

One year experience of a model for melanoma continuous prevention in the city of Jaú (São Paulo), Brazil *

Experiência de um ano de modelo de programa de prevenção contínua do melanoma na cidade de Jaú-SP, Brasil

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Abstract: BACKGROUND: Worldwide incidence of melanoma has increased in recent years faster than any other cancer. Although it represents only 4% of skin cancers it is nevertheless responsible for 60% of skin cancer deaths. This makes melanoma a public health problem.

OBJECTIVES: The aim of this study was the development of a continuous program for melanoma prevention and early detection.

METHODS: A city of around 130,000 inhabitants in the state of São Paulo, Brazil, was chosen for the development of a pilot project covering primary prevention and early diagnosis of melanoma. A nursing team worked for approximately 30 days in each of the 13 health centers in the city of Jaú (SP), providing guidance on self-examination of the skin, photoprotection and recognition of early signs of melanoma. Patients with suspicious lesions were immediately sent to the reference hospital for medical and dermoscopic screening. Excisional biopsies were performed on suspected melanomas.

RESULTS: 4 four cases of early stage melanoma and 3 dysplastic nevi were diagnosed. Of the people interviewed, 74% worked either part-time or full-time exposed to sun and over 60% claimed to never use sunscreen.

CONCLUSION: This is a new and effective model for melanoma prevention and early diagnosis. In short, the melanoma prevention program is able to quickly identify suspicious lesions, leading to early diagnosis and better chances of survival.

Keywords: Early diagnosis; Melanoma; Disease prevention

Resumo: FUNDAMENTO: A incidência do melanoma aumentou nos últimos anos mais rapidamente do que qualquer outro câncer. Embora represente apenas 4% dos cânceres de pele, é o responsável por 60% das mortes por esta neoplasia. Isto torna o melanoma um problema de saúde pública.

OBJETIVOS: O presente estudo propôs o desenvolvimento de um Programa Contínuo de Prevenção do Melanoma, por meio da realização da prevenção primária e do diagnóstico precoce desta neoplasia.

MÉTODOS: Foi tomada como piloto uma cidade de aproximadamente 130.000 habitantes. Uma equipe de enfermagem esteve presente por cerca de 30 dias em cada um dos 13 postos de saúde da cidade de Jaú (SP), realizando orientações quanto ao autoexame da pele, fotoproteção e sinais precoces do melanoma. O paciente com lesão suspeita era encaminhado imediatamente ao hospital de referência para dermatoscopia e triagem médica, sendo excisada quando suspeita.

RESULTADOS: Foram diagnosticados 4 casos de melanoma em fase inicial e 3 nevos displásicos. Dos entrevistados, 74% trabalham expostos ao sol, variando de meio período ao completo, e mais de 60% nunca fizeram uso de filtro solar.

CONCLUSÃO: Este modelo de programa de prevenção é inédito, exclusivo e demonstrou ser eficaz na prevenção e diagnóstico precoce do melanoma em uma cidade de 130.000 habitantes do Estado de São Paulo. Com esclarecimento à população e orientação à equipe de saúde, realiza-se uma rápida triagem e identificam-se lesões suspeitas de melanoma para que, com o diagnóstico em suas fases iniciais, o paciente apresente melhor prognóstico.

Palavras-chave: Diagnóstico precoce; Melanoma; Prevenção de doenças

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INTRODUCTION

Skin cancer is the most common type of cancer in the Brazilian population¹. Our National Cancer Institute (INCA) estimated that there were around 115,000 new cases in 2008 - an estimated risk of 59 new cases for every 100,000 men and 61 cases per 100,000 women. In the city of Jaú skin cancer accounts for 46.7% of all cancers recorded between 2000-2004, with an incidence rate, adjusted for age and standardized by world population, of 188.6 cases per 100,000 men and 217.2 cases per 100,000 women.²

Melanoma, originating from melanocytes, is an important skin cancer,³ and although it represents only 4% of skin cancers it is nevertheless responsible for 60% of skin cancer deaths.⁴ In the city of Jaú alone melanoma accounts for 3.83% of cancers of the skin.² The incidence of melanoma has increased throughout the world in recent years.⁵⁻⁸ According to Schaffer *et al* (2004), melanoma incidence has doubled over the past 25 years, growing faster than any other type of cancer.⁹ Given this situation, melanoma has become a significant public health problem.¹⁰ In the United States for example, it has gone from being the 11th to the 5th most common cancer in men over the past 25 years and from 10th to 7th place among women.⁸ Melanoma incidence has increased mainly due to increased exposure to the sun and longer life expectancy.^{8,11,12}

