Relationship between risk factors, knowledge and preventive behaviour relevant to skin cancer in general practice patients in South Australia

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SUMMARY

Background. *There is an 'epidemic' increase in skin cancers worldwide in white-skinned populations. Australia has the highest incidence of skin cancer in the world despite intensive publicity in the last 30 years aimed at prevention.*

Aim. *This study set out to assess risk factors, knowledge and preventive behaviour relevant to skin cancer in general practice patients in South Australia, and to investigate the relationship between risk, knowledge and behaviour.*

Method. *A questionnaire on skin cancer was distributed to 980 patients aged 16 years and over attending general practitioners' surgeries in South Australia. A total of 810 questionnaires were analysed (83%).*

Results. *There was a high overall level of knowledge and awareness of skin cancer. However, the majority of respondents were unaware of the risks of blue eyes (87%), fair hair (83%) or red hair (68%). A third of respondents were unaware that having lots of moles and freckles was a risk factor for skin cancer. A considerable minority were unaware of the risk of a fair complexion (26%), getting sunburnt (14%) or prolonged exposure to the sun (11%). Sunscreen cream was the most popular preventive behaviour (use reported by 74%), followed by clothing (54%), shade (16%) and timed sun exposure (13%). The most common number of methods of prevention used was two, but 16% were not able to mention anything that they did to prevent skin cancer. The correlations between presence of risk factors, knowledge and preventive behaviour were poor.*

Conclusion. *There was a high overall level of knowledge and awareness of skin cancer in South Australia but despite intense publicity, important areas of ignorance were still found to exist. The simpler methods of skin cancer prevention appeared to be neglected in favour of sunscreen cream. Those at high risk did not know more about skin cancer and reported doing little more to prevent it than those at low risk. There is a need to target those at high risk for education and screening. General practitioners, with adequate training, could have an important part to play in the primary and secondary prevention of mortality and morbidity from skin cancer.*

Keywords: skin cancer; morbidity risk factors; patient knowledge; preventive medicine; Australia.

Introduction

THE incidences of both melanotic skin cancer (malignant melanoma) and non-melanotic skin cancers are reaching 'epidemic' proportions[1,2] in white-skinned populations worldwide.[3-5] Australia has the highest incidence of skin cancers in the world,[3,6] despite intensive health education campaigns over the last 30 years.[7,8]

Relatively few surveys of patients' knowledge of and behaviour with respect to skin cancer have been published[9-11] and there have been no surveys from general practice. The relationship of personal risk factors to knowledge or behaviour has not been investigated. The aim of this study was to assess risk factors, knowledge and preventive behaviour relevant to skin cancer in patients in South Australia, and to investigate the relationship between risk, knowledge and behaviour. The study was undertaken while R M was on sabbatical leave as honorary scholar, Department of Primary Care, Flinders University of South Australia.

Method

In December 1989, practices with three or more doctors were selected in alphabetical order from the Adelaide telephone directory. Of the 30 practices selected, 26 agreed to cooperate. In these practices consecutive patients aged 16 years and over reporting to reception over a period of four weeks were asked by the receptionist to fill in a self-administered questionnaire on skin cancer while waiting to see their doctor. The completed questionnaire was then returned to the receptionist. The questionnaire was modified and developed from that used by Nichols in a Cancer Research Campaign survey in the United Kingdom in 1988. In Nichols' questionnaire, only awareness and knowledge were investigated.

In order to assess risk, three common, important and easily identifiable factors were asked about: skin type, natural hair colour and number of moles or freckles.[12-16] One point was given for the presence of each risk factor (maximum three). In order to assess knowledge, questions were asked about skin cancer awareness, prevention (including risk factors), warning signs of skin cancer and malignant melanoma. The results for questions in each area were scored, awareness being given three marks for responses to each of two questions. In order to assess preventive behaviour, an open-ended question was used and scored according to reported use of: sunscreen cream, appropriate clothing, shade and timed sun exposure (maximum score four).

The questionnaires were analysed using a Unix mainframe computer at the university using the *SPSSX* programme.

Results

Of 980 questionnaires distributed 810 (82.7%) were returned and analysed. Not all respondents answered every question, hence percentages are given of the total number of respondents to each question. There was a selection bias among the respondents with a preponderance of women (555, 68.6%) and those in social classes 1 (219, 30.6%) and 2 (240, 33.6%).

Over half of 807 respondents (438, 54.3%) reported having skin which tends to burn rather than tan, 31.0% of 800 reported having fair or red hair and 41.2% of 782 reported having more

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than 100 freckles or moles. The mean risk score was 1.3 with a mode of one. Of 722 respondents 75.3% reported at least one risk factor and 13.6% reported three risk factors.

There was a high level of skin cancer awareness with 719 respondents (91.5%) agreeing that skin cancer/melanoma is serious/dangerous and 734 respondents (92.6%) having heard of malignant melanoma. A total of 242 respondents (29.9%) failed to complete all the knowledge questions and were therefore excluded from the knowledge score results. The mean scores for knowledge were: prevention 8.3 (out of 12), warning signs of skin cancer 7.3 (out of nine), malignant melanoma 4.1 (out of six), awareness that skin cancer/melanoma is serious/dangerous 2.7 (out of three) and having heard of malignant melanoma 2.8 (out of three). The total mean knowledge score (excluding all missing cases) was 25.6 (out of 33). However, many respondents were unaware that the following were risk factors: blue eyes (87.4% of 786 respondents), fair hair (83.1% of 780), red hair (68.0% of 782), having lots of moles and freckles (33.0% of 794), fair complexion (26.0% of 795), getting sunburnt (13.8% of 797), and prolonged exposure to the sun (11.4% of 799). In addition, 14.5% of 792 respondents thought, inappropriately, that smoking was a risk factor.

