Serious concerns remain over the long term prognosis for children who receive transplants. Accelerated coronary atherosclerosis, believed to represent chronic, humorally mediated rejection,¹⁹ occurs in up to half of adult patients within five years of transplantation.²⁰ Children are probably equally susceptible to accelerated atherosclerosis,^{5, 21} although neonates may be more resistant because of their immature immune state.¹⁶ Cyclosporin, the cornerstone of immunosuppressive treatment, invariably produces hypertension and renal damage, which may itself eventually necessitate transplantation.⁵ To avoid the many troublesome side effects of steroids and in particular their adverse effects on growth, development, and physical appearance in children,²² some groups have advocated using cyclosporin and azathioprine for maintenance immunosuppression.^{3, 6} Malignancy, most commonly lymphoproliferative disease, occurs in at least 4% of paediatric patients who have received transplants but is reversible in half by stopping immunosuppressive treatment and treating with acyclovir.²³

Predicting the eventual demand for paediatric transplantation is difficult. In the past five years 148 children have received a heart transplant in the United Kingdom, 44 in 1990 alone (Mr C Scott, United Kingdom Transplant Service, personal communication). Internationally, paediatric transplantation accounts for about one in 10 transplant operations but is the fastest growing group.⁴ As the results of transplantation continue to improve, and even surpass those of some conventional procedures providing poor palliation,⁶ the demand is likely to grow. The increasing use of prenatal diagnosis may, however, reduce the number of infants born with severe heart defects.

At present neonatal and infant transplantation should be confined to a few centres with programmes of research and development. Parents need warning of the complexities of treatment, the exhaustive medical follow up, the uncertainties of the long term prognosis, and the considerable personal expense in time, effort, and money. Nevertheless, the prospect of offering normal early life and development to a group of

patients whose condition is otherwise fatal suggests that developments in this specialty should be cautiously encouraged.

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Ultraviolet A radiation: staying within the pale

Sunscreens offering high sun protection factors are not enough

The quest for a healthy suntan is largely a twentieth century phenomenon. The more we learn of ultraviolet radiation, however, the more elusive becomes that goal. Whether from sun or sunbed, ultraviolet radiation (wavelength 100-400 nm) may burn as well as tan. It also causes potentially lethal skin cancers¹ and the blotchy brown wrinkling of skin that accompanies aging.² In addition, cutaneous and systemic immunological changes follow even small doses of radiation.³

Ultraviolet B radiation (wavelength 280-315 nm) has been incriminated as the main waveband in terrestrial sunlight responsible for these effects. Avoiding the midday sun, particularly in summer and in the tropics, and regularly applying a sunscreen with a high sun protection factor provide reasonable protection. Sunscreens may be bought without prescription: the sun protection factor number indicates how much longer the user may stay in the sun before burning than if no sunscreen was used. These products, which contain chemicals that block ultraviolet B radiation, reduce sunburn and, at least in animals, skin aging⁴ and cancer.⁵ They may, however, be less effective in preventing immunological disturbances.⁶ Nevertheless, the menace of

acute and chronic skin damage induced by ultraviolet radiation seemed for a time to have been suitably blunted.

Now, however, a new threat has emerged from the assiduous avoidance of ultraviolet B radiation: ultraviolet A radiation (wavelength 315-400 nm), particularly notable for its ability to tan before burning.⁷ Although its cutaneous effects are about 1000 times less potent than those of ultraviolet B rays, it is up to 100 times more intense in midday summer sunlight — thus contributing about one tenth of the total effect of ultraviolet radiation at that time. At other times, when the intensity of total ultraviolet, and particularly of ultraviolet B, radiation falls off rapidly, it contributes a greater proportion (albeit less intense).