Deaths caused by melanoma have increased worldwide, but mortality has not outstripped incidence,^{3,11} due primarily to early diagnosis motivated by skin cancer prevention campaigns in developed countries aimed at the identification and treatment of the disease in its early stages.^{6,9,12} This has been recorded by Schaffer *et al* (2004), who observed that from a 5-year survival rate of 50% for invasive melanoma in 1950 the rate had reached 90% by 1990. Similar figures were observed by Johnson *et al* (1998). In addition to better survival rates, an increase was noted in Central Europe in the percentage of thin lesions (≤ 1 mm) - from 39% in 1976 to 65.5% in 2000.¹³ The growing awareness of people in developed countries as the result of prevention campaigns helps in the identification of early lesions, contributing to a favorable prognosis. At a time when most tumors have decreased the incidence of melanoma continues to increase.¹⁴ In Jaú in 2004-2008, *in situ* melanoma cases represented 27.6% of all melanomas diagnosed.²

Melanoma diagnosed in its early stages is curable.⁷ It is therefore important to know the individuals at risk for this cancer and to identify the early lesions. Features such as fair skin, blue eyes, light hair, multiple nevi and exposure to the sun denote individ-

uals at risk from melanoma and skin cancer in general.¹⁵⁻¹⁷ The dangers of exposure to the sun need to be fully explained to the population in general. According to a study done by Durquia *et al* (2007) on the habits of people living in southern Brazil, the majority of individuals who were most exposed to the sun were the least likely to use sunscreen.¹⁸

Identification of suspicious lesions is important. In most cases melanoma presents as an asymmetric blackish blemish with irregular edges and varied coloration, over 6mm in diameter.³ A key method of early diagnosis is dermoscopy.^{19,20} With its high sensitivity (98.8%) and specificity (91.2%), this method plays an invaluable role in differentiating between melanoma and non-melanocytic pigmented lesions.^{8,21}

Moreover, the identification of lesions at an early stage is essential for improving survival rates. Official cancer records kept by the Amaral Carvalho de Jaú Hospital reveal 5-year melanoma survival rates ranging from 100% (stage I) to 0% (stage IV) 0%.²² According to countrywide data most melanoma diagnoses are done at advanced stages of the disease, when chances of survival are not good¹. This is probably due to two reasons: the lack of information available to the population, and difficult access to specialized medical evaluations. To counter this, every year for the past ten years the Brazilian Society of Dermatology has run an excellent skin cancer prevention campaign, involving heavy media coverage, clinical examination of people's skin conditions and referral of suspected cases to hospital for treatment. However, an urgent need exists to underpin and complement this initiative by the SBD by developing a system for providing information on a continuing, year-on-year basis aimed at raising awareness of the disease among the population. In parallel, facilities should be readily available for evaluating and treating suspect melanoma lesions. Rapid screening and identification of early-stage melanomas would result in increased chances of survival for the patients affected.

Project Goals

The aim of the present study was to draw the attention of the population to the risks posed by skin cancer, especially melanoma, and the importance of early diagnosis. The Melanoma Continuous Prevention Program focused on two particular challenges: (i) primary prevention of tumors and (ii) early diagnosis.

Primary Prevention: addressing all the melanoma risk factors, introducing educational meas-

ures regarding exposure and photoprotection, providing guidance for people to be aware of the health risks and seeking to identify the groups most at risk of contracting the disease.

Early Diagnosis: establishing guidelines for early identification of malignant lesions by the Public Health System, speedy referrals to the specialist diagnostic services for examination of suspicious lesions, and raising public awareness of the importance of regular self-examination.

METHODS

The Program for Continuous Prevention of Melanoma was developed by the authors and submitted for approval by the Research Ethics Committee of the Amaral Carvalho Foundation (protocol number 31/09). The target population for the project consisted of attendees at the six Health Care Clinics (PAS) and seven Family Health Clinics (PSF) in the city of Jaú. On the basis of a framework agreement signed by the Jaú Health Secretariat and Skin Tumors Department of the Amaral Carvalho de Jaú Hospital (HAC), the nursing staff assigned to the Program (one nurse and three nursing auxiliaries) worked for around 30 days in each of above clinics (Table 1).

