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ORIGINAL ARTICLE

Practices of Sun Protection after Skin Cancer Surgery in Malta

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Background

Overexposure to Ultraviolet (UV) radiation is well known to be linked to the development of skin cancer. Our study aims to identify changes in patient practices after being diagnosed with skin cancer. Moreover, we identify areas of improvement which clinicians and healthcare staff can work on to improve patient awareness of harmful effects of UV radiation.

Methods

97 patients who had a skin cancer procedure performed at the Plastic Surgery and Burns Unit at Mater Dei Hospital, from January to March 2020, were included. Questionnaires were sent out, the data was anonymized and then inputted into an excel sheet.

Results

A response rate of 63.9% was obtained. 51% of the patients stated that they avoided midday sun exposure before and after their surgical procedure and 24% started avoiding the midday sun after their cancer diagnosis. 48% of the patients used sun protection accessories before and after their surgery, 16% started using them after their surgery and 32% do not use accessories to protect themselves from the sun. 33% of the patients used sunscreen before and after the procedure, 22% of them claimed that they started using sunscreen after the surgery but 45% of them said that they do not use sunscreen at all.

Conclusion

This study shows that a number of skin cancer patients are still not aware of the dangers of sun exposure. Therefore, more work needs to be done locally, not only in terms of primary prevention but also in secondary prevention following a skin cancer intervention.

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Mediterranean countries including Malta are well-known for their sunny weather. Being close to the equator however, makes Malta more susceptible to higher ultraviolet (UV) radiation levels compared to Northern European countries.[1]According to the World Health Organisation (WHO) data, Malta places thirty-fifth in terms of melanoma among both sexes of all ages (30+) attributable to UV radiation exposure.[2]

Whilst a small amount of UV radiation is beneficial for vitamin D production, overexposure to UV radiation is well-known to be linked to harmful effects including the development of skin cancer.[3]

Emphasis on primary prevention and protection from UV radiation, being the main avoidable risk factor in skin cancers, has been well-known and looked at for years, including in our local population.[4]

According to World Health Rankings, skin disease in Malta ranks as the 32nd cause of death, with a death rate of 1.86 per 100,000. It also places 73rd worldwide, with regards to deaths due to skin disease.

According to the Malta National Cancer Registry annual cancer report (1996-1997), non-melanoma skin cancer (NMSC) accounted for 15% (1001 cases) of all cancers registered between 1993 and 1997. 10 deaths were attributed to NMSC in this period. These cancers rarely cause death and are readily treatable, hence they are often excluded from cancer registries. In view of this, no more recent data from cancer registries was identified.

With regards to melanoma, the incidence between 2004 and 2014 was that of 544, of which 248 were males and 296 females.[5]

Our study aims to identify changes in patient practices after being diagnosed with skin cancer that required surgical intervention. Moreover we identify areas of improvement which clinicians and health care staff can work on to improve patient awareness of harmful effects of UV radiation and sun protection behaviours.

MATERIALS AND METHODS

Data Protection and Ethical approval were obtained. 97 consecutive patients who had a skin cancer procedure at the Plastic Surgery and Burns Unit at Mater Dei Hospital from January to March 2020, were identified. Questionnaires were sent out to these patients with questions regarding:

- Patient-related questions - age, gender, skin type, co-morbidities, presence of family history of skin cancer and site and number of lesions.
- Procedure-related questions - use of grafts or flaps and post-operative complications.
- Sun protection behaviours before and after the skin cancer procedure
- Patient perception on behaviours and healthcare professionals' advice

The data was anonymized and inputted into an excel sheet.

RESULTS

A response rate of 63.9% (n=62) was obtained. Out of the 62 patients who answered the questionnaire, 40% were females (n=25) and 60% were males (n=37). The age of the patients varied between 48 and 89 years. 24% (n=15) of the patients had multiple lesions excised on the same day.

18% (n=12) had a family history of skin cancer, 74% (n=45) did not have family history of skin cancer and 8% (n=5) did not know. The patients described their skin type as shown in Table 1. This was done according to the Fitzpatrick skin classification.

