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Intra-penile injection treatment for erectile dysfunction

Prostaglandin E1 or Alprostadil

Prostaglandin E1 (PE1) is a naturally occurring substance which is a smooth muscle relaxant, and if injected into the corpora cavernosa (erectile cylinders) of the penis, causes arterial dilatation and an erection within a few minutes. It does rely on adequate blood supply to the penis and as such can be used as a diagnostic test of this. However it bypasses all other mechanisms of erection and so can be useful despite neurological, hormonal, drug, or psychological causes of erectile failure. Intra-penile injections have been used for treating erectile dysfunction for over 20 years and PE1 has been used for about 18 years.

PE1 causes an erection within about ten minutes and lasts on average about thirty minutes. There is tremendous individual variation in the response which is also dose related. Response can also be enhanced by normal methods of sexual stimulation. After ejaculation with a PE1 induced erection, detumescence or flaccidity will not automatically ensue until the drug effect has worn off.

Although it is essentially one injection one erection, some long term improvement of natural erections has been reported in men with organic impotence. The confidence restored using this treatment can often help with restoring natural erections in the case of psychogenic erectile difficulty.

Caverject Impulse

This commercial preparation of PE1 is available on prescription from any pharmacy. This is prepared as single use doses of 10 or 20 micrograms in 1ml syringes. The needle and swab come in the kit. Caverject Impulse does not have a PBS listing and costs about \$80 for 6 injections.

Multi-dose vial

A 10 ml multi dose vial requiring refrigeration and having a shelf life of 3 months is available from Hospital Pharmacy Services at Ashford and costs about \$100. This is supplied with 1ml insulin syringes and alcohol swabs at a little more cost. The average person will get at least 10 injections per vial (1.0 ml = 100units = 10 micrograms = average dose PE1).

The injection technique is simple and virtually painless. The desired amount of PE1 is drawn into a syringe and the injection is then given as shown in the diagram. After wiping the chosen injection site with an alcohol swab, the needle on the syringe is inserted into the side of the penis up to the hub to lodge within either of the corpora cavernosa. The injection can be given anywhere from the base of the penis to just behind the glans penis. The injection position should be between 2 and 3 o'clock or 9 and 10 o'clock aiming at the centre of the penis.

The paired erectile cylinders communicate across the midline septum thus requiring injection into only one of them. To be avoided are the vessels and nerves at the top of the penis, the urethra at the bottom of the penis, and any superficial veins visible just under the skin. After injection pressure should be applied between thumb and index finger for a few seconds to

minimise chances of bruising and the penis massaged to distribute the drug. The needle and syringe should be disposed of in a proper sharps disposal container for safety.

Trimix

This is a mixture of three drugs, prostaglandin E1, papaverine and phentolamine which are all arterial dilators and can produce a better response in some patients than PE1 alone. It is used in the same way but not used as first line treatment as it is more expensive and the risk of priapism is slightly higher (see below). The Trimix vial only holds 4.25mL, usually giving up to eight injections for about \$85.

Possible complications of intra-penile Injections

Priapism is a prolonged painful erection unassociated with sexual desire or stimulation. This can occur spontaneously or be due to intra-penile injection treatment. The incidence of this with PE1 is less than 1% but slightly higher with the addition of Papaverine and Phentolamine as in Trimix. Priapism is uncommon but can be treated readily if necessary. If the erection has not started to subside by two hours you should try a brisk walk and have a hot/cold shower. If no response you should take two sudafed or sinutab tablets, available over the counter at the chemist to relieve symptoms of the common cold. If this fails another two tablets should be taken two hours later. In the very unlikely event of a persistent erection urgent medical attention should be sought. Reversal by injecting an antidote (a drug to constrict arteries and decrease blood flow), is quite effective if given early, but less effective if left until the next day when more invasive means may be required and damaging fibrosis could follow.

Fibrosis of the penis from injections, occasionally early on in treatment has been reported but is rarely of clinical significance, especially with PE1.

Minor bruising from injections is occasionally seen but rarely of concern and minimised by avoiding superficial veins and using finger pressure after injection.

Pain on injection and occasional failure may be due to injection into the space between the corpora. This should be suspected if the injection is hard or painful. In this case the needle should be repositioned by pushing it in further or withdrawing it a little.

Supplies

Caverject Impulse is available from any pharmacy on a private prescription. The PE1 vials or Alprostadil, and Trimix are prepared by Hospital Pharmacy Services just behind Ashford Hospital and supplied with syringes, needles, and swabs with a prescription. There is no pharmaceutical benefit payable for these drugs bought in this way.