In each clinic the nursing team undertook primary prevention activities comprising distribution of leaflets explaining skin cancer and melanoma, lectures on melanoma risk factors, direct interventions by health professionals with patients - all aimed at elucidating the characteristics of lesions requiring diagnosis and teaching people how to examine themselves for signs of the disease. A total of 1,768 patients answered a questionnaire on sun exposure, melanoma or other skin cancer history among relatives, the use of photoprotection and knowledge about melanoma. The doctors allocated to the clinics were approached for guidance and clarification on any suspicious lesions. Individual patients concerned about possible melanoma lesions were encouraged to approach the doctors for an initial examination. Doctors referred any suspect cases directly to the Prevention Program with a personalized Referral Note.

Suspicious lesions on patients referred to the Melanoma Prevention Outpatients Clinic were photographed by nurses trained by the HAC Skin Tumors Department. The macroscopic and dermoscopic images of the lesion were then evaluated by the attending physician in the Department and stored in a computer program developed specifically for the Program for Continuous Melanoma Prevention. After the identification of suspicious or doubtful lesions from the photographic images patients were scheduled for an appointment with the attending physician.

A clinical examination was done followed, where necessary, by dermatoscopy. Patients with identified melanomas or suspicious lesions were automatically sent to the Outpatient Surgery Center of the Amaral Carvalho Hospital where excisional biopsy was performed. Cases of diagnosed melanoma were treated and followed up by the same hospital's multidisciplinary group (Skin Tumors Department), in accordance with the recommendations of the Brazilian Melanoma Group (GBM).^{23,24}

RESULTS

88 patients were referred for clinical and dermoscopic examination during the first year of operation of the Melanoma Prevention Program. Four cases were diagnosed at an early stage of melanoma and 3 cases of dysplastic nevi (see Table 2).

Patients whose excisional biopsy showed melanoma underwent full clinical staging and surgical treatment according to the GBM protocol,²³ and are currently being followed up from the clinical/ laboratory point of view by the Skin Tumors Department.

On the basis of 1768 questionnaires, we were able to analyse the profile of the population attending the various health clinics in the city: over 70% turned out to be female; 76% of all respondents did not know what is melanoma was (Chart 1); 26% worked indoors; 74% worked in the sun either part-time or full-time (Chart 2). Over 60% of respondents had never used sunscreen, 20% used it only during leisure activities, 9% applied sunscreen once daily and 5% twice daily (Chart 3). As for family history of skin cancer, 12% of respondents reported that relatives had

TABLE 1: Schedule: Melanoma Continuous Prevention Program teams present at the Health Clinics in the city of Jaú

HEALTH CLINIC	PERIOD
PAS Itamaraty	10 October to 9 November 2007
PAS Jorge Atalla	10 November to 10 December 2007
PAS Vila Maria	07 to 31 January 2008
PSF Adilson Morandi	01 to 29 February 2008
PAS São Benedito	01 to 31 March 31 2008
PSF Pouso Alegre	01 to 15 April 2008
PSF Vila Ribeiro	16 to 30 April 2008
PAS Potunduva	02 to 31 May 2008
PSF NGA25	01 to 15 June 2008
PSF Dorival Mascaro	16 to 30 June 30, 2008
PAS Vila Nova	01 to 31 July 2008
PSF Santa Helena	01 to 31 August 2008
PSF Pedro Ometo	01 to 30 September 2008
PAS Itamaraty	01 to 31 October 2008
PAS Jorge Atalla	01 to 30 November 2008

*PSF: Family Health Clinic

**PAS: Health Care Clinic

TABLE 2: Cases diagnosed in the first year of the Melanoma Prevention Program in the city of Jaú. Distribution by diagnosis, sex, site, histologic type, staging and age

DIAGNOSIS	SEX	SITE	HISTOLOGY	STAGING		AGE
				TNM	EC	
Melanoma	F	Foot Rt.	Acral lentiginous	TisNOM0	0	53
Melanoma	M	Mandibular Rt.	Lentigo	TisNOM0	0	45
Melanoma	M	Infra-clavicular Rt	Superficial Spreading	T1ANOM0	IA	39
Melanoma	F	Nasal wing	Lentigo	Tis NOM0	0	64
Dysplastic nevi	F	Sternal	.	.	.	26
Dysplastic nevi	F	Breast Lt.	.	.	.	46
Dysplastic nevi	F	Supra mammary Rt..	.	.	.	32

skin cancer, while only 2% reported family members with melanoma.