Table 1 *Patients' skin type according to patient perception*

Fitzpatrick Skin type	Number of patients
I	6
II	16
III	12
IV	20
V	5
No reply	3

Table 2 *Frequency of outdoor activities*

Frequency of outdoor activities	Number of patients
Daily	29
More than once a week	3
Weekly	8
Monthly	3
Less than once a month	3
Rarely	2
Never	7
No reply	4

84% (n=52) did not report any complication, 16% (n=9) said they had a complication namely an infection. Of note, four out of the seven patients who reported an infection had a history of diabetes (n=3) and breast cancer (n=1). 34% of the patients (n=21) reported that they had a graft or flap as part of their reconstruction after the skin cancer. Only 1 of these patients reported a complication, which was described as delayed healing.

Table 2 shows the frequency of outdoor activities in patients with skin cancer. One patient reported that they go out daily in summer only.

51% of the patients (n=32) reported avoiding midday sun exposure before and after the skin cancer excision. 8% (n=5) reported avoiding sun exposure but did not specify whether this was prior to or post skin cancer procedure. 24% of patients (n=15) changed their practice after the skin cancer diagnosis. 15% (n=9) claimed that they do not avoid sun exposure. One patient did not answer this question.

48% of the patients (n=30) used some kind of protective accessories before and after our intervention such as hats, sunglasses, umbrella or long sleeves. 16% of patients (n=10) started using protection after the intervention and 32% (n=20) do not use any protection when exposed to the sun. One patient who uses sun protection did not specify whether this was from before or after the procedure. One other patient did not reply to this question.

33% of patients (n=20) used sunscreen before and after the procedure. Two patients in this category specified that they only use it when swimming. 22% of the patients (n=13) started using sunscreen after the procedure and 45% (n=27) said that they do not use sunscreen at all. 1 patient claimed that he or she uses sunscreen only rarely; before and after the procedure and another one did not specify whether this was before or after the procedure. One patient did not reply to this question.

76% (n=26) of those using sunscreen said they use SPF 50+, 6% (n=2) use SPF 30+, 2% (n=1) use SPF 30+ or 50+, 2% (n=1) use 100+, 12% (n=4) did not know what sunscreen SPF they use. 71% of patients (n=24) said that they apply sunscreen a few minutes prior to sun exposure or just before they leave the house, 15% (n=5) apply it thirty minutes prior to sun exposure, 12% (n=4) apply it one hour before exposure. One patient was not sure about timing prior to exposure.

Figure 1 demonstrates patient awareness of being at an increased risk of having further skin cancers in the future.

60% (n=37) said that they know that UV rays are harmful, 6% (n=4) of which specified causation of skin cancer. 5% (n=3) said one should avoid UV when UV index is high. 6% (n=4) said UV rays are needed in moderation, while 3% (n=2) said they are beneficial. 13% (n=8) said that they do not know and 11% (n=7) did not reply.

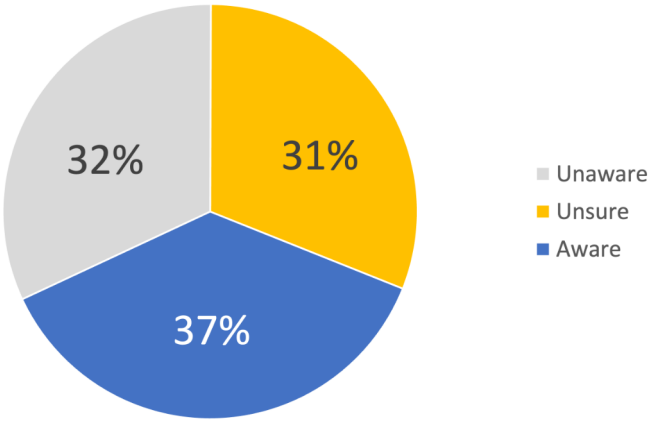

Figure 1 *Awareness of being at increased risk of having further lesions in the future.*

Several suggestions were made from the patients regarding education of the general public and increasing awareness via different means – social media, television, radio, sharing of experiences and real stories. Others included distribution of free sunscreen products especially to vulnerable people, cheaper sunscreen products and increasing shaded areas for people to avoid direct sunlight and/or sunburn.

