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REVIEW ARTICLE

SKIN CANCER MANAGEMENT AND ROLE OF PHARMACIST: A REVIEW

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ABSTRACT

Pharmacist is a link between the doctor and patient. Pharmacist plays a vital role in health care system especially, in terms of creating awareness among the society on prevention on certain diseases and role of hygiene in it. There are number of diseases such as colon cancer, skin cancer and likewise can be prevented up to certain extent by adopting changes in life style. Our humble attempt in this presentation is to summarize some basic information and treatment available on skin cancer and its management. Pharmacist with detailed knowledge of pharmaceutical dosage form and therapeutics agent with their desired effects, potential hazards, and adverse effects of the drugs can play vital role in community healthcare system. Chemotherapy, radiation and surgery incised in cancer management are accompanied with several harsh side effects. The noncompliance to treatment and its regimen is mainly due to its undesirable side effect seen in chemotherapy, are redness, rashes, itching, peeling, dryness, acne, and increased sensitivity to the sun. Certain anticancer drugs, when given intravenously, may cause the skin all along the vein to darken, especially in the people who have very dark skin. Some people use to make up to cover the area, but these can take a lot time if several veins are affected. The dark areas will fade a few months after treatment ends.

Keywords: *Skin cancer, Chemotherapy, Radiation, Surgery, community healthcare.*

INTRODUCTION

Skin Cancer

Skin cancer is a malignant growth on the skin which can have many causes. The most common skin cancers are:-
1) Basal cell carcinoma
2) Squamous cell carcinoma and
3) Malignant melanoma

Skin cancer generally developed in the epidermis (the outermost layer of the skin), so a tumour is usually clearly visible. This makes most skin cancers detectable in the early stages. It are estimated that approximately 85% of cases are exposure to sun. Non melanoma skin cancers are the most common types of skin cancers. The majority of these are called basal cell carcinoma with localized growths caused by excessive exposure to the sun and do not tend to spread.[1]

Skin Types and Minimum Erythema Dose (MED) Calculation [2]

Skin types are calculated based on how long it takes individual to reach his or her minimal erythematic dose (MED).MED is smallest amount of sunlight exposure necessary to induce slight redness of the skin within 24 hour of exposure. The American Academy of Dermatology recognizes six skin types, categorized according to the amount of melanin normally present in the skin. It should be noted, however, that noontime summer sun exposure is not recommended for anyone, regardless of their skin type. MED calculations are typically given for latitude of 40 to 45 degrees. A patient's MED may be reached twice as quickly when close to the equator-for example, a very fair Type 1 patient wearing no sunscreen would reach his or her MED within about 10 minutes in Panama City or Singapore. A sunscreen with an SPF of 15 would provide the patient with only 2 ½ hours of protection, compared with the 5 hours that would be expected in much of the United States.

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Altitude and reflection also make a difference. For every 1,000-foot increase in altitude, the intensity of UV radiation increases about 4%. Thus, the intensity of UV light at 5,000 feet is about 20% greater than at sea level. A person skiing at a high altitude also is exposed to light reflected off the snow. In addition, patients should account for reflection off sand, water, and concrete. Sand reflects about 17% of the sun's UV rays, while snow reflects 80%. People who sail are at particular risk; not only are they directly exposed to UV radiation, but also they get double reflection off the water and off the white decks of the boat. Finally, the time of day and time of year influence the intensity of UV radiation. The sun is strongest between the hours of 10:00 a.m. and 3:00 p.m., and it is significantly more intense in the summer than in the winter.