Respondents reported using the following methods of skin cancer prevention: sunscreen cream (73.7% of 792 respondents), appropriate clothing (53.9%), shade (15.5%), timed exposure to the sun (12.5%) and other, irrelevant, methods (9.1%). The mean score for preventive behaviour was 1.6 (out of four); the mode was two. Of the 792 respondents 15.9% scored zero, that is, they were not able to mention anything they did that was relevant to prevent skin cancer. Only five respondents (0.6%) stated all four methods of preventing skin cancer.

The correlations between presence of risk factors, knowledge and preventive behaviour, although statistically significant (all $P<0.001$), were poor — risk factors and knowledge, Pearson correlation coefficient 0.15; risk factors and knowledge of risk factors, 0.14; risk factors and preventive behaviour, 0.18; knowledge and preventive behaviour, 0.28. There was little increase in preventive behaviour score with increasing risk score (Table 1). A higher percentage of those with a preventive behaviour score of 0 had a risk score of 0 than of those with a preventive behaviour score of 3/4 (Table 1). However, of those with a preventive behaviour score of 0, 23.6% had two risk factors and 7.3% had three risk factors.

The sub-population analyses (by sex, age, country of birth and social class) failed to show any significant differences.

Discussion

The sample was limited to those patients attending general practitioners' surgeries. There was a bias towards responses from women and from those in higher social classes. The face validity of the questions on knowledge was tested by comparing the results from the present study with results from six health professionals (community nurses and registered general nurses) in the UK. The knowledge scores in this study compared well with those of qualified nurses in the UK (unpublished data).

There was a high level of awareness of skin cancer among the respondents but also important areas of ignorance, for example, many did not know that getting sunburnt or prolonged exposure to the sun were risk factors. There was also widespread ignorance that 'Celtic traits' (fair/red hair, blue eyes, fair complexion) were risk factors for skin cancer. This was also found in Nichols' 1988 Cancer Research Campaign study in the UK.

Sunscreen cream was the most popular method of prevention at the expense of simpler, cheaper and more effective methods.[10,17,18] The high overall level of knowledge was not reflected in preventive behaviour; 16% of respondents took no action to prevent skin cancer.

Those at high risk of skin cancer were not likely to know that they were. In addition, they knew little more and did little more to prevent skin cancer than other respondents. Nearly a third of those who did nothing to prevent skin cancer had two or three risk factors.

What can be learnt from these results with regard to skin cancer education? Intensive health education in Australia over 30 years has produced a superior awareness of skin cancer than after a campaign in, for example, Hawaii [9] and Nichols' study in the UK. For example, in the present study, 93% of respondents had heard of malignant melanoma compared with 35% of respondents after the campaign in the UK. In the present study, 92% of respondents thought that skin cancer/melanoma was dangerous/serious compared with 48% and 16% of respondents in Hawaii[9] and in Nichols' study in the UK, respectively. However, despite this the basic messages have not got through to many, especially those at high risk. Is a new approach in health education required? Perhaps those at high risk should be targeted for education and screening.[19-23] Sunburn in childhood and lifelong accumulated sun exposure are relevant factors in the development of melanoma; it is therefore important to target school children for health education.[19]

The general practitioner is ideally placed to contribute to the task of targeted health education. If those patients with all three risk factors were targeted, this would involve 14% of patients aged 16 years and over presenting to general practitioners' surgeries in South Australia. This should be feasible since at present general practitioners in the UK attempt to screen all women on their lists for cervical cancer, and all adults for hypertension.

At present little preventive activity takes place in general practice in Australia,[24,25] unlike in the UK. As part of the health promotion activity in both countries, practices could educate and screen 'at risk' patients.[26] Extra training and resources would, however, be needed.[23] It is estimated that the cost of managing skin cancer in Australia is A$ 400 million per year[27] and it would therefore make sense to invest more in primary and secondary prevention of mortality and morbidity from skin cancer.

Table 1. Relationship between risk score and preventive behaviour score, and percentage of repondents with preventive behaviour scores 0 or 3/4, by risk score.

Risk score	Mean preventive behaviour score [no. of respondents with risk score]	% of respondents with preventive behaviour score	
		0 (n = 110)	3/4 (n = 120)
0	1.3 [178]	*41.8*	*16.7*
1	1.6 [228]	*27.3*	*28.3*
2	1.7 [218]	*23.6*	*32.5*
3	1.9 [98]	*7.3*	*22.5*

n = number of respondents with preventive behaviour score.

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Food for thought...

'General practice is not only becoming busier but the people seen are more severely ill than a decade ago. Worringly, the greatest increase in severity of conditions was in children aged under 15 years.'

Ebrahim S. Changing patterns of consultation in general practice: fourth national morbidity study, 1991-92 [editorial]. June *Journal*, p.283.