

## A Therapeutic Study of Nail Psoriasis Using Electron Beams

Sir,

Both superficial radiotherapy (1, 2) and grenz ray therapy (3) have been used in treating psoriatic nail dystrophy, with variable results. The aim of the present study was to determine whether electron beam irradiation is effective in treating nail psoriasis. Electron beams were used as they can penetrate to the nail bed, unlike grenz rays which treat only the surface of the nail.

The effect of electron beam therapy in the treatment of psoriatic nails was assessed in 12 patients with symmetrical nail psoriasis. None received systemic treatment. They did not apply any topical medication or clip their nails while on follow-up. Active treatment was randomly allocated to the affected nails of one hand, while the other one served as control. The nails and the beds were treated with an electron beam of 7 mega electron volts. A total of 6 Gray (Gy) was given in 8 fractions over 8 weeks, i.e. one fraction of 0.75 Gy per week. Assessment was performed at 3, 6 and 12 months after treatment.

Photographs of the involved nails of both hands were obtained prior to electron beam therapy and at each follow-up visit. Each of the nails was graded as follows:

- Grade 1 – pits, furrows, transverse depressions, onycholysis.
- Grade 2 – subungual hyperkeratosis, thickening and crumbling of nail plate, "oil drop" discoloration and splinter hemorrhages.
- Grade 3 – proximal nail fold involvement, distal arthropathy.

At each follow-up visit, the nails were graded, the improvement of each of the psoriatic nail signs was judged and an overall assessment was scored as follows: cured without residual nail abnormalities, markedly improved with residual lesions, moderately improved, slightly improved and no change. Any side-effects were recorded.

The Wilcoxon signed rank test, two-tailed, was used to compare the difference in treatment between the treated and control hand, and change in grading on the treated hand at 3 months, 6 months and 1 year compared to baseline. Statistical significance is taken  $p < 0.05$ .

Three months after the electron beam therapy, one patient showed marked improvement of the treated nails when compared to baseline; 2 showed moderate improvement; 6 patients

showed slight improvement; and 3 patients failed to respond. At 6 months, only one patient continued to show moderate improvement. In 2 patients, the slight improvement seen at 3 months was maintained. In 6 patients, the improvement noted at 3 months was not sustained. The patient with marked improvement of the treated nails at 3 months showed slight improvement at 6 months and 1 year. At 1 year, only one patient continue to show moderate improvement. In 2 patients, the slight improvement noted at 6 months was maintained. In 9 patients, the nails had reverted back to the pre-treatment state.

Compared to the control hand, there was a statistically significant improvement at 3 months ( $p < 0.05$ ) but not at 6 months ( $p > 0.5$ ) and 1 year ( $p > 0.5$ ) (Wilcoxon signed rank test).

Compared to the baseline for the treated hands, there was a statistically significant improvement at 3 months ( $p < 0.05$ ) and at 6 months ( $p < 0.05$ ) but not at 1 year ( $p > 0.5$ ) (Wilcoxon signed rank test). In 4 patients, the nails of the control hand showed improvement; 3 slightly improved and one moderately improved, but this was not statistically significant ( $p > 0.5$ ) (Wilcoxon signed rank test). A decrease in subungual hyperkeratosis was the main improvement noted, followed by pitting and onycholysis. The only local side-effect was a temporary deep brownish-black discoloration of all the electron beam-treated nails.

Electron beam therapy appears to have a definite, though temporary, beneficial effect on psoriatic nails.

## REFERENCES

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