Minimal Erythema dose (MED) classification [3]

1) Skin type 1:
Very fair complexation burns easily and severely and never tans
Physical characteristic to MED: 20

2) Skin type 2:
Fair complexion burn easily and tans minimal
Physical characteristic to MED: 20-30

3) Skin type 3:
Light complexion, burns moderately and tans at average amount
Physical characteristic to MED: 35-40

4) Skin type 4:
Medium complexion burns minimally and tans easily.
Physical characteristic to MED: 40-50

5) Skin type 5:
Dark complexion rarely burns and tans easily and darkly.
Physical characteristic to MED: 50-60

6) Skin type 6:
Dark or black skin, burns only with severe exposure
Physical characteristic to MED: 60-7

***MED** = Calculated as time of exposure necessary to induce slight redness of the skin within 24 hours of sunlight exposure at noon in midsummer at a latitude of 40 to 45 degrees—e.g., northern California, Kansas City, or New York City.5

TREATMENT

PHOTOSENSITIZING AGENTS [4]

Patients using photosensitizing agents must be especially diligent about routine application of a high-SPF sunscreen. Some common photosensitizing medications include antibiotics such as tetracycline, oral contraceptives, oral hypoglycaemic agents, some antihistamines, and certain antihypertensive agents, including diuretics. Skin creams containing tretinoin are also highly photosensitizing-patients who use Retin-A® (tretinoin/Ortho) should also use a broad-spectrum UVA/UVB sunscreen every day. Over-the-counter skin products and common cosmetics can also trigger severe, rapid sunburn in some patients.

SKIN REACTIONS TO SUNSCREENS

A variety of different chemical agents are used to make sunscreens, and hypersensitivity to some of these agents like para-aminobenzoic acid, or PABA, which is no longer used in commercial sunscreens. There had initially been some concern that allergic and irritant reactions would be seen more frequently in products with high SPF numbers, which contain higher concentrations of these chemicals. There is no evidence, however, of a correlation between allergenicity and a given product's SPF number.[5]

CONSIDERATIONS IN SUNSCREEN SELECTION [6]

A host of sunscreens are currently available, and manufacturers are constantly introducing new products to the market. With such a wide variety of products, making a wide variety of claims, it can be confusing for patients to select among them. Selection is based on SPF of the product, UVA and UVB protection aspects and based on its cosmetic properties.

The SPF number on sunscreens enables patients to calculate how much longer they might stay out in the sun before reaching their MED than if they were unprotected. For example, a patient with Type 1 skin (MED of 20 minutes) could theoretically stay out in the sun for 5 hours without any evidence of burning after applying a product with an SPF of 15.

UVA VERSUS UVB COVERAGE [7]

Sunscreens fall into three principal categories: chemical UVA absorbers, chemical UVB absorbers, and physical or mechanical blockers such as zinc oxide, titanium dioxide, and red petrolatum. Almost all available sunscreens block or absorb UVB radiation—that is, the shorter, higher-energy UV light that causes burns and is strongly associated with the development of skin cancer. Recently, a concern has arisen about the additional effects of UVA. These longer, lower energy wavelengths cause slower and more subtle skin damage than UVB. In addition to causing photo damage to the skin, these agents also may promote carcinogenesis due to UVB.

Many sunscreens combine several ingredients, allowing them to provide at least some degree of protection against both UVA and UVB radiation. For example, padimate O blocks UVB quite effectively, although its protection extends only a short way into the UVA spectrum. Benzophenone-3 is somewhat less effective in blocking UVB, but it offers more UVA protection. The mechanical sun block, such as zinc oxide and titanium dioxide, also offer partial UVA protection in addition to blocking UVB rays.

Only one sunscreen chemical, trademarked as Parsol® 1789, provides substantial protection against the full UVA spectrum. Currently, there is one product on the market that contains this ingredient: Shade ™, from Schering-Plough. The product contains Parsol combined with oxybenzone, and thus legitimately can claim substantial protection in both the UVA and UVB ranges.

INFORMATION ON SUNSCREENS FROM THE FOOD ANDDRUG ADMINISTRATION (FDA)[8]

The FDA's updated recommendations for sunscreen use were published in May 1993. When these recommendations are finalized, sunscreen manufacturers will be required to abide by them. The following points are especially relevant:SPF ratings over 30 do not add sunscreen protective value. The term "sunblock" may be used only for products that reflect or scatter all light in the UV and visible range; currently, this refers only to products containing titanium dioxide. Sunscreen products should be labelled as follows: "Sun Alert: The sun causes skin damage. Regular use of sunscreens over the years may reduce the chance of skin aging, some types of skin cancer, and other harmful effects due to the sun." Because Caucasian skin absorbs 40% to 50% of UVA radiation, protection against UVA may be as important as protection against UVB. However, the FDA did not propose labelling for UVA protection in sunscreens due to lack of adequate data. The American Academy of Dermatology takes the position that all patients should use a sunscreen with an SPF of at least 15—regardless of the skin type. Patients tend to overestimate their MED and pick products with inappropriately low SPFs, and apply the product more sparingly than intended by the manufacturer.

TABLE 1: LIST OF DRUGS CAUSING PHOTOSENSITIVITY [9]

CATEGORY	DRUGS
Anticancer, Antiparasatic drugs	Dacarbazine, bithionol, aminobenzoic acid, fluorouracil
Antidepressant	Thiabendazole, amoxapine
Antipsychotic drugs	Clomipramine, chlorpromazine, alprazolam, desoximetasone, trimipramine
Diuretics	Dysopyramine
Antihistamine	Acetazolamine, amiloride, hexachlorophene
Antihypertensive	triamterene, captopril, diltiazem
Hypoglycaemic	Methyldopa, promethazine, acetohexamine Minoxidil
Antimicrobial	Tolazamide, azithromycin, ciprofloxacin

ROLE OF PHARMACISTS

In recent years, the health care community has been quite successful in educating the public about the link between skin cancer and sun exposure. Nevertheless, skin cancer remains a significant public health risk. Opportunities to educate the public with respect to skin-protection strategies should be proactively pursued by pharmacy professionals. Community pharmacists play a substantial role in reducing the risk of skin cancer in the United States.

Pharmacists are often the front line of defense against skin cancer since they are frequently consulted first about potentially concerning skin conditions or lesions. For example, pharmacists may be asked whether a certain mole looks suspicious, what sunscreen they recommend, and what they would recommend as the best over-the-counter remedy for skin concerns.

Pharmacists also counsel on prescribed topical medications and review application techniques with patients. It is important for pharmacists to be aware of skin disorders and cancer risks so they are able to help patients by providing preventive and early-stage care. Brown bag sessions are a nice opportunity not only to review patient medications, but also to review the risks for developing conditions such as skin cancer. The pharmacy serves as both a chronic and preventive hub of care within the community. Pharmacists are ideally positioned to counsel patients about the importance of sun protection. Whether it is sunny or cloudy or whether that patient is young or old, protection from the sun should be a precaution for everyone. For example, when a patient requests advice about treating sunburn, this is an opportunity for the pharmacist to stress the importance of sunburn prevention and recommend appropriate sunscreens. [10]This is especially imperative for fair-skinned patients or patients taking on medications that make them more sensitive to the sun. Because the development of skin cancer is commonly related to UV radiation exposure, limiting exposure to sunlight is one of the most important preventive measures. To limit sun exposure, patients should be advised to avoid the strong midday sun. When sun exposure is unavoidable, the pharmacist should recommend wearing a hat and protective clothing and make certain the patient has the proper sunscreen. When patients purchase or seek advice about sunscreens, pharmacists can educate them about the appropriate use of those products. Some general counselling points include:

1) Avoid the sun, particularly between the hours of 10 am and 4 pm when the sun is strongest;
2) Wear sunscreen with a sun-protection factor of at least 15, applied 30 minutes prior to sun exposure;
3) Wear protective clothing;
4) Wear a wide-brimmed hat and sunglasses that block both UVA and UVB rays; and
5) Avoid intentional tanning. Monthly self-examinations looking for the appearance of new moles or for changes in pre-existing moles should also be encouraged. Moles that bleed, grow fast, present scaly or crusted, do not heal, and/or itch should prompt a call or visit to one's primary care provider (PCP). Areas of skin that feel rough should also be brought to the attention of one's PCP.[24] Patient education regarding skin protection and self-examination of the skin are two of the many areas that pharmacy professionals can embrace to optimize patient care and prevent adverse outcomes.
6) Use water resistant products if sweating or contact with water is like sunscreen applications. Apply liberally half an hour before and after going out in the sun (don't forget your head, neck and ears). Re-apply at least every 2 hours and immediately after being in water, even if the sunscreen is 'water resistant'. Also re-apply after towel drying. If applied adequately, SPF 15 should be sufficient.[11]

The community pharmacist has been referred to as the healthcare professional on the high street. This accessibility means that the pharmacist is ideally placed to offer advice and information to patients. Such information could include advice regarding appropriate use of sunscreens and referral to GPs for any patients who notice changes in their moles or those with suspicious lesions.

1) However, in common with other healthcare professionals, pharmacists receive little formal training in dermatology. The Centre for Postgraduate Pharmacy Education has recently updated a training package (available free) on managing skin conditions and is in the process of developing an on-line course for pharmacists with a special interest in dermatology. Unfortunately, however, neither package contains any information on skin cancers or recognition of suspicious lesions.[12]
2) The APPGS heard evidence of the potential to set up mole clinics in pharmacies. These services have already been established in some community pharmacies and may involve a specialist nurse trained in dermoscopy. Such services are usually not free, however, and continuation and further development would require commissioning by the NHS and a real emphasis on training and skills of those involved in delivering such a service and links with appropriate specialists.
3) Community pharmacists should be part of the primary care MDT and skin cancer (eg mole recognition/monitoring) services based in community pharmacies need to be integrated with multi-disciplinary primary care dermatology services.[13]
4) One option would be for large community pharmacies to provide consulting rooms for other members of the MDT on a sessional basis, as has happened with other specialties.
5) The development of accredited Pharmacists with a Special Interest (PhwSI) may support this. A framework in dermatology has been developed and pharmacists should be encouraged (or incentivised) to take this option up and to seek accreditation.
6) Pharmacists might sensibly be integrated into public health campaigns, reinforcing messages about covering up, avoiding unnecessary UV exposure and advising on sun screens.
7) They also have a part to play in identifying and advising immune suppressed patients who need additional UV protection, reinforcing advice received elsewhere. Some drugs also make people more UV sensitive and therefore susceptible to burning. Pharmacist has a logical role to play helping here.

CAUSES OF THE PROBLEM: [14]

Even though we have been educated on the dangers of skin cancer and its prevention, Melanoma/skin cancer continues to increase at an alarming rate because of lack of knowledge of various parameters should the public be aware of

A) Ozone Depletion:
1) Harmful effects of UV-B
2) Location
3) Latitude/Longitue
4) Time of day
5) Ultra Violet Index

Sunburn has been associated with melanoma, the most deadly form of skin cancer. In Australia almost 14% of adults, 24% of teenagers and 8% of children are sunburnt on summer weekends. Many people get sunburnt when they are taking part in water sports and activities at the beach or a pool, as well gardening at home or having a barbeque. People are also sunburnt on cooler or overcast days when they mistakenly believe UV radiation is not as strong. This is untrue – you can still be sunburnt when the temperature is cool. Sun exposure that doesn't result in burning can still cause damage to skin cells and increase your risk of developing skin cancer. Evidence suggests that regular exposure to UV radiation year after year can also lead to skin cancer. [15]

B) Tanning:
1) Are Tan Skins Cool? Their Behaviour and attitude
2) There's more evidence on the hazards of tanning beds. Baking under their artificial lamps as little as once a month can boost your risk of a deadly form of skin cancer by 55% -- and the danger is even greater when done in early adulthood

C) Solariums: [16]
Solariums emit UVA and UVB radiation, both known causes of cancer. Cancer Council Australia does not recommend solarium use for cosmetic tanning under any circumstances.

