours if renal function hasn´t changed significantly (see 4.4 Special warnings and precautions for use).
Arterial thrombosis has been reported when Iopamidol was given following papaverine.

In patients receiving beta-blockers there is an elevated risk of more severe anaphylactoid reactions.

Beta-blockers may impair the response to treatment of bronchospasm induced by contrast medium.

The administration of vasopressors strongly potentiates the neurological effect of the intra-arterial contrast media.

Renal toxicity has been reported in patients with liver dysfunction who were given oral cholecystographic agents followed by intravascular contrast agents. Therefore, administration of intravascular contrast agents should be postponed in patients who have recently been given a cholecystographic contrast agent.
Contrast media may interfere with laboratory tests for bilirubin, proteins or inorganic substances (e.g. iron, copper, calcium, phosphate). These substances should not be assayed during the same day following the administration of contrast media.

Following administration of iopamidol atypical adverse reactions e.g. erythema, fever and flu symptoms have been reported in patients treated with interleukin-2.

Consider the discontinuation of treatment with drugs that lower the seizure threshold until 24 hours post-procedure for intrathecal use and patients with blood-brain barrier disorders.

4.6 Fertility, pregnancy and lactation

X-ray examination of women should if possible be conducted during the preovulation phase of the menstrual cycle and should be avoided during pregnancy; also, since it has not been demonstrated that Niopam is safe for use in pregnant women, it should be administered only if the procedure is considered essential by the physician. Apart from radiation exposure of the foetus, benefit-risk consideration for iodine containing contrast agents should also take into account the sensitivity of the foetal thyroid towards iodine(see section 4.4).
Iodine-containing X-ray contrast agents are excreted into the breast milk in low amounts. From animal experience, Niopam is non toxic in animals after oral administration. From experience gained so far, harm to the nursing infant is unlikely to occur. Stopping breastfeeding is unnecessary.

4.7 Effects on ability to drive and use machines

There is no known effect on the ability to drive and operate machines. However, because of the risk of early reactions, driving or operating machinery is not advisable for one hour following the last intravascular injection.

4.8 Undesirable effects

The use of iodinated contrast media may cause untoward side effects. They are usually mild to moderate and transient in nature. However, severe and life threatening reactions sometimes leading to death have been reported.

Anaphylaxis (anaphylactoid reactions/hypersensitivity) may manifest with: mild localized or more diffuse angioneurotic oedema, tongue oedema, laryngospasm or laryngeal oedema, dysphagia, pharyngitis and throat tightness, pharyngolaryngeal pain, cough, conjunctivitis, rhinitis, sneezing, feeling hot, sweating increased, asthenia, dizziness, pallor, dyspnoea, wheezing, bronchospasm, and moderate hypotension. Skin reactions may occur in the form of various types of rash, diffuse erythema, diffuse blisters, urticaria, and pruritus. These reactions, which occur irrespective of the dose administered and the route of administration, may represent the first signs of incipient state of shock. Administration of the contrast medium must be discontinued immediately and – if necessary – specific treatment initiated via a venous access.

Following intravascular administration, in most cases reactions occur within minutes of dosage. However, delayed reactions, usually involving skin, may occur, mostly within 2-3 days, more rarely within 7 days, after the administration of the contrast medium.

After intrathecal administration, most side effects occur with a delay of some hours due to the slow absorption from the site of administration and distribution to the whole body. Reactions usually occur within 24 hours after injection.

More severe reactions involving the cardiovascular system such as vasodilatation with pronounced hypotension, tachycardia, dyspnoea, agitation, cyanosis and loss of consciousness progressing to respiratory and/or cardiac arrest may result in death. These events can occur rapidly and require full and aggressive cardio-pulmonary resuscitation.
Primary circulatory collapse can occur as the only and/or initial presentation without respiratory symptoms or without other signs or symptoms outlined above.
Severe cutaneous adverse reactions (SCARs), including Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN) and acute generalized exanthematous pustulosis (AGEP) have been reported in association with Niopam administration (see section 4.4).