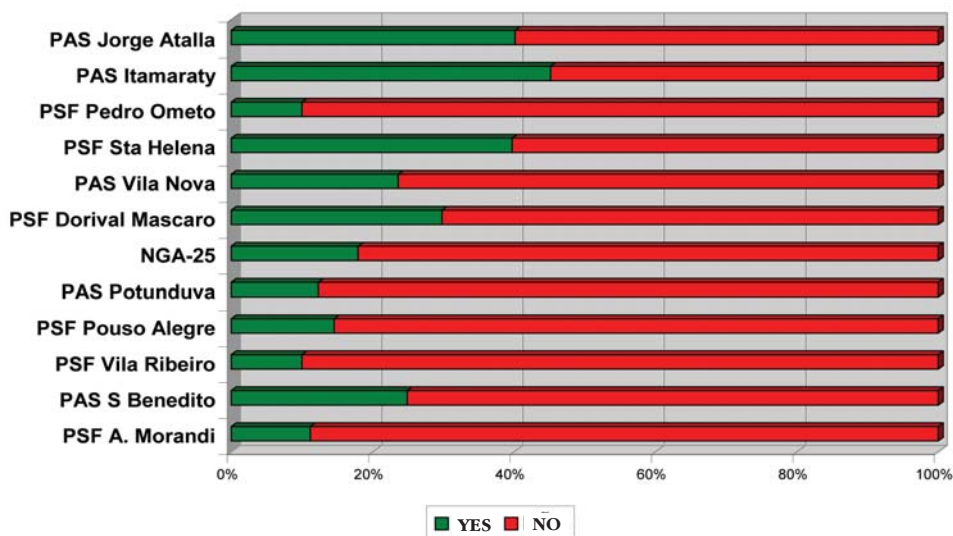
DISCUSSION

This study aimed to propose an ongoing system of prevention and early diagnosis of skin melanoma in a city of 130,000 inhabitants. The Prevention Program offers quick access to specialized oncology services and to technology (dermoscopy and telemedicine) for assisting in screening cases. One result was the diagnosis of 4 cases of melanoma and 3 of dysplastic nevi. Three of the melanoma cases were diagnosed at the *in situ* stage and one at Stage I of the disease (survival rates of 100% and 88% in 10 years respectively).^{7,25} The diagnosed cases were of relatively young people in the economically-productive age range, mirroring the profile of patients with melanoma reported in the literature.²⁶ Reintegration of such patients into the economy (and society) after diagnosis and treatment of thin melanomas is vitally important not only for the patient, but also for the State (lower costs of early treatment generates substantial long-term savings for the National Health Service (SUS) and private health providers alike).²⁷

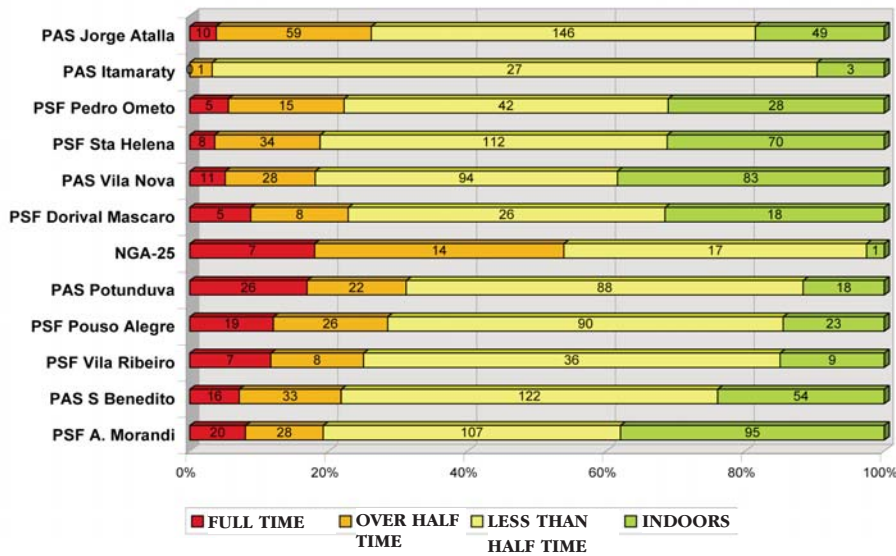
Many educational campaigns have been developed over the years in countries such as Australia, New Zealand, the United States and Europe.²⁸ All the campaigns have advocated ongoing guidance for the population regarding both prevention and the need for early diagnosis of skin cancer.^{28,29}

