

Summary of Product Characteristics

Product Summary

1. Name of the Medicinal Product

APO-go PFS 5mg/ml Solution for Infusion in Pre-filled Syringe (United Kingdom/Ireland)
APO-go 5mg/ml Infusionslösung in einer Fertigspritze (Austria/Germany)
APO-go Pumpfill 5 mg/ml infusionsvæske, opløsning i fyldt injektionssprøjte (Denmark)
APO-go PFS 5mg/ml (Greece)
APO-go 5mg/ml oplossing voor infusie in een voorgevulde spuit (the Netherlands)
APO-go Pumpfill 5 mg/ml infusionsvätska, lösning i förfylld spruta (Sweden)

2. Qualitative and Quantitative Composition

1ml contains 5mg apomorphine hydrochloride.
Each 10ml pre-filled syringe contains 50mg apomorphine hydrochloride.

Excipient:
Sodium metabisulphite, 0.5 mg per ml

For a full list of excipients, see Section 6.1

3. Pharmaceutical Form

Solution for Infusion, pre-filled syringe
Solution is clear and colourless
pH 3.0-4.0

Clinical Particulars

4.1. Therapeutic Indications

Treatment of motor fluctuations ('on-off' phenomena) in patients with Parkinson's disease which are not sufficiently controlled by oral anti-Parkinson medication

4.2. Posology and Method of Administration

Selection of Patients Suitable for APO-go:

Patients selected for treatment with APO-go should be able to recognise the onset of their 'off' symptoms and be capable of injecting themselves or else have a responsible carer able to inject for them when required.

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It is essential that the patient is established on domperidone, usually 20 mg three times daily for at least two days prior to initiation of therapy.

Apomorphine should be initiated in the controlled environment of a specialist clinic. The patient should be supervised by a physician experienced in the treatment of Parkinson's disease (e.g. neurologist). The patient's treatment with levodopa, with or without dopamine agonists, should be optimised before starting APO-go treatment.

Administration

APO-go PFS 5mg/ml Solution for Infusion in Pre-filled Syringe is a pre-diluted pre-filled syringe intended for use without dilution as a continuous subcutaneous infusion by minipump and / or syringe-driver. It is not intended to be used for intermittent injection.

Apomorphine must not be used via the intravenous route.

Do not use if the solution has turned green. The solution should be inspected visually prior to use. Only clear, colourless and particle free solution should be used.

Continuous Infusion

Patients who have shown a good 'on' period response during the initiation stage of apomorphine therapy, but whose overall control remains unsatisfactory using intermittent injections, or who require many and frequent injections (more than 10 per day), may be commenced on or transferred to continuous subcutaneous infusion by minipump and / or syringe driver as follows:-

The choice, of which minipump and / or syringe-driver to use, and the dosage settings required, will be determined by the physician in accordance with the particular needs of the patient.

The threshold dose for continuous infusion should be determined as follows: Continuous infusion is started at a rate of 1 mg apomorphine HCl (0.2 ml) per hour then increased according to the individual response each day. Increases in the infusion rate should not exceed 0.5 mg at intervals of not less than 4 hours. Infusions should run for waking hours only. Unless the patient is experiencing severe night-time problems, 24 hour infusions are not advised. Tolerance to the therapy does not seem to occur as long as there is an overnight period without treatment of at least 4 hours. In any event, the infusion site should be changed every 12 hours.

Patients may need to supplement their continuous infusion with intermittent bolus boosts, as necessary, and as directed by their physician.

A reduction in dosage of other dopamine agonists may be considered during continuous infusion.

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Establishment of treatment.

Alterations in dosage may be made according to the patient's response.

The optimal dosage of apomorphine hydrochloride varies between individuals but, once established, remains relatively constant for each patient.

Precautions on continuing treatment

The daily dose of APO-go varies widely between patients, typically within the range of 3-30 mg.

It is recommended that the total daily dose of apomorphine HCl should not exceed 100 mg.

In clinical studies it has usually been possible to make some reduction in the dose of levodopa; this effect varies considerably between patients and needs to be carefully managed by an experienced physician.

