Norplant: the uses of a new contraceptive

The Norplant implant before insertion.

Sarah Blain RGN, MSC, is Honorary Research Associate, Academic Unit of Obstetrics and Gynaecology, St James’s University Hospital Trust, Leeds.

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Norplant is a subdermal implant providing contraceptive protection over a five-year period. After worldwide trials, it has been available in the UK since September 1993. The author discusses the mode of action of this contraceptive method, its efficacy, advantages and disadvantages and describes the procedure for insertion of the implants.

The Norplant subdermal implant is a low-dose, progestogen-only method of contraception that is long-acting, highly effective and reversible. It consists of six matchstick-sized, flexible, Silastic capsules, which are usually implanted under the medial surface of the non-dominant upper arm. These release a sustained low dose of levonorgestrel into the system at the levels needed to achieve effective contraception. The dose gradually decreases over a five-year period, after which time its contraceptive efficacy starts to diminish. Although relatively new to the UK (it has been available since September 1993), clinical trials have involved 55,000 women in 44 countries over a period of 20 years (1). It is estimated that three million women have used or are using Norplant worldwide.

Efficacy Among women who are of average weight, the pregnancy rate after one year of use is 0.4 per 100 users. Pregnancy rates increase over five years, with a cumulative pregnancy rate of 1.6 per cent (2). In one study, a direct correlation was found between pregnancy rates and women with a weight of over 70kg (1). This, however, was among women using a Norplant with a higher elastomer density in its capsule than the type available in the UK, which is now used worldwide.

Norplant works to prevent pregnancy in three ways. It thickens the cervical mucus (3) thus inhibiting sperm migration; it prevents ovulation in around 50 per cent of cycles; and it may alter the endometrium to prevent implantation and further inhibit sperm migration. Norplant has been confirmed as being one of the most effective methods of contraception currently available.

Disadvantages The side-effects of Norplant are irregular menstrual bleeding and progestogen-related symptoms, and are typical of all progestogen-only contraceptive methods.

The irregular menstrual bleeding is caused by the erratic shedding of hypotrophic endometrium and includes altered spacing of bleeding episodes, changes in the duration and volume of blood loss, and spotting. In some cases (between 5 and 7 per cent), menstruation can stop altogether. Between 60 and 82 per cent of women will experience menstrual changes during the first year of use (1), but this settles down in most women after the first year. It is important to emphasise to the user that bleeding episodes can be longer than usual but that the total volume of blood loss is usually less.

Other side-effects are similar to those found with other hormonal contraceptives and affect approximately 10 per cent of users. They include headaches, nausea, depression and mood changes, abdominal cramps, hair loss or gain, change in appetite, fluid retention, breast pain, weight...
changes (gain more common than loss), galactorrhoea (milky nipple discharge), acne and chloasma. Other progestogen-related side-effects include non-functional ovarian cysts and a theoretically higher risk of a pregnancy being ectopic, especially if the Norplant is left in situ for more than five years.

Financial and human costs
Other supposed disadvantages are that the woman is dependent on a clinician to initiate and discontinue use of the method, the device may be visible under the skin (although this has not been our experience), it provides no protection against sexually transmitted diseases and finally, financial cost. If Norplant is used for the full five years, its cost is comparable to a modern combined pill. If, however, the woman decides to have the device removed earlier, the financial cost increases. This should be weighed against the financial and human costs in terms of unwanted pregnancy among women who would otherwise use a less effective method of contraception.

Advantages
The main advantages of Norplant are its effectiveness, its convenience and ease of use, its reversibility, the avoidance of oestrogen-associated side-effects and that it lasts five years. Of 138 women requesting Norplant at our centre in Leeds, 89 cited convenience as an important advantage, 87 cited effectiveness and 65 cited the absence of oestrogen-associated side-effects. Of 145 women who have had Norplant fitted, 68 had no children, 57 had one or two and 20 had three or more. The largest number of users were in the 20–29 years age group (80 users), 41 users were aged 30 or over and 24 users were aged 20 or under.

It appears therefore that Norplant will not be restricted to a particular group of users and is appealing to a wide range of women. Because it is safe and reversible (it is undetectable in the blood 24 hours after removal), it is suitable as a first choice method. Currently, depo-medroxyprogesterone acetate (Depo-provera) is only licensed to be used in women when no other suitable method can be found.

The efficacy of the method is not reduced if the user takes antibiotics (apart from hepatic enzyme inducers such as rifampicin) or has an episode of diarrhoea and vomiting. It does not interfere with sexual intercourse and requires no forward planning, apart from the fitting.

Preparing the user
It is important that the woman is seen to discuss Norplant, preferably at least a day before the insertion. This allows her to make an informed choice and increases the likelihood that she will continue using the device should she experience menstrual changes or other side-effects. The aims of the initial appointment are, as for any family planning consultation, to discuss the benefits and limitations of the method, to assess and discuss her suitability and to check for any contra indications.

It is essential to reassure the client that should she experience problems with using the method, or should she change her mind for whatever reason, it can be removed and she should not feel a 'failure'. It is not always possible to predict which clients are likely to have problems or change their mind and it would be highly unethical for any healthcare professional to refuse to remove Norplant.

Insertion
On the day of insertion, any queries the women has are discussed. Insertion takes 10-15 minutes. The procedure is described to the woman and she lies flat, with her arm outstretched in a comfortable position. The insertion site is first marked using a stencil mapping where the Norplants are to go. The skin is then cleaned with a mild antiseptic and sterile towels are placed around the site.

Approximately 4 mls of 1 per cent lignocaine (without adrenaline) is injected into the inser-
On removal, capsules are extracted through the same small incision.

References