

Short report

## Treatment of menstrual migraine by oestradiol implants

AL MAGOS, KJ ZILKHA, JWW STUDD

From Dulwich Hospital, London, UK

**SUMMARY** The suppression of cyclical ovarian activity and the creation of constant oestradiol levels in blood by subcutaneous oestradiol implants has been used to treat 24 patients with menstrual migraine for up to five years. Twenty-three patients improved with treatment, 20 (83%) became completely or almost completely headache-free. Regular monthly periods were induced with cyclical oral progestogens. The treatment was not associated with any problems. The results support the concept that oestrogen withdrawal in the late luteal and menstrual phases of the ovarian cycle is the important precipitating factor in menstrual migraine, and such attacks can be prevented by suppressing the hormonal fluctuations associated with the ovarian cycle.

Migraine occurs in approximately 19% of women.<sup>1</sup> In a significant number the migraine headaches appear to be influenced by hormone changes associated with the ovarian cycle, in that attacks usually commence after puberty, and in up to 60% the headaches are related to menstruation.<sup>2</sup> Pregnancy is associated with total or partial cessation of attacks and the combined oral contraceptive pill may precipitate migraine during the week off interval. These observations, and the lack of consistent differences in the plasma concentrations of the ovarian hormones between women suffering from menstrual migraine and controls,<sup>3</sup> has led to the concept of hormone withdrawal in the premenstrual phase as the causative factor. Somerville<sup>4</sup> believed that falling oestradiol levels, rather than progesterone were responsible, as he was able to abort menstrual migraine attacks by short-acting injections of oestradiol but not by progesterone. He also attempted prophylaxis using oral and injectable oestrogens but failed to maintain adequate plasma oestradiol level and did not influence the frequency of migraine attacks. We report our experience of the treatment of menstrual migraine by subcutaneous implants of oestradiol. Oestradiol implants are

already established in treating the symptoms of the climacteric,<sup>5</sup> and it was considered that a dose large enough to suppress ovulation<sup>6</sup> and the biochemical changes of the ovarian cycle would prevent menstrual migraine attacks by producing constant oestradiol levels for a period of six months.<sup>7</sup>

### Patients and method

Over the past five years 24 patients have been treated with subcutaneous oestradiol implants (Organon Laboratories) for menstrual migraine. The diagnosis of migraine fulfilled the definitions laid down by the World Federation of Neurology's Research Group on Migraine and Headache. All patients had tried prophylactic drug therapy and were referred by general practitioners or neurologists for hormone treatment because of failure to maintain adequate relief and reduction in the number of attacks of migraine.

**Characteristics of the Study Group** Of the 24 patients, five had classical migraine and 19 common migraine. All patients complained of regular attacks immediately before or during menstruation for an average of 23.3 years (range 2-37). Twenty-one first developed migraine during or within a few years of puberty, and all 20 of the parous patients noted improvement during pregnancy. Eight of the 12 patients who had taken oral contraception found it made their migraine worse, and 16 women also suffered from the premenstrual syndrome.

**Oestradiol Implant Treatment** The average age at the start of implant treatment was 40.6 years (range 32-51), with 2.5 years (range 0.5-5) being the mean duration of treatment at a starting dose of 100 mg of oestradiol, the dose that has been shown to inhibit ovulation and be effec-

Address for reprint requests: Dr JWW Studd, Dulwich Hospital, East Dulwich Grove, London SE22 8FT.

Received 28 April 1983

Accepted 14 May 1983