Once treatment has been established domperidone therapy may be gradually reduced in some patients but successfully eliminated only in a few, without any vomiting or hypotension.

Children and adolescents

APO-go PFS 5mg/ml Solution for Infusion in Pre-filled Syringe is contra-indicated for children and adolescents under 18 years of age (see Section 4.3).

Elderly

The elderly are well represented in the population of patients with Parkinson's disease and constitute a high proportion of those studied in clinical trials of APO-go. The management of elderly patients treated with APO-go has not differed from that of younger patients. However, extra caution is recommended during initiation of therapy in elderly patients because of the risk of postural hypotension.

Renal impairment

A dose schedule similar to that recommended for adults, and the elderly, can be followed for patients with renal impairment (see Section 4.4).

4.3. Contra-indications

In patients with respiratory depression, dementia, psychotic diseases or hepatic insufficiency.

Apomorphine HCl treatment must not be administered to patients who have an 'on' response to levodopa which is marred by severe dyskinesia or dystonia.

APO-go should not be administered to patients who have a hypersensitivity to apomorphine or any excipients of the medicinal product.

APO-go is contra-indicated for children and adolescents under 18 years of age. Pregnancy and lactation (see section 4.6)

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4.4. Special Warnings and Precautions for Use

Apomorphine HCl should be given with caution to patients with renal, pulmonary or cardiovascular disease and persons prone to nausea and vomiting.

Extra caution is recommended during initiation of therapy in elderly and/or debilitated patients.

Since apomorphine may produce hypotension, even when given with domperidone pretreatment, care should be exercised in patients with pre-existing cardiac disease or in patients taking vasoactive medicinal products such as antihypertensives, and especially in patients with pre-existing postural hypotension.

Since apomorphine, especially at high dose, may have the potential for QT prolongation, caution should be exercised when treating patients at risk for torsades de pointes arrhythmia.

Apomorphine is associated with local subcutaneous effects. These can sometimes be reduced by the rotation of injection sites or possibly by the use of ultrasound (if available) to areas of nodularity and induration.

Haemolytic anaemia and thrombocytopenia have been reported in patients treated with apomorphine. Haematology tests should be undertaken at regular intervals as with levodopa, when given concomitantly with apomorphine.

Caution is advised when combining apomorphine with other medicinal products, especially those with a narrow therapeutic range (see Section 4.5)

Neuropsychiatric problems co-exist in many patients with advanced Parkinson's disease. There is evidence that for some patients neuropsychiatric disturbances may be exacerbated by apomorphine. Special care should be exercised when apomorphine is used in these patients.

Apomorphine has been associated with somnolence, and other dopamine agonists can be associated with sudden sleep onset episodes, particularly in patients with Parkinson's disease. Patients must be informed of this and advised to exercise caution while driving or operating machines during treatment with apomorphine. Patients who have experienced somnolence must refrain from driving or operating machines. Furthermore a reduction of dosage or termination of therapy may be considered.

Pathological gambling, increased libido and hypersexuality have been reported in patients treated with dopamine agonists for Parkinson's disease, including apomorphine.

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APO-go PFS 5mg/ml Solution for Infusion in Pre-filled Syringe contains sodium metabisulphite which may rarely cause severe allergic reactions and bronchospasm.

This medicinal product contains less than 1 mmol sodium (23 mg) per 10 ml, i.e. essentially “sodium-free”.

4.5. Interactions with other Medicinal Products and other forms of Interaction

Patients selected for treatment with apomorphine HCl are almost certain to be taking concomitant medicinal products for their Parkinson’s disease. In the initial stages of apomorphine HCl therapy, the patient should be monitored for unusual undesirable effects or signs of potentiation of effect.

Neuroleptic medicinal products may have an antagonistic effect if used with apomorphine. There is a potential interaction between clozapine and apomorphine, however clozapine may also be used to reduce the symptoms of neuropsychiatric complications.

If neuroleptic medicinal products have to be used in patients with Parkinson’s disease treated by dopamine agonists, a gradual reduction in apomorphine dose may be considered when administration is by minipump and / or syringe-driver (symptoms suggestive of neuroleptic malignant syndrome have been reported rarely with abrupt withdrawal of dopaminergic therapy).