Pharmacists should follow national campaign to educate people about skin, its function, what is skin cancer, what should be done to prevent skin cancer, should check early detection of skin cancer, and perform a skin self-exam monthly.

Running health education campaigns in primary care
1) Triaging patients when they attend for skin cancer screening
2) Performing biopsies to obtain a diagnosis under the direction of the specialist
3) Giving patient their diagnosis
4) Supporting patients and their families after diagnosis
5) Providing both verbal and written information at each stage of the care pathway
6) Administering treatment such as photodynamic therapy, excision of skin cancer
7) Prescribing relevant topical medication for the treatment of precancerous lesions
8) Where appropriate, undertaking the following up of skin cancer patients
9) Undertaking clinics for transplant patients, to monitor their skin for skin cancersand to give education
10) Educating all skin cancer patients on how to check their skin and recognise signsof skin cancer
11) Liaising with other departments regarding tests and treatments
12) Acting as patient advocate
13) Being a core member of the skin cancer team
14) Undertaking research and audits
15) Teaching other health professionals and develops educational modules for Universities and other educational institutions
16) Supervising medical students
17) Publishing articles and lecturing on skin cancer and related subjects.

COSMETIC PROPERTIES [17]

Sunscreens are available in myriad formulations, including creams, lotions, gels, sticks, and sprays. In addition, they may be scented or unscented. Patients should be encouraged to use whichever products they find cosmetically acceptable that also offer adequate SPF coverage. The cosmetic properties of a sunscreen are important, because patients will not use a product that feels uncomfortable, smells unpleasant, or is otherwise unacceptable.

Men tend to be much more resistant to using sunscreens than women. Part of the reason may be a perception that it is somehow “unmanly” to admit to being sensitive to sun exposure. In addition, men commonly complain that sunscreens have a feminine fragrance or are too greasy. Men can be reassured that there are now many different unscented products, including greaseless, alcohol-based lotions and gels that can be applied smoothly even to hair-bearing areas of the skin. Women, however, may prefer sunscreens with a moisturizing base, especially when the product is being applied to the face.

Patients who engage in active outdoor sports are bothered by sunscreens that sting their eyes when they sweat. Some products cause less stinging than others. Also, stick and gel formulations are not as likely to run into the eyes when the patient sweats. Applying a sunscreen to the face 20 to 30 minutes prior to exposure and exertion also may reduce the chances that perspiration will cause the sunscreen to run down into the patient's eyes. [18]

WATER RESISTANCE

Water resistance is an important concern for people who swim or are involved in active outdoor sports that produce perspiration. Many sunscreens are hydrophobic, and some are even promoted to stay on for up to 7 or 8 hours of submersion in salt water. Nevertheless, patients should be advised to reapply waterproof and water-resistant products after swimming or sweating, just to be safe. Patients should understand that reapplying a sunscreen does not extend the period of protection-it only renews the protection that existed when the product was first applied. The FDA has established the following criteria: Sweat resistant: The product must protect for up to 30 minutes of continuous heavy perspiration.

Water resistant: The product must protect for up to 40 minutes of continuous water exposure.

Waterproof: The product must protect for up to 80 minutes of continuous water exposure.

PATIENT EDUCATION

The pharmacist should educate patients, especially high-risk patients, about the prevention of skin cancer.

All patients-whatever their risk group-should be taught the danger signs of skin cancer: Changes in the color, size, or surface texture of moles or birthmarks; New skin growths, especially if they crust, bleed, itch, or hurt; Sores or wounds that do not heal within a month.