Melanoma Continuous Prevention Program achieved its objectives in the city of Jaú. Guidance was provided for the 130,000 population and 4 cases of melanoma were diagnosed during the first year of operation. These data are consistent with the estimated incidence of melanoma for Southeast Brazil according to the National Cancer Institute.¹ Moreover the data demonstrates the importance and effectiveness of this pioneering prevention program in a Brazilian city as a model which could be adopted throughout the country (on the lines of the international prevention programs), complementing and strengthening the annual cancer prevention campaign of the Brazilian Society of Dermatology.^{16, 28,29}

We noted that the majority of respondents to the questionnaires were females, indicating that women appear to be more concerned about health matters than men. The data showed however that 60%



GRAPH 1: Distribution of population interviewed about knowledge (+ lack of) about melanoma



GRAPH 2: Distribution of population interviewed about exposure to sun at work

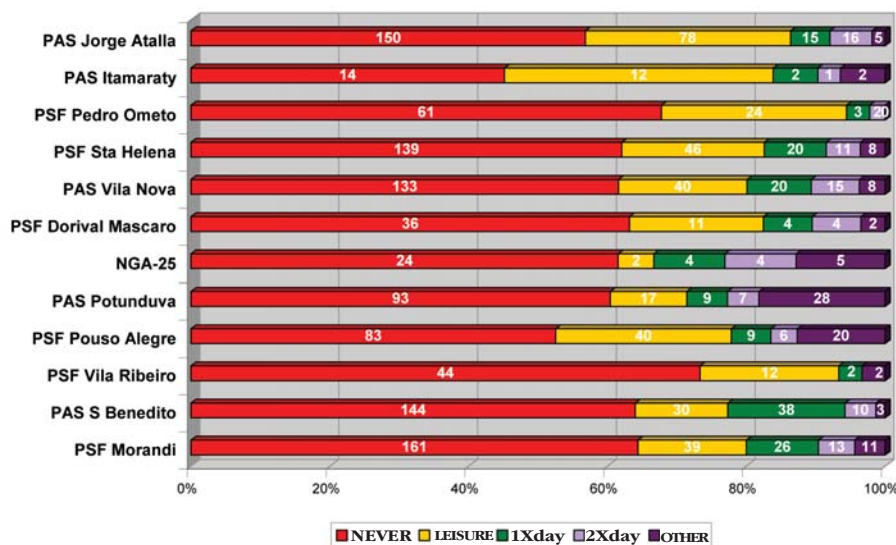
of respondents fail to use sunscreen regardless of being exposed to the sun during working hours. These results reflect the lack of information about the risks of sun exposure.¹⁸ A further explanation for not using sunscreen could be its high cost and the fact that it is not on the list of medicines provided by the National Health Service (SUS). Efforts need to be made in these circumstances to encourage people who are regularly exposed to the sun to use sunscreens, appropriate clothes and hats and also to pressure the health authorities to include sunscreens in the National List of Essential Drugs (RENAME). We also noted the lack of public understanding of how sunscreen should be correctly used (applied at least 20 minutes before sun exposure and reapplied every two hours). The 9% of respondents who use sunscreen daily and the 20% who use it only in leisure activities applied it only once a day.³⁰

The majority of our respondents had no idea

what melanoma was (Chart1). This lack of awareness obviously impedes early diagnosis of cancer: individuals with no knowledge of melanoma whatsoever have no way of preventing it. We need to adopt the example of the international prevention programs designed to encourage the uninterrupted reporting and identification of early lesions²⁹ and to educate as many people as possible about the melanoma risk factors and the need for self-examination of the skin. As awareness of melanoma increases, diagnosis of this cancer can be carried out early, thus increasing patients' chances of survival.

CONCLUSIONS

This new and effective model for melanoma prevention and early diagnosis in a city of 130,000 inhabitants in the state of São Paulo could be easily reproduced in most Brazilian cities and towns. The program is essentially low-cost, based on training



GRAPH 3: Distribution of population interviewed about sunscreen

health professionals and educating the target population. In addition, we need to review, over the next two years, the incidence of melanoma rates in Jaú in the Population Registry, in order to assess whether over

the long term there will be any possibility of reproducing in Brazil the experience of countries which have succeeded in reducing the number of advanced cases of melanoma. □

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