Intravascular administration –Adults

The adverse reactions are classified by System Organ Class and frequency, using the following convention: Very common (≥1/10), Common (≥1/100 to < 1 /10), Uncommon (≥1/1,000 to < 1/100), Rare (≥1/10,000 to < 1/1,000), Very rare (< 1/10,000), not known (cannot be estimated from the available data)

System Organ Class	**Adverse Reactions**			
	Clinical Trials			**Post-marketing Surveillance**
	Common (≥1/100 to <1/10)	**Uncommon (≥1/1,000 to <1/100)**	**Rare (≥1/10,000 to <1/1,000)**	**Frequency unknown**
Blood and lymphatic system disorders				Thrombocytopenia
Immune system disorders				Anaphylaxis, Anaphylactoid reaction
Psychiatric disorders			Confusional state	
Nervous system disorders	Headache	Dizziness, Taste alteration	Paraesthesia	Coma, Transient ischaemic attack, Syncope, Depressed level consciousness or loss of consciousness, Convulsion, Hemiplegia, Contrast induced encephalopathy**
Eye disorders				Transient blindness Visual disturbance Conjunctivitis, Photophobia
Cardiac disorders		Cardiac dysrhythmias such as extrasystoles, atrial fibrillation, ventricular tachycardia and ventricular fibrillation*	Bradycardia	Myocardial ischaemia infarction, Cardiac failure, Cardio-respiratory arrest, Tachycardia, Kounis syndrome
Vascular disorders		Hypotension, Hypertension, Flushing		Circulatory collapse or shock
Respiratory, thoracic and mediastinal disorders			Pulmonary oedema, Asthma, Bronchospasm	Respiratory arrest Respiratory failure Acute respiratory distress syndrome, Respiratory distress Apnoea, Laryngeal oedema Dyspnoea

Gastrointestinal disorders	Nausea	Vomiting, Diarrhea, Abdominal pain, Dry mouth		Salivary hypersecretion, Salivary gland enlargement
Skin and subcutaneous tissue disorders		Rash, Urticaria, Pruritus, Erythema, Sweating increased		Stevens-Johnson syndrome, Toxic epidermal necrolysis, Erythema multiforme Skin necrosis*** ,Face oedema, muco-cutaneous syndrome **, Acute generalised exanthematous
Musculoskeletal and connective tissue disorders		Back pain	Muscle spasms	Compartment syndrome*** Musculoskeletal pain,
Renal and urinary disorders		Acute renal failure		
General disorders and administration site conditions	Feeling hot	Chest pain, Injection site pain***, Pyrexia, Feeling cold	Injection site swelling	Rigors, Pain, Malaise, Injection site inflammation
Investigations		Blood creatinine increased		Electrocardiogram change including ST Segment depression

* Cardiac reactions may occur consequences of the coronary catheterization procedural hazard: these complications include coronary artery thrombosis and coronary artery embolism.
**Contrast induced encephalopathy may manifest with symptoms and signs described in section 4.4
On very rare occasions extravasation of contrast medium led to inflammation (manifested with local erythema, oedema and blisters), skin necrosis and compartment syndrome

Intravascular administration – Pediatric Population
Frequency type and severity of adverse reactions in children are similar to those in adults. Cases of transient neonatal hypothyroidism have been reported with Iopamidol in very low birth weight infants.

Intrathecal administration – Adults

System Organ Class	**Adverse Reactions**			
	Clinical Trials			**Post-marketing Surveillance**
	Very common (≥1/10)	**Common (≥1/100 to <1/10)**	**Uncommon (≥1/1,000 to <1/100)**	**Frequency unknown**
Infections and infestations				Meningitis aseptic, Meningitis bacterial as consequence of the procedural hazard
Immune system disorders				Anaphylaxis, Anaphylactoid reaction*
Psychiatric disorders				Confusional state, Disorientation, Agitation, Restlessness
Nervous system disorders	Headache			Coma, Paralysis, Convulsion, Syncope, Depressed level of consciousness or loss of consciousness, Meningism, Dizziness, Paraesthesia, Hypoaesthesia, Contrast induced encephalopathy**
Eye disorders				Transient blindness
Cardiac disorders				Arrhythmia
Vascular disorders		Flushing		Hypertension
Respiratory, thoracic and mediastinal disorders				Respiratory arrest, Dyspnoea
Gastrointestinal disorders		Nausea,Vomiting		
Skin and sub cutaneous tissue disorders			Rash	
Musculoskeletal and connective tissue disorders		Back pain, Neck pain, Pain in extremity,		

