Sun awareness and prevention of skin cancer

The topic of sun awareness and prevention of skin cancer has relevance for all people, of all ages and races, at all times of the year. With an increasing number of patients presenting with skin cancers, nurses must be vigilant in their observation skills of abnormal skin lesions, and be proactive to reduce the incidence of all skin cancers. This literature review aims to raise the profile of sun awareness and highlight sun avoidance measures which should start from infancy.

Health policy

Saving Lives: Our Healthier Nation (DH 1999) stated that 'individuals could protect children and themselves from sunburn', reinforcing the sun protection message included in The Health of the Nation (DH 1993), whose target to halt the year-on-year increase in the incidence of skin cancer by 2005 was not achieved. New cases of malignant melanoma (MM) across all ages in the UK increased from 6,967 in 2000 (CRUK 2004a) to 8,028 in 2002 (CRUK 2006). The NHS Cancer Plan recognised that most people are aware of the risks of sun exposure, but fewer people take action to protect themselves from the risks (DH 2000). The Department of Health produced educational resources on the risks of sunlight, and funded the Meteorological Office to provide information in weather forecasts (DH 2000). The largest public health benefit was expected to come from enhanced sun education and protection programmes, both for children and adults (Tucker and Goldstein 2003).

What is a malignant melanoma?

Malignant melanoma is a malignant tumour of the cutaneous melanocytes (SIGN 2004), which comprise 8 per cent of the epidermal cells, and have a protective role in absorbing and dispersing the sun's rays (Tortora and Grabowski 1996). Ultraviolet rays (UVR) target and break deoxyribonucleic acid (DNA) strands, causing mutations and abnormal bonding, which can result in skin cancer (Wang et al 2001).

Ultraviolet radiation (UVR)

Sixty per cent of UVR is received between 10am and 2pm, reaching a maximum around mid-
day, while 90 per cent of UVR can penetrate light cloud (WHO 2003a).
The UV index is a measure of UVR reported along with weather forecasts in newspapers, on the TV and radio: the higher the index number, the greater the risk of damage to the skin and eyes.
Reflective surfaces such as sand, snow and water can increase UVR by as much as 90 per cent (Robins 1990, cited by Pion 1996). Appreciation of sun awareness and the need for skin protection during winter sports or exposure, and while swimming, is very important (Pion 1996, Wired for Health 2006).

Sunburn as a risk factor

Sun exposure is thought to be the major environmental risk factor for melanoma (Landi et al 2002). Intense exposure to sun before the age of ten appears to be a risk factor for developing MM three to four decades later. Sunburn, as opposed to sun exposure, in childhood has been associated with a two to three times greater risk of MM (McPhail 1997, CRUK 2005); children’s skin being most vulnerable to damage (Patient UK 2005). There is a correlation between the erythema caused by sunburn and DNA damage, and suppression of the immune response (Naylor and Farmer 2000).

Adolescence is the period of greatest susceptibility to skin cancer, as the target cells for UVR are still immature (Livingston et al 2001). Most of a person’s lifetime sun exposure is estimated to occur before the age of 20 years (CRUK 2004b). A single blistering episode of sunburn before age 20, and having more than 20 naevi/moles, increases the risk (Otto 2001, HPA 2002, SIGN 2004).

Increased numbers of melanocytic naevi are related to sunburn in children and a lifestyle of increased sun exposure (Harrison et al 1994). Gallagher et al (2000) suggested that reducing acquired naevi in children might reduce their risk of MM as adults, as most children are born without naevi. Although sunscreen may reduce the development of new naevi (Gallagher et al 2000), studies by Bech-Thomsen and Wulf (1993), and Autier et al (1995, 1999), support the need to encourage physical sun protection measures and not rely solely on sunscreen.

Eye protection

There is a low risk of ocular melanoma from exposure to UVR (CRUK 2005, Patient UK 2005), but a high risk factor for developing cataracts (Wagner 1995, WHO 2003b). Intensive sun exposure is also associated with corneal burns, can-
cers of the eyelids and conjunctivae (Pion 1996). Wagner (1995) recommends that if a child is in the sunlight long enough to get a sunburn or a tan, he or she should wear sunglasses. Sunglasses should block 100 per cent of UVA and UVB rays and have wrap around protection (Wired for Health 2006).

Race

The incidence of skin cancer is lower in dark skinned people, but skin cancers that do occur are often detected at a later, more dangerous stage (WHO 2003b). The sun awareness and skin protection message must be promoted to everyone, regardless of colour.

Behaviour

Teenage behaviour does not necessarily relate to their knowledge, as demonstrated by Buller et al (1994) who reported a negative relationship between knowledge and behaviour in adolescents. Kristjánsson et al (2003), however, noted positive sun protection behaviour change in their intervention group of 13 to 15 year olds, with the exception of ‘giving up sunbathing’.

Parental behaviour

Despite a publicity campaign in Leicester during the summer of 1993, 48 per cent of 238 parents, with children aged less than 14 years, stated that their child suffered from sunburn at least once a year (Bourke and Brown 1995) 88 per cent of parents knew that sunburn could cause skin cancer, 80 per cent had heard of melanoma, and 87 per cent of parents protected their children from sunburn by some means on sunny days. Moreover, when in England only 34 per cent avoided the mid day sun, and only 45 per cent did so abroad, 79 per cent of children wore a T-shirt on sunny days but less than 50 per cent wore a hat. Only 53 per cent used a sunscreen in England, but 88 per cent used one when holidaying abroad.

There appears to be little change in parental behaviour in the past decade, as these study results are supported by CRUK, which stated that over a third of parents in Great Britain admit their child has been sunburnt, despite the majority knowing that over-exposure to the sun can cause skin cancer (CRUK 2004c). This suggests that parental knowledge does not improve sun protection for children, and raises concerns about the effectiveness of future publicity campaigns.

PROMOTE THE SAFE SUN MESSAGE

Wear wide brimmed hats that protect the ears and neck
Protect the eyes with wrap around sunglasses
Wear long sleeved/legged clothing to protect the arms and legs
Remember that sun protection can be required even when sitting in the shade
Reapply thick layers of high factor sun cream regularly
These measures should be considered when walking, gardening and working outdoors – not merely when on holiday abroad
Sun reflects off snow, ice, water and light surfaces
Avoid the midday sun
promotion event at local fetes, they were heard by the education team to ask their parents to cover up and wear a hat.

Public education

The effects of public education in preventing sunburn, watching moles and reporting concerns appears to have increased the reporting of lesions. Mackie et al (2003) reported a significant reduction in patient delay between 1986 and 2001, with 67 per cent of patients attending their general practitioner within three months of noticing a worrying pigmented lesion. Displays publicising safety in the sun should relate to winter sports as well as summer holidays.

Summary

The reviewed literature highlighted the relationship between sun avoidance and the prevention of skin cancer. Habits formed early persist throughout adult life (Pion 1996), and even if teenagers do not change their own behaviour, they are more prone to protect their own children from known risk factors (Kristjansson et al 2003). In Australia, schools are reported to be the key to prevention; ‘schools, in partnership with families and their communities, can help reduce UV radiation exposure and change behaviour through policy, education and role modelling’ (SunSmart Victoria 2006).

Appropriate health promotion should be offered to meet the social and educational needs of new parents and reinforced throughout the child’s education, work and social situation. Nurses, midwives and health visitors have the opportunity to promote safe sun behaviour through health promotion, multi-agency working and role modelling.

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References


Bech-Thomsen N, Wulf HC (1993) Sunbathers’ application of sunscreen is probably inadequate to obtain the sun protection factor assigned to the preparation. Photodermatology, Photoimmunology and Photomedicine. 9, 6, 242-244.