The essential message for all patients is simple and straightforward: there is no safe way to get a tan from the sun. Patients must understand that a sunburn or tan is simply a visible indication of underlying-and possibly irreparable—skin injury. The long-term consequences of sun damage, including photo aging and injury to cellular DNA, can occur even when the patient does not actually burn.

Patients who are determined to look tanned may want to try one of the "sunless" tanning products. These products, which contain the colorant dihydroxyacetone, stain the stratum corneum. Sunless tanners appear to be safe, and they produce a cosmetically acceptable result when applied properly. Patients should be reminded, however, that these products do not provide any additional protection against the damaging effects of the sun. [19]

SUN DAMAGE AND SUNSCREENS

Patient Counselling Tips

UVA radiation causes skin aging; UVB causes burning. Products that contain both cinnamates and benzophenone derivatives and Parsol® 1789 screen both UVA and UVB light. Tanning salons often advertise that they provide a "safe" way to tan because superficial skin burning is minimized with the use of UVA light, which penetrates more deeply into the skin. However, concerns regarding skin aging and carcinogenesis are just as relevant as with ordinary sunlight exposure. Many factors influence how quickly a burn (or tan) develops, including skin type, time of day, cloud cover, and latitude, as well as reflection off sand, water, snow, concrete, or other surfaces. Apply sunscreens 30 to 60 minutes before sun exposure, and reapply frequently to maintain coverage. NOTE: reapplying the product does not extend the duration of protection beyond the original SPF rating. Make sure that all exposed skin is generously covered with sunscreen. Choose a higher SPF and increase the amount and frequency of sunscreen application in areas of strong sunlight.

Fig 1: Normal nevi (moles) [20]

Fig 2: Malignant melanoma is symmetrical with evenillustrating asymmetrical edges, uniform color, and size shape.

Fig 3: Malignant melanoma

Fig 4: Malignant melanoma illustrating uneven borders illustrating variegated color with scalloped appearance and larger diameter.

SUNSCREENS AND CHILDREN

There are many controversies surrounding the use of children's sunscreens. A major concern is that parents may think that a child wearing a high-SPF sunscreen can stay out in the sun for prolonged periods. It is crucial to explain to parents that excessive sun exposure in childhood is linked with a significantly increased risk of skin cancer later in life. There is evidence that one serious sunburn in childhood can double a person's risk of skin cancer later in life. Other studies have shown that 80% of one's lifetime exposure to UV light is received before the age of 18. These data underline the importance of protecting children from excessive sun exposure and using effective sunscreens when they are in the sun. It has been estimated that regular use of SPF 15 sunscreens in childhood could reduce the incidence of skin cancer by 78%. The best way for parents to get children into the habit of using sunscreens is to set an example by using them routinely themselves. A variety of sunscreens are formulated specifically for use on children, including non-alcohol-based products that do not sting when applied to the skin. Parents with active young children may find spray formulations especially convenient to apply. Colourful packaging also may make the sunscreen more acceptable to a child.

In addition to using sunscreens, parents should be encouraged to dress their children in sun-protective clothing and to instruct them to seek shade when playing outdoors. In Australia, it has now been mandated that schools not send children out for playtime between the hours of 11:00 a.m. and 2:00 p.m., when the sun is at its height. In the U.S., of course, midday is a common period for lunch and outdoor free play. Recently, parents' groups in some communities have requested that schools modify outdoor play schedules and/or provide shaded areas for outdoor activities. Planting additional trees along sidewalks and providing shelters at bus stops also would help protect both children and adults from unnecessary sun exposure. It is important to note that infants should be kept out of the sun as much as possible, especially between 10:00 a.m. and 3:00 p.m., and that high-SPF sunscreens should be used if any sun exposure is anticipated.

INNOVATIVE APPROACHES TO SUN PROTECTION [21]

One recent innovation in sunscreens is the development of sunscreening fabrics. Ordinary fabrics, especially those with a loose weave, may transmit a substantial amount of UV light. Manufacturers now have developed a way of treating fabrics with chemically conjugated sunscreens, providing garments with SPFs of 30 and higher. Clothes made of sunscreening fabrics would be very useful for individuals who cannot tolerate sunscreens or who spend a great deal of time outdoors working or engaged in sports. They also would be appropriate for protecting children and photosensitive adults from excessive sun exposure. In the past, one of the major limitations to the use of mechanical sun blocking preparations, such as zinc oxide and titanium dioxide, had been their unacceptable appearance and feel. Now, products have been developed that incorporate micronized powders of zinc oxide and titanium dioxide, greatly improving the products' cosmetic acceptability. These products, which provide partial coverage against UVA as well as UVB radiations, are frequently advertised as "nonchemical" or "natural" sun block. There also has been considerable interest in ingested sunscreens. One approach being investigated is to somehow enhance the body's resistance to the harmful effects of UV radiation. A variety of agents, including antioxidants such as beta-carotene, vitamin E, and ascorbic acid, are being studied, but none has yet been established to be safe and effective. A promising new technology may allow for the incorporation of UV-absorbing melanosomes into topical sunscreens. This would provide a more physiologic method of blocking out harmful UV light than products currently provide. It appears that sunscreens using this technology may be marketed in the relatively near future. A device has recently been marketed, in the form of an adhesive patch worn on the skin that purports to monitor UV exposure so patients can gauge how long they can remain safely in the sun. These devices may have some limited educational value, because they provide a dramatic illustration of the intensity of UVradiation. Their drawback is that they may lull patients into a false sense of security by suggesting that they can sunbathe safely up to some arbitrary limit of exposure. [22]

EDUCATING YOUR PATIENTS ABOUT [23]

Skin Cancer Prevention:

THREE SIMPLE STEPS

Pharmacists have numerous opportunities to provide skin cancer prevention information. Some of these opportunities will be fairly obvious, such as when filling a prescription for a photosensitive medication or when a patient inquires about sunscreen products. Other opportunities may not be as obvious but can be just as effective, such as when counselling for a new prescription or answering the patient's question about a drug interaction. In fact, the majority of pharmacist-patient interactions can be viewed as opportunities for "Sunwise" education. Here are 3 simple steps (the 3 A's) for patient education:

1. ASK your patients if they and their family are practicing healthy skin habits. For example: Do you protect your (and your children's) skin from the sun?
Do you use sunscreen?

Do you wear protective clothing when outside?

Do you limit your time in the sun?

2. ADVISE patients they can and should reduce their own, and their families, skin cancer risk.

Keep the advice simple and use lay terms.

Try to personalize the information. For example, a parent picking up his/her child's prescription could be told about the effects of sun exposure early in life. Young adults could be told about the damaging effects of sun exposure in addition to cancer, such as wrinkling.

3. ASSIST patients in selecting risk reducing strategies.

Discuss simple behaviours: avoiding peak sunlight hours; wearing sunscreens and other products such as moisturizers with SPF 15; wearing long-sleeves, pants, a hat, and sunglasses.

Encourage patients to ask questions.

Give your patients skin cancer prevention brochures and sunscreen samples.

The 3 A's are geared towards brief pharmacist-patient interactions. Depending on time-constraints, you may choose to apply all 3 of the steps, or only 1 or 2 of them. For example, when time is especially limited, simply handing patients a brochure (perhaps at the termination of new prescription counselling) can be valuable to them.[24][25]

CONCLUSION

Future studies should focus on skin cancer prevention counseling barriers and environmental prompts encouraging this type of interaction between pharmacists and patients. Sunscreens have now been shown to reduce the carcinogenic effects of sunlight in humans. Patients should be advised of the long-term consequences of sun exposure and the benefits of regular sunscreen use. Plasma level below 25 nanomoles/litre increases the risk of rickets and osteomalacia. Several population groups in the UK face this risk.

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