

Modulating Autoimmunity via Photosensitization and Controlled Illumination.

Worldwide research is increasing on the use of photosensitizers to modulate the immune system. The FDA approved this technology eight years ago in the form of UVADEX, a psoralen activated by ultraviolet. Unfortunately this process has known carcinogenic potential and requires ex-vivo treatment of isolated leukocytes.

There are newer techniques which overcome these shortcomings, making it possible to directly modulate the immune system in vivo with no apparent negative side effects.

Three case histories presenting with Psoriasis, Scleroderma and Multiple Sclerosis were treated with a photosensitizer and laser. In all three cases there was a reversal of symptoms. This technology has been used for rheumatoid arthritis and may be useful for Diabetes and other auto-immune disorders.

The latest research indicates that the effect of using this technique is limited to suppression of the specific autoimmune activity, with no effect on the overall immune system behaviour.



Before (left) and after MRI T2 scans of MS patient

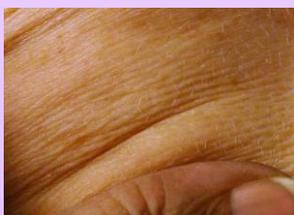
At the time of treatment patient was about a 6.5 on the Kurtzke EDDS. Her neurologist rated her at a 3 several months later.

The response to treatment was remarkable in the speed of recovery of functions, including control of an eye which had lost control previously.

Neurologist comment
neurological condition seemed to improve quite dramatically after the treatment



Psoriasis often requires two or more treatments with PDT, but it can be eliminated and not return.



This patient had been treated for scleroderma for 15 years with no signs of improvement. With a photosensitizer and light the tissue returned to normal with three treatments. There has been no sign of relapse after nearly two years. Affected muscles also returned to normal. Normal pores appeared immediately and hair regrew in 8 weeks

Excerpts from the MRI report: "On the diffusion weighted sequence I cannot see any definite area of restricted diffusion to suggest any ischaemic lesion or a highly active plaque", "No definite brain stem or cranial nerve lesion is evident".

The neurologist comments about the MRI include: the diffusion weighted image showed no evidence of any major recent activity in any of the visible plaques.

Clearly there is some continuing autoimmune activity, but given that she had only one short treatment it would be overly optimistic to hope for a complete remission.

Nonetheless her condition has improved dramatically and has at this time maintained the improvement for ten months.

Reference:

Title: Characteristics of the immunosuppression induced by cutaneous photodynamic therapy: Persistence, antigen specificity and cell type involved

Author: Musser, DA and Oseroff, AR

Journal = PHOTOCHEMISTRY AND PHOTOBIOLOGY