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Laser hair removal in women with polycystic ovary syndrome☆

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Summary Polycystic ovary syndrome (PCOS) is one of the most common reasons for women to present seeking removal of facial hair, particularly within the UK National Health Service (NHS). In the NHS, there is geographical variation in the number of laser treatments available to women with PCOS, with some units limiting patients to six treatments whilst others allow unlimited treatments. This study aims to assess the effect of number of treatments on women with PCOS.

Methods: This study prospectively assessed hair counts, hair-free intervals and patient satisfaction in 60 women with PCOS undergoing 3 ms pulse duration alexandrite laser treatment.

Results: Following six treatments there was a mean 31 ± 38% reduction in hair counts (mean ± SD; $P = 0.001$). Mean hair-free interval (HFI) increased steadily with treatment, from 1.9 weeks after six treatments to 4.3 weeks after 10 treatments ($P = 0.001$). From the postal questionnaire, after an average of 12 treatments, 31% of patients had a HFI longer than 6 weeks compared to only 2.6% after six treatments ($P = 0.003$). Overall, despite the low hair count reductions, 95% of patients were satisfied with treatment.

Conclusion: In women with PCOS, laser treatment is associated with a poorer than expected reduction in hair counts and HFI following treatment. However, offering more than six treatments does have additional benefits in terms of prolonging HFI and overall patient satisfaction with treatment is very high.

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The presence of excessive facial hair in women is associated with psychological and emotional distress,[1,2] and causes significant impairment of their quality of life.[3–5] Polycystic ovary syndrome (PCOS) is estimated to affect between 4 and 6% of the female population, with up to 80% of these women going on to develop hirsutism, and is therefore one of the most common reasons for women to present seeking removal of facial hair.[6,7] Although the most important factor in the diagnosis of PCOS is elevated circulating androgen levels, patients may be classed as having the syndrome even if they lack biochemical evidence of hyperandrogenism, but have many of the phenotypic features such as: oligomenorrhoea or anovulation; signs of virilisation including hirsutism, acne, obesity and alopecia; or polycystic ovaries demonstrated on ultrasound.[8–10] Despite the presence of associated symptoms including infertility, patients with PCOS often regard hirsutism as the most upsetting feature of the syndrome, particularly when it affects the face. In one study, women with PCOS rated excessive facial and body hair as having a larger impact on quality of life than infertility and menstruation-related problems.[5] Therefore, identifying an effective method of removing this excessive hair is extremely important to this group of patients.

The use of the alexandrite laser for hair removal has been widely reported in the literature.[11–16] However, the efficacy of treatment is difficult to quantify since there is significant variation between studies in terms of the number of treatments given, the outcome measures used, anatomical locations treated and the length of follow up. In addition, there is very little information on how laser facial hair removal compares between women with PCOS and the results reported in the literature for unselected patients attending for hair removal. One recent paper did assess the alexandrite laser treatment of facial hirsutism in women with PCOS, but this paper focused on the psychological benefits of the treatment.[17] In particular, the effect of the number of laser treatments has not been previously studied in these patients. This is important within the UK National Health Service (NHS) as restrictions on laser treatment availability result in: (1) the majority of patients accepted for treatment having facial hirsutism secondary to PCOS; (2) geographical variation limiting patients to six treatments in some areas whilst allowing unlimited maintenance treatments in other units, including ours.

In this study we aim to assess the efficacy of alexandrite laser facial hair removal in women with PCOS, in particular assessing the effect of the number of treatments.

Materials and methods

Subjects

The subjects included in this study were recruited from new referrals to our unit seeking removal of facial hair. All of the patients had been diagnosed as having PCOS prior to referral, either through gynaecology or endocrinology clinics, and we did not attempt to independently establish the diagnosis. Patients completed a skin sensitivity questionnaire and were assessed by a laser nurse practitioner prior to treatment to ensure their suitability for laser hair removal. Inclusion criteria were: a diagnosis of Polycystic ovary syndrome; facial hirsutism comprising brown or black hair; Fitzpatrick skin types I–V; and patients over the age of 16. Exclusion criteria were: idiopathic and non-facial hirsutism; patients with blonde, grey or white hair; and patients under the age of 16. The extent of facial hirsutism was not an entry criterion. After assessment and application of inclusion criteria, 60 women were included in the study, mean age 34 years (17–72). Fifty-five of the women were skin types I and II with the remaining five patients skin type IV.

Study protocol

This was a prospective audit carried out between April 2002 and December 2003. Prior to and during treatment, patients were asked to desist from non-laser hair removal such as plucking, threading or waxing. Concomitant shaving and trimming were allowed.

Patients were treated using a 755 nm GentleLase Alexandrite Laser (Candela Corp., Wayland, MD, USA). This laser has a 3 ms pulse duration and all patients were treated using the 15 mm spot and accompanying dynamic cooling device. Standard starting fluences of 20 J/cm^2 for skin types I and II and 10 J/cm^2 for type IV were used. The fluences used during treatment ranged from 18 to 25 J/cm^2 and 8 to 14 J/cm^2 for skin types I and II and type IV, respectively. Patients underwent an initial test patch followed by a course of six treatments at six weekly intervals. After this, patients were brought back for maintenance treatments as required. Not all patients completed the full course of treatment: overall the patients included in the study underwent an average of eight treatments, ranging from five to 13.

Outcome measures

Three separate outcome measures were employed: hair counts, hair-free interval (HFI) following each treatment and patient satisfaction questionnaires. Hair counts were measured using a videomicroscope, as has been previously described.[18] Essentially, a standard 1.04 cm^2 area is captured at 25× magnification. Videomicroscopy pictures were taken on the upper lip, chin and neck before treatment and repeated 6 weeks following the sixth treatment. Three experienced laser nurse practitioners independently calculated hair counts to ensure accuracy. If there was any discrepancy between hair counts then an average value was taken. Fourteen of the patients did not receive six treatments during the course of the study so these patients do not have post-treatment hair counts available. In addition, a further nine patients failed to have post-treatment hair counts despite having six or more treatments, leaving a total of 37 patients who had both pre- and post-treatment hair counts measured.

All 60 patients had hair-free intervals (HFIs) recorded during the study. These were self-reported measurements of the time to new facial hair growth following treatment.

After the end of the initial study, all of the patients were sent an anonymous patient satisfaction questionnaire regarding their laser hair removal treatment (Fig. 1). The