

Apomorphine treatment: A nurse's perspective *Sister P McGee*

Background

Apomorphine is structurally similar to dopamine and is a potent agonist at both D₁ and D₂ type dopamine receptors. It is administered parenterally as a treatment for advanced Parkinson's disease (PD). The drug has been licensed since 1993 for use in PD patients with disabling motor fluctuations, resistant to manipulation of oral drug treatment. Apomorphine is given via a subcutaneous infusion pump, or APO-go pump. The timings of the pump are tailored to the patient's waking day, with daily infusion durations commonly ranging between 12 and 16 hours. It is not recommended that an apomorphine infusion pump be left on for 24 hours as this may cause localised swelling and irritation (there are quite a few patients who are on 24 hour infusions). This, in turn, can lead to nodules and scarring (figures 1 and 2). Apomorphine may also be intermittently administered subcutaneously by penject, or APO-go pen. This treatment is helpful for unpredictable off periods, providing a means of rescue within 5 to 15 minutes of administration.

The Apomorphine Challenge Test

The required dose of apomorphine is ascertained by an apomorphine challenge test. We use the Shared Care Guidelines produced by University College Hospital as our apomorphine challenge test protocol. The challenge is necessary to determine that the patient has a positive response to apomorphine, to establish the dose required to produce this response, and to identify their susceptibility to potential side effects such as postural hypotension, hallucinations, nausea or excessive somnolence. We usually perform the challenge test as a pre-planned day case admission, having previously written to the GP asking them to prescribe domperidone (normally 30 mgs tds for 72 hours prior to the admission). The patient is requested to withhold their anti-Parkinson's treatment from 12 midnight the night before admission. I have found that patients on longer acting oral dopamine agonists e.g. cabergoline should, if possible, withhold the agonist for at least 48 hours, as this may interfere with the result of the challenge test.

Patients are normally admitted as a day case around 9am, to avoid unnecessary prolongation of the off period. It is our usual practice to write to the GP prior to the patient's admission to establish whether they would agree to the on-going prescription of apomorphine, should the challenge test be successful. The GP is provided with extensive information about the drug and also the guarantee that the Consultant and I will oversee and monitor the therapy. We ensure that this agreement is obtained before the patient is brought up to hospital. Since this protocol was instituted, we have had few problems with GPs declining to prescribe apomorphine.

Starting Treatment with Apomorphine

Intermittent subcutaneous injection

If the patient is to use an APO-go pen, I normally instruct the carer/partner/patient on how to use this pen while conducting the apomorphine challenge test. I also give them a video provided by Britannia, instructing them how the pen works. Patients usually pick this up very quickly, as the pen is easy to use. There are problems with the design of the pen, however; some patients may find it difficult to administer the dosage as this requires the application of significant pressure to push the plunger down. This can be difficult in an OFF period. I always suggest that they

have an injection prepared to avoid such problems. Patients and carers can also find it alien to initiate the apomorphine on an "as required" basis rather than at specific times. Commonly asked questions are "How long a gap do I leave between my tablets and an injection?" and "How many times a day can I use the pen?"

Continuous Subcutaneous Infusion

Once we have a positive test, I contact the District Nurse that will be responsible for putting on and taking down the infusion pump on a daily basis. I provide them with information regarding the use of apomorphine and its side effects. We also consider the implications for their service. Our area is a mix between urban and rural areas, where one District Nursing team may cover a large geographical area, sometimes making it difficult to regularly start the infusion at the most appropriate time for the patient.

Patients going on to a pump are usually admitted to our neurological ward for a short stay. This is mainly to titrate or reduce other drug treatments and monitor the effectiveness of the apomorphine. The drug management depends on whether the patient will be given the apomorphine for bradykinesia and rigidity or for its anti-dyskinetic effect. In either instance, I aim to simplify the patient's medication regime as much as possible. On discharge, the patients are closely followed up and monitored to make sure any changes are appropriate.

The aim for patients prescribed apomorphine for their dyskinesias is to reduce the levodopa treatment as far as possible. It may be possible to run them on apomorphine "monotherapy" supplemented by a dose of dispersible levodopa in the morning before the pump is started and a controlled release preparation at night, or a combination of controlled release and dopamine agonist. Apomorphine infusions may also occasionally be used at night to control severe tremor, inadequately controlled on oral medication and associated with insomnia.

Training and Educational Issues

Training district nurses or nursing homes in the use of APO-go pumps can be time-consuming. As the area that I cover is fairly large, this often means travelling to rural parts, where I aim to train as many nurses from the relevant team as possible. I also try to identify a "link nurse" or district nursing sister who will then go on to cascade this training down to other staff at a later date. I use a step-by-step guide on setting up the apomorphine infusion pump and leave this at the patient's house, together with a copy of the Shared Care Guidelines booklet and my contact details. On the first day of discharge I arrange to see the patient at home with their carer and the district nurse. This is usually appreciated by the nurse and also gives me a chance to anticipate any early problems that might occur.



Figure 1 Scarring associated with apomorphine treatment



Figure 2 Nodule related to chronic apomorphine therapy (Pictures: Courtesy of Britannia Pharmaceuticals Ltd)

Once I have taught carers, district nurses or nursing home staff on how to use an APO-go pump, I use an objective sheet which is signed off to make sure that they understand how to perform the process of starting the apomorphine infusion and how to use the APO-go pump. This provides some proof that training was given and that the nominated person is proficient in using the pump. Both the district nurse and I keep copies of this sheet.

Should the pumps break down or need replacing, I always leave instructions on how to acquire another pump from Britannia Pharmaceuticals at the patient's home so that the district nurse, patient or carer can instigate this, should I be unavailable.

Skin and Tissue Care

I teach site rotation to reduce nodule formation. I encourage the district nurses to use a chart to record on a daily basis the previously used site, especially if there are several district nurses visiting one patient. There does not seem to be any way of predicting which patients are more likely to suffer from severe nodule formation; it does not, for example, clearly associate with their body mass index. The sites commonly rotated to are the lower abdomen and thighs. However, if patients are running into problems with nodule formation, I suggest upper abdomen and iliac fossa areas.

I also recommend CicaGel dressings, used in plastic surgery for keloid scarring. These dressings are available on FP10 prescription and are beneficial in reducing nodule formation. I give the patient a supply on discharge or leave them at the patient's home for the district nurse, with instructions on usage. I prefer to use them at an early stage rather than waiting until nodules become problematic. I also encourage the patient or district nurse to massage around the needle site after the removal of the needle at the end of the infusion. I do not normally suggest

squeezing out the apomorphine, as this can lead to increased soreness or infection. Tea Tree Oil may be massaged around the needle site if the area is particularly painful after the needle has been removed. My experience of this is anecdotal, but the oil does seem to help; it is difficult to say whether the oil just helps the massaging technique or whether it is the antiseptic properties of the Tea Tree Oil. Patients are also referred for ultrasound treatment of nodules, although how much ultrasound to use and for how long has not been well researched, to the best of my knowledge.

Follow Up

Once the patient is established on an apomorphine infusion it really depends on their particular needs and problems as to how often they are formally seen. They are reviewed on a regular basis in our Movement Disorder Clinic. However, I see them on a more regular basis if they run into any difficulties. I also encourage queries from GPs, district nurses or nursing home staff so potentially major problems can be "nipped in the bud" at an early stage.

Conclusion

Apomorphine therapy is very time consuming for a Parkinson's Disease Nurse. As with all anti-parkinsonian treatments, apomorphine requires careful monitoring and observation for potential side effects. The benefits of apomorphine can, however, be tremendous to the patient and carer in restoring and improving quality of life.

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