General disorders and administration site conditions		Sensation of heaviness		Pyrexia, Malaise, Rigors

*Anaphylaxis (anaphylactoid reactions/hypersensitivity) may occur. Anaphylactoid reactions with circulatory disturbances such a severe blood pressure decrease leading to syncope or cardiac arrest and life threatening shock are much less common after intrathecal administration than after intravascular administration.
**Contrast induced encephalopathy may manifest with symptoms and signs described in section 4.4

Body cavity administration
The majority of the reactions occur some hours after the contrast administration due to the slow absorption from the area of administration and distribution in the whole organism.
Blood amylase increased is common following ERCP. Very rare cases of pancreatitis have been described.
The reactions reported in cases of arthrography usually represent irritative manifestations superimposed on existing tissue inflammation.
Systemic hypersensitivity is rare, generally mild and in the form of skin reactions. However, the possibility of severe anaphylactoid reactions cannot be excluded.

Reporting of suspected adverse reactions
Reporting suspected adverse reactions after authorisation of the medicinal product 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
Website: www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store

4.9 Overdose
Dosages exceeding the specific package insert dose are not recommended, as they might lead to life-threatening adverse effects.
If needed, haemodialysis can be used to eliminate Iopamidol from the body. Treatment of overdosage is directed toward the support of all vital functions and prompt institution of symptomatic therapy.

Intrathecal
Signs of intrathecal overdose may be: ascending hyperreflexia or tonic-clonic spasms, up to generalized seizures, and, in severe cases of central involvement, hyperthermia, stupor and respiratory depression.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group; ATC code: V08A B04

Iopamidol is contrast medium belonging to the new generation of non-ionic compound whose solubility is due to the presence of hydrophilic substitutes in the

molecule. This results in a solution of low osmolality when compared with ionic media.

Iopamidol has been shown to be effective as an X-ray contrast medium in neuroradiology, angiography, venography, arthrography, urography, cerebral angiography and left ventriculography and coronary arteriography. Its toxicity particularly cardiac and CNS toxicity are less than those of ionic contrast media.

5.2 Pharmacokinetic properties

The pharmacokinetics of iopamidol conform to an open two compartment pharmacokinetic model with first order elimination.

Distribution volume is equivalent to extracellular fluid.

Elimination is almost completely through the kidneys. Less than 1 % of the administered dose has been recovered in the faeces up to 72 hours after dosing. Elimination is rapid; up to half the administered dose may be recovered in the urine in the first two hours of dosing.

There is no evidence of biotransformation.

Serum protein binding is negligible.

5.3 Preclinical safety data

No adverse effects can be predicted from animal toxicology studies other than those documented from human use of iopamidol.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Excipients are trometamol, hydrochloric acid and edetate calcium disodium.

6.2 Incompatibilities

In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products

6.3 Shelf life

5 years

6.4 Special precautions for storage

Protect from light.

No Data Held

6.5 Nature and contents of container

50,100 and 200ml clear, colourless type I or type II glass bottles with rubber closures and aluminium caps.

6.6 Special precautions for disposal

Discard if the solution is not clear of particulate matter.

Exceptionally, the event of crystallisation of Niopam could occur. It has been shown that such a phenomenon is caused by a damaged or defective container and therefore the product should not be used in this case.

The bottle, once opened, must be used immediately.

Any unused medicinal product or waste material should be disposed off in accordance with local requirements.

Niopam, as other iodinated contrast media, can react with metallic surfaces containing copper (e.g. brass), therefore the use of equipment, in which the product comes into direct contact with such surfaces, should be avoided.

7. MARKETING AUTHORISATION HOLDER

Bracco UK, Ltd

Magdalen Centre, The Oxford Science Park,Oxford, OX4 4GA,United Kingdom

8 MARKETING AUTHORISATION NUMBER(S)

PL 18920/0033

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

22/03/1982 / 05/12/2003

10 DATE OF REVISION OF THE TEXT

26/03/2024