The possible effects of apomorphine on the plasma concentrations of other medicinal products have not been studied. Therefore caution is advised when combining apomorphine with other medicinal products, especially those with a narrow therapeutic range.

Antihypertensive and Cardiac Active Medicinal Products

Even when co-administered with domperidone, apomorphine may potentiate the antihypertensive effects of these medicinal products (see Section 4.4).

It is recommended to avoid the administration of apomorphine with other drugs known to prolong the QT interval.

4.6. Pregnancy and Lactation

There is no experience of apomorphine usage in pregnant women.

Animal reproduction studies do not indicate any teratogenic effects, but doses given to rats which are toxic to the mother can lead to failure to breathe in the newborn.. The potential risk to humans is unknown. See Section 5.3.

APO-go should not be used in pregnancy unless clearly necessary.

It is not known whether apomorphine is excreted in breast milk. A decision on whether to continue/discontinue breastfeeding or to continue/discontinue

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therapy with APO-go should be made taking into account the benefit of breast-feeding to the child and the benefit of APO-go to the woman.

4.7. Effects on Ability to Drive and Use Machines

Apomorphine HCL has minor or moderate influence on the ability to drive and use machines

Patients being treated with apomorphine and presenting with somnolence and/or sudden sleep episodes must be informed to refrain from driving or engaging in activities (e.g. operating machines) where impaired alertness may put themselves or others at risk of serious injury or death until such recurrent episodes and somnolence have resolved (see also Section 4.4).

4.8. Undesirable Effects

Very common ($\geq 1/10$)

Common ($\geq 1/100$ to $< 1/10$)

Uncommon ($\geq 1/1,000$ to $< 1/100$)

Rare ($\geq 1/10,000$ to $< 1/1,000$)

Very rare ($< 1/10,000$)

Not known (cannot be estimated from the available data)

Blood and lymphatic system disorders

Uncommon:

Haemolytic anaemia and thrombocytopenia has been reported in patients treated with apomorphine.

Rare:

Eosinophilia has rarely occurred during treatment with apomorphine HCl.

Immune system disorders

Rare:

Due to the presence of sodium metabisulphite, allergic reactions (including anaphylaxis and bronchospasm) may occur.

Psychiatric disorders

Common:

Neuropsychiatric disturbances are common in parkinsonian patients. APO-go should be used with special caution in these patients. Neuropsychiatric disturbances (including transient mild confusion and visual hallucinations) have occurred during apomorphine HCl therapy.

Not known:

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Patients treated with dopamine agonists for treatment of Parkinson's disease, including apomorphine, especially at high doses, have been reported as exhibiting signs of pathological gambling, increased libido and hypersexuality; generally reversible upon reduction of the dose or treatment discontinuation.

Nervous system disorders

Common:

Transient sedation with each dose of apomorphine HCl at the start of therapy may occur; this usually resolves over the first few weeks.

Apomorphine is associated with somnolence.

Dizziness / light-headedness have also been reported.

Uncommon:

Apomorphine may induce dyskinesias during 'on' periods, which can be severe in some cases, and in a few patients may result in cessation of therapy.

Vascular disorders

Uncommon:

Postural hypotension is seen infrequently and is usually transient (See Section 4.4).

Respiratory, thoracic and mediastinal disorders

Common:

Yawning has been reported during apomorphine therapy.

Uncommon:

Breathing difficulties have been reported.

Gastrointestinal disorders

Common:

Nausea and vomiting, particularly when apomorphine treatment is first initiated, usually as a result of the omission of domperidone (See Section 4.2).

Skin and subcutaneous tissue disorders

Uncommon:

Local and generalised rashes have been reported.

General disorders and administration site conditions

Very common:

Most patients experience injection site reactions, particularly with continuous use. These may include subcutaneous nodules, induration, erythema, tenderness and panniculitis. Various other local reactions (such as irritation, itching, bruising and pain) may also occur.

Uncommon:

Injection site necrosis and ulceration have been reported.

Not known:

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Peripheral oedema has been reported.

Investigations

Uncommon:

Positive Coombs' tests have been reported for patients receiving apomorphine and levodopa.

4.9. Overdose

There is little clinical experience of overdose with apomorphine by this route of administration. Symptoms of overdose may be treated empirically as suggested below:-

Excessive emesis may be treated with domperidone.

Respiratory depression may be treated with naloxone.

Hypotension: appropriate measures should be taken, e.g. raising the foot of the bed.

Bradycardia may be treated with atropine.

Pharmacological Properties

5.1. Pharmacodynamic Properties

Pharmatherapeutic group: Dopamine agonists
ATC Code: N04B C07

Apomorphine is a direct stimulant of dopamine receptors and, while possessing both D1 and D2 receptor agonist properties, does not share transport or metabolic pathways with levodopa.

Although in intact experimental animals, administration of apomorphine suppresses the rate of firing of nigro-striatal cells and in low dose has been found to produce a reduction in locomotor activity (thought to represent pre-synaptic inhibition of endogenous dopamine release) its actions on parkinsonian motor disability are likely to be mediated at post-synaptic receptor sites. This biphasic effect is also seen in humans.

5.2. Pharmacokinetic Properties

After subcutaneous injection of apomorphine its fate can be described by a two-compartment model, with a distribution half-life of 5 (± 1.1) minutes and an elimination half-life of 33 (± 3.9) minutes. Clinical response correlates well with levels of apomorphine in the cerebrospinal fluid; the active substance

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distribution being best described by a two-compartment model. Apomorphine is rapidly and completely absorbed from subcutaneous tissue, correlating with the rapid onset of clinical effects (4-12 minutes), and the brief duration of clinical action of the active substance (about 1 hour) is explained by its rapid clearance. The metabolism of apomorphine is by glucuronidation and sulphonation to at least ten per cent of the total; other pathways have not been described.

5.3. Preclinical Safety Data

Repeat dose subcutaneous toxicity studies reveal no special hazard for humans, beyond the information included in other sections of the SmPC.

In vitro genotoxicity studies demonstrated mutagenic and clastogenic effects, most likely due to products formed by oxidation of apomorphine. However, apomorphine was not genotoxic in the in vivo studies performed.

The effect of apomorphine on reproduction has been investigated in rats. Apomorphine was not teratogenic in this species, but it was noted that doses which are toxic to the mother can cause loss of maternal care and failure to breathe in the newborn.

No carcinogenicity studies have been performed.

Pharmaceutical Particulars

6.1. List of Excipients

Sodium metabisulphite (E223)
Hydrochloric acid , 37% (for pH adjustment)
Water for injections

6.2. Incompatibilities

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

6.3. Shelf Life

2 years
Once opened the pre-filled syringe should be used immediately.

From a microbiological point of view, unless the method of opening precludes the risk of microbial contamination, the product should be used immediately.

If not used immediately in-use storage times and conditions are the responsibility of the user.

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6.4. Special Precautions for Storage

Keep the pre-filled syringe in the outer carton in order to protect from light.
For storage of the product after opening see Section 6.3.
Do not store above 25°C.

6.5. Nature and Contents of Container

Clear glass (Type I) pre-filled syringe, 10 ml with a chlorobutyl rubber stopper and tip.
Packs contain 5 Pre-filled Syringes in a cardboard tray in an outer cardboard cart

Bundle packs of 25 and 50 Pre-filled Syringes are available in some territories:

- The 25 pre-filled syringes bundle packs consists of 5 packs each containing 5 ampoules.
- The 50 pre-filled syringes bundle packs consists of 10 packs each containing 5 ampoules.

Not all pack sizes are marketed

6.6. Special precautions for disposal and other handling

APO-go PFS 5mg/ml Solution for Infusion in Pre-filled Syringe is for single use only. Any unused solution should be discarded.

After single use, adaptors and syringes should be discarded and disposed of in a “Sharps” bin.

Administrative Data

7. Marketing Authorisation Holder

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8. Marketing Authorisation Number

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9. Date of First Authorisation/Renewal of Authorisation

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10. Date of (Partial) Revision of the Text

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