With regards to healthcare professionals' advice on sun protection, 67% (n=42) reported that they had been advised to use sun protection measures, 30% (n=19) reported that they were not given advice and 3% (n=2) did not reply.

DISCUSSION

Excessive exposure to UV radiation from the sun can lead to skin cancer.[6] There are two main types of skin cancer: melanoma and non-melanoma skin cancer (NMSC).

Whilst NMSC rarely cause death unlike the rarer melanoma skin cancers, they can cause significant morbidity in patients in view of their frequent location in visible areas such as face, head, neck.[7] Increasing patient awareness may lead to patients seeking medical attention early on and potentially decreasing the morbidity and cosmetic problems that are associated with delayed presentation.[8] Additionally, a history of NMSC places patients at a higher risk of developing a second lesion.[9] Patients with basal cell carcinoma have ten times increased risk of developing a second similar lesion.[10] Patients having a cutaneous squamous cell carcinoma can

develop recurrent lesions with 95% of recurrent lesions occurring in the first 5 years.[9]

Incidence of skin cancers is known to correlate with ultraviolet light exposure.[1] Several measures have been implemented to promote and share information on skin cancer prevention, early diagnosis and treatment. One such project is the Euro-Melanoma campaign which is mostly co-ordinated by dermatologists.[11]

There seems to be less focus on secondary prevention in terms of patient knowledge and sun protection practices after skin cancer procedures.[12] To our knowledge, this is the first study of its kind in Malta that looks into patient perception on patient perceptions of sun protection measures and behaviours after skin cancer procedures. Improving our services by working on weak areas of knowledge and practices could be an opportunity to reduce the risk of patients presenting with further lesions. Therefore the focus of this study is to identify weak areas and false perceptions to improve patient education, reinforce good sun protection measures and to engage patients in developing and maintaining good practices.

Several studies performed have shown a correlation between skin type and risk of skin cancer as well as sun protection behaviours. In a study by Wheless et al it was found that high-risk skin cancer phenotypes are more receptive to skin cancer prevention education.[13]In this study, retrospective data was sought and therefore, patient self-reported skin type was looked at. Further studies could explore patients' knowledge with regards to awareness of skin type and risk of skin cancer according to skin type.

Overall, in all the areas assessed in this study, even though a minority, a number of patients:

- lacked knowledge with regards to presence of risk factors
- were not compliant with sun protection measures and
- were not provided with advice on skin cancer facts and risk reduction measures.

This suggests that further work needs to be done on educating patients with regards to sun protection behaviour. All the patients who reported application of sun protection measures said that they had been provided with advice on sun protection except for one patient.

Our patients seem to practice more sun avoidance behaviour rather than sunscreen application. Literature suggests that topical sunscreen should not be the first choice for skin cancer prevention.[14,15]

SUMMARY BOX

What is already known

- Overexposure to ultraviolet radiation is linked to the development of skin cancer.
- Sun exposure between 11am and 3pm should be avoided.
- Sun protection cream SPF50+ should be used daily and reapplied every 2 hours when exposed to the sun.
- Protective accessories such as umbrellas, clothing and hats should be used to protect the skin from the sun.

What are the new findings

- Patients improved their sun protection practices after their skin cancer diagnosis.
- 45% of the skin cancer patients do not use suncreen at all.
- 75% of the patients had no family history of skin cancer.
- 67% recall that they have been advised to use sun protection measures.

Whilst our study is one of the first to provide information on local perceptions after skin cancer surgery, it is not free of limitations. A limiting factor in our study is the small number of patients included. Another possible limiting factor is the fact that it was based on self-reported anonymous data rather than objective data.

CONCLUSION

This study shows that a number of skin cancer patients are still not aware of the dangers of sun exposure. A number of patients were given advice by healthcare professionals and do implement secondary prevention measures, however, there are still several patients who do not. Therefore as a number of international entities, including the world health organisation, emphasise the importance of sun protection, more work needs to be done locally, not only in terms of primary prevention but also in secondary prevention following a skin cancer intervention. This can be done by following local and worldwide tools and guidelines that include: explanation of the diagnosis, risk factors including risk of further lesions, advice on sun protection measures and self-examination.

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