Journal of Oncological Sciences 4 (2018) 19–23

Contents lists available at ScienceDirect

Journal of Oncological Sciences

journal homepage: https://www.elsevier.com/locate/jons

Is the frequency of primary cutaneous melanoma increasing in Turkey? An evaluation of the experiences of two dermatology centers

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ARTICLE INFO

Article history:
Received 12 March 2017
Received in revised form
4 November 2017
Accepted 12 November 2017
Available online 22 November 2017

Keywords:
Melanoma
Incidence
Frequency
Primary cutaneous melanoma
Turkey

ABSTRACT

Introduction and purpose: Since there are only a few population-based studies about the incidence of melanoma in Turkey which do not cover the whole population, we aimed to contribute the data regarding the current situation and the changes in the frequency of primary cutaneous melanoma (PCM) diagnosis in our country by evaluating our results and comparing them with national literature from Turkey.

Methods: Consecutive PCM lesions diagnosed at the Dermatovenereology Departments of the Istanbul Medical Faculty (first center) between 1997 and 2016 and of the Ankara Medical Faculty (second center) between 2007 and 2016 were retrospectively reviewed. The yearly number of PCMs diagnosed in each clinic over study period were compared about any change in the frequency of melanoma diagnosis.

Results: There were 239 and 183 PCMs diagnosed in the two centers in twenty and ten years study period and the mean PCM diagnosis per year was 11.9 and 18.3, respectively. The number of PCM diagnosis markedly increased over time in both centers: 36, 45, 75 and 83 diagnosis for the subsequent five-year periods in the first center and 51 and 132 diagnosis for the subsequent five-year periods, in the second center.

Discussion: It was striking that the number of PCM diagnosis increased steadily in both dermatovenereology centers. As several large melanoma series have been reported from various disciplines all over Turkey in the last two decades and numerous of them have also drawn attention to the increasing frequency of PCM diagnosis similar to our results, supporting data about increasing incidence of melanoma diagnosis for our country have been obtained.

1. Introduction

Melanoma is a prominent malignant neoplasm that shortens the life span of humans. In the US, melanoma has been reported as the fifth and seventh most common malignancy in males and females, respectively.[1] However, the frequency of this neoplasm varies between different populations, especially depending on the predominant skin type of a population.[2] Data about the frequency of melanoma and its incidence variation over time is limited in Turkey. Although melanoma is a serious concern for various medical disciplines, the most common type of melanoma, primary cutaneous melanoma (PCM), is generally diagnosed in dermatology departments. Therefore, the data from dermatology centers, particularly concerning tumors that are diagnosed early, may be more reliable than data from other medical disciplines. In our study, we aimed to investigate the current situation and the frequency variations of melanoma diagnosis by evaluating large series of PCM patients originating from two tertiary dermatology centers and comparing the data from these two centers with national literature about melanoma.[3–21]

2. Materials and methods

Consecutive patients diagnosed with PCM at the Dermatovenereology Departments of the Istanbul Medical Faculty (first center) between 1 January 1997 and 31 December 2016 and of the Ankara Medical Faculty (second center) between 1 January 2007 and 31 December 2016 were retrospectively reviewed. The PCM

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Peer review under responsibility of Turkish Society of Medical Oncology.

https://doi.org/10.1016/j.jons.2017.11.002

diagnosis of all patients was histopathologically confirmed. Melanoma patients without any skin findings indicating the tumor had been previously excised in another center and referred to our centers for further investigation or follow-up and patients with only cutaneous metastasis of their melanoma were excluded from the study. We stratified the patients into four age groups; 0–24 years, 25–49 years, 50–69 years, and ≥70 years at diagnosis. The number of PCM diagnosis per year during the study period was determined. Additionally, the results of each center were divided into five-year periods regarding the number of PCM diagnosis and patients' age groups. All these data during these five-year periods in each center were compared.

3. Results

There were 231 patients (male: 109, female: 122, mean age: 56.3 ± 20 [2–103]) with 239 PCM lesions diagnosed at the Dermatolovenereology Department of the Istanbul Medical Faculty over the twenty years who were included in this study. Moreover 161 patients (male: 80, female: 81, mean age: 51.7 ± 18.4 [17–84]) with 183 PCM lesions diagnosed at the Dermatolovenereology Department of the Ankara Medical Faculty over the ten years were also included as a second center in another metropolis. The mean number of PCM diagnosis per year was 11.9 (first ten-year period: 8.1, second ten-year period: 15.8) in the first center and 18.3 in the second center. The number of melanoma diagnosis per year for each center during the study period is shown in Fig. 1. In the first center, there were 36, 45, 75 and 83 PCM diagnosis in the first, second, third, and fourth five-year periods, respectively, during twenty-year (1997–2016) study period. In the second center, there were 51 and 132 PCM diagnosis during these third and fourth five-year periods, respectively, including ten-year (2007–2016) study period. When the first centers five-year results were evaluated regarding the patient age groups at diagnosis, the ratios of older age groups were generally increased during five-year periods; the ratio of patients aged 50–69 years old was 19.4%, 35.6%, 37.3% and 42.1% of the first, second, third and fourth five-year periods, respectively, and the ratio of patients aged ≥70 years old was 8.3%, 33.3%, 38.7% and 25.3% of the same periods. In the second center, the ratios of older age groups were decreased during the study period; while in the third five-year period 54.9% of patients were 50–69 years old and 27.5% of patients were ≥70 years old, in the fourth five-year period 37.8% of patients were 50–69 years old and 15.9% of patients were ≥70 years old.

4. Discussion

Although studies have reported the increasing incidence of melanoma in many countries throughout the world,[1,2] there is still a lack of population-based study covering the whole population about the incidence of melanoma and its variation over time in Turkey. The increasing trend in melanoma incidence has been noