

Potassium titanyl phosphate laser treatment of resistant port-wine stains

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Background The pulsed dye laser (PDL; 585 nm, 450 μ s pulse) has been established as the treatment of choice for port-wine stains (PWS), but only few patients have total clearance. A modulated potassium titanyl phosphate (KTP) laser (532 nm) has been developed that allows the adjustment of energy fluences within the 5-50 J cm⁻² range with laser pulse widths between 1 and 50 ms at pulse rates from 1 to 20 pulses s⁻¹.

Objectives To determine the efficacy and side-effect rate of the KTP laser in treating PDL-resistant PWS.

Methods Thirty patients were recruited. The site and colour of the PWS were recorded and assessed with erythemameter readings, videomicroscopy and photography both before and after treatment. All patients had test areas treated on their first visit and were then reviewed at 2-monthly intervals. Repeat treatments were given if no adverse effects had occurred and if the treated areas had shown between 25 and 100% lightening.

Results Thirty patients were assessed, age range 11-63 years (mean 35.4) with 19 females. The PWS affected the face in 21 (70%) patients, leg in five (17%) and other sites in four (13%). Patients had one to four tests or treatments (mean 2.2) with the KTP laser. Overall, 16 (53%) patients showed >25% response and five (17%) showed >50% response to treatments with the KTP laser. Best responses were found with fluences ranging from 18 to 24 J cm⁻² with pulse width 9-14 ms. No correlation was found with the colour of the PWS or the number of previous treatments with PDL. Patients preferred the KTP laser treatments compared with the PDL (visual analogue score mean 9.8; $n = 5$) with less discomfort during treatments and minimal purpura post-treatment. Six patients (20%) developed side-effects: scarring ($n = 2$, 7%), hyperpigmentation ($n = 3$, 10%) and prolonged healing phase of over 4 weeks ($n = 1$, 3%).

Conclusions We have shown that the KTP laser can further lighten PDL-resistant PWS and that it is a useful addition to the laser treatment of PWS. Further studies need to assess the efficacy and side-effects of the KTP laser in previously untreated PWS.