Without protection against ultraviolet exposure the effects of burning, mainly mediated by ultraviolet B, eventually send the sunbather inside, chastened and presumably the wiser for next time. But with careful use of highly protective sunscreens that block most of the burning ultraviolet B rays the sunbather may spend much longer in the sun, during which time the much sought after tan can be achieved from the largely unfiltered ultraviolet A. Thus day after day and

vacation after vacation, sunbathers may expose themselves almost exclusively to ultraviolet A. Although they may obtain a tan without burning, they nevertheless suffer cutaneous damage similar to that from ultraviolet B.⁸ And, unlike what happens after ultraviolet B irradiation, their recurrent exposure to ultraviolet A gives them very little protection against further damage from ultraviolet radiation.⁹ Furthermore, other disorders largely exclusive to ultraviolet A may occur—such as photosensitisation by drugs and creams¹⁰; unusual freckling¹¹; fragility and blistering of the skin¹²; and many photodermatoses (most merely annoying but some potentially life threatening),¹³ to which perhaps one in five people are susceptible.¹⁴

What should be done? Must we avoid sunscreens altogether and return to a more natural existence, seeking instead clothing and trees for shelter? Perhaps not—although this might be a more sensible approach—for help now seems at hand. Sunscreens that more effectively block ultraviolet A are being developed.¹⁵ These contain either absorbent chemicals (which carry a risk of irritation or allergic contact sensitisation) or, more effective if not quite vanishing, formulations of inert reflectant particles such as titanium dioxide. As yet, however, no agreement has been reached over how to measure the efficacy of such sunscreens,¹⁶ and the matter is currently the subject of heated scientific and commercial debate and disarray. Until further advances are made the product packs on retailers' shelves will convey this confusion to the consumer by their varied and uncertain terminology. Though perfection

has yet to be attained, come summer and the next vacation, choosing a cream combining a high sun protection factor with good protection against ultraviolet A seems well worth while.

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Phobias and related anxiety disorder

Treatment with behavioural exposure can be quick, inexpensive, and effective

About one in 10 people develop an anxiety disorder some time during their lives (A Weizman *et al*, world congress of biological psychiatry, Philadelphia 1985).¹ Agoraphobia, other phobias, obsessive-compulsive disorder, and post-traumatic stress disorder cause much misery and handicap to sufferers and their families. They consume many health care resources, even though less than half the sufferers found in community surveys have sought help for their problem (A Weizman *et al*, world congress of biological psychiatry, Philadelphia 1985).¹

The diagnosis is easily missed but is quickly revealed by a few judicious questions. One is "Do you avoid things that most people wouldn't mind for fear of discomfort; if yes, what things?" Red, excoriated hands in a compulsive handwasher may be misdiagnosed as allergic dermatitis; the truth springs from briefly inquiring into undue washing and fear of dirt. Palpitations and dizziness in agoraphobic panic may be misattributed to heart or ear disease for failure to ask, "Do your symptoms occur mainly in public places (street, crowds, shops, buses, trains, and auditoriums)? and do you avoid these places because they cause fear or panic?" Intermittent depression frequently complicates anxiety syndromes and may mask the underlying disorder.

Untreated anxiety disorders often continue for decades and are present for an average of nine years before treatment is sought.^{2,3} This delay is partly due to sufferers' slowness to seek help because of fear of stigma and partly to them and their doctors not knowing that effective treatment is available.

Most anxiety disorders improve with treatment by behavioural exposure.² It is reliable and cost effective, and its benefits usually continue to follow up at six years.⁴ During

treatment the patient is persuaded to confront the hitherto avoided situations that bring on his or her typical fear, panic, or the urge to wash or check. Remaining in those situations, enduring the resultant discomfort, leads to gradual habituation over the next hour or so. Using an exposure manual⁵ the patient plans and carries out such exposure exercises as daily homework until the situations are tolerated easily with minimal discomfort, records these exercises in an exposure homework diary, and brings this to the clinician for discussion at intervals. Exposure may also have to be to avoided thoughts ("listen for at least an hour daily to a Walkman tape recorder on which you have recorded discomfiting thoughts").

Improvement usually appears within days, and the exposure programme can be completed within weeks or months, depending on the size of the problem. Relatives can help to monitor the exposure programme, praise progress, and learn to withhold the addicting reassurance that makes matters worse. About three quarters of sufferers offered behavioural treatment complete it,² a compliance rate better than in much other treatment. Most completers benefit—with much reduced distress, avoidance, family burden, and demand on health care resources. Sufferers become able to resume care of their children and home and to work again.

The key is regular self exposure with some guidance from a clinician. Little is gained either by accompanying the patient during exposure⁶⁻⁸ or by teaching relaxation.² A fashionable addition to exposure is cognitive therapy, which teaches patients to change irrational automatic thoughts. Such thoughts decline anyway during exposure without cognitive therapy, and whether outcome is enhanced by adding cognitive therapy to exposure therapy is still debated.