

Providing sun safety advice: The midwife's role

Abstract

There is currently a global increase in women being diagnosed with melanoma during their childbearing years. Many women are delaying motherhood and pregnancy, and starting their families later in life, after completing education and establishing careers. As melanoma incidences increase with age, more women could be faced with developing melanoma before or during pregnancy. Therefore, midwives play an intrinsic role in providing information and education regarding sun safety for themselves, their newborns and families.

Keywords

Sun safety | Midwives | Pregnancy

Of all the different types of cancer diagnosed globally, skin cancer is the most prolific (Nguyen et al, 2012), and melanoma remains the major cause of death from skin cancer (Trakatelli et al, 2012). The incidence of melanoma skin cancer in the UK is projected to rise by 7% between 2014 and 2035, to 32 cases per 100 000 people by 2035 (Cancer Research UK, 2017). These figures suggest that 1 in 54 people will be diagnosed with malignant melanoma during their lifetime. There is a significant rise in the incidence of melanoma being diagnosed in childbearing women, accounting for 25% of all cancers in pregnant women (Jhaveri et al, 2011). Ultraviolet B (UVB) radiation, caused by the exposure of sunlight to unprotected skin, causes erythema (redness) and oedema (swelling), leading to inflammation and sunburn (D'Orazio et al, 2013).

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Public health messages have been advocating sun protection to reduce skin cancer risk for 20 years (Farrar et al, 2013), and have highlighted that skin-reddening radiation is a serious hazard. Several strategies have been implemented to educate the general public about these risks and make them aware of the dangers of over-exposure to ultraviolet radiation.

Several studies have examined the importance of sunlight and vitamin D absorption in pregnant women (Rosen et al, 2012; Kearney et al, 2015); however, despite the recognition that UVB exposure is the most efficient way for pregnant women to acquire vitamin D, there is no general consensus or clinical recommendation regarding the duration and timing of UVB exposure.

The effects of sun exposure

The level of UVB radiation is measured using the UV index, which uses numbers to identify levels, ranging from 0 (during the night) to 10 (during midday of a sunny day in the summer) (Anastasiou et al, 2016). The UV index is an important indicator of damage caused to skin, because it predicts the time it takes for harm to occur (Webb, 2006).

Considerations for pregnant women

Few studies have addressed the issue of sun safety for pregnant women; most studies are concerned with Vitamin D synthesis for maternal and fetal health.

A small amount of ultraviolet radiation is important for the health of pregnant women, as it is essential for the production of vitamin D by penetrating in the epidermis (De-Regil et al, 2016). Melanocytes are the body's pigment-producing cells, which increase in production during pregnancy, making women's skin more susceptible to UVB radiation (Richtig et al, 2016). There is currently no evidence that sun exposure directly affects a fetus in utero, but studies have shown a correlation between the impact of sunburn on elevated core temperature and a link to birth defects (Van Zutphen et al, 2012).

Recent research has revealed that exposure to solar ultraviolet radiation (sunlight) is associated with a reduction of serum folate in women of childbearing age (Borradaile et al, 2014). Folate is a B-group vitamin that is essential for healthy growth and development, and is found naturally in many foods, such as leafy greens, whole

grains, legumes, oranges, kiwi fruits, and nuts (Figure 1). This vitamin, in its synthetic form, is known as folic acid, and can be found in supplements, fortified cereals, and breads (Czeizel et al, 2013). The incidence of neural tube defects (NTD), such as spina bifida, anencephaly and encephalocele, are increased in women who are deficient in folate (Cordero et al, 2015). Midwives and health professionals regularly advise women who are planning on conceiving to take a 400 microgram supplement of folic acid daily, and to continue supplementation until 12 weeks gestation (National Institute for Health and Care Excellence (NICE), 2014). The importance of women increasing their consumption of foods containing folate should also be encouraged by midwives, as folate is also vulnerable to degradation by UVB radiation (Borradale et al, 2014). This is particularly relevant for pregnant women who are exposed to high levels of sunlight, as this reduces folate in the body, potentially reducing the full benefit of supplementation.

Sun protection factor (SPF) is the measure used to show how long a sunscreen will protect the skin, once it is applied, from UVB radiation. SPF 15 blocks 93% of UVB, SPF 30 blocks 97%, and SPF 50 blocks 98% (Skin Cancer Foundation, 2017). Midwives should therefore advise women to use sunscreen of at least a SPF 30 and to re-apply every 2 hours (hourly if in and out of water).

Australia has one of the highest incidence rates of skin cancer in the world (Torre et al, 2015) and the prevailing wisdom is that the best protection from sun exposure is a combination of methods (Cancer Council Australia, 2017). A successful sun safety advertising campaign in Australia started in the 1980s, with the 'Slip, Slop, Slap, Seek, and Slide' advertisement that advises people to:

- **Slip** on a shirt
- **Slop** on some sunscreen
- **Slap** on a hat
- **Seek** some shade
- **Slide** on some sunglasses.

These measures were designed to promote sun safety for all. The NICE guidelines in the UK also suggest protection from UVB radiation and sunburn by applying sunscreen, covering the skin with protective clothing, wearing a hat, wearing sunglasses and seeking shade (NICE, 2016). Midwives could use these strategies when providing pregnant women with advice about sun safety.

Women should also be aware of certain chemicals contained within sunscreens, specifically oxybenzone. Oxybenzone is a chemical that readily absorbs into skin, and has been linked to low birth weight (Maipas and Nicolopoulou-Stamati, 2015), as well as being a risk factor for future coronary heart disease, hypertension, type 2 diabetes (Song et al, 2015) and other diseases (Kim and Choi, 2014). Some studies have also linked oxybenzone to interference with pregnant women's



Figure 1. Folic acid supplements and foods rich in folate

hormones, which may cause developmental problems in the fetus (Zhang et al, 2013; Alonso et al, 2015).

Specific considerations for newborns and infants

Newborns and infants are at an increased risk of skin cancer if subjected to unprotected sun exposure. Sun protection practice is important, as newborns' skin is extremely sensitive to UVB radiation (Paller et al, 2011), and sunburned skin damage that occurs in childhood is associated with a greater risk of developing malignant melanoma in adulthood (Gilaberte and Carrascosa, 2014). Sun protection is therefore a requirement for newborns and infants under 2 years of age, who should not be exposed to direct sunlight when the UV index reaches 3 and above (Cancer Research UK, 2017). Midwives can provide guidance for pregnant women, including the protection from the harmful effects of the sun (Geraghty et al, 2015). However, small amounts of sun exposure, when the UV index is low, is considered safe and healthy.

Conclusion

Sun safety is an important facet of the prevention of skin cancer, the most prolific cancer. Melanoma remains the major cause of death from skin cancer, and as there has been a significant rise in the incidence of melanoma being diagnosed in childbearing women, midwives are ideally placed to provide advice regarding sun safety. Midwives should advise women to use appropriate measures to

Key points

- Sun safety is an important part of skin cancer prevention
- Midwives should advise women to use appropriate measures to minimise damage to skin from sun exposure
- Recent studies show an association with increased sun exposure and decreases in serum folate

minimise damage to skin from sun exposure, and inform women that recent studies show an association with increased sun exposure and decreases in serum folate. There is a requirement for future studies to examine UVB exposure estimates in order to recommend appropriate UVB exposure for pregnant women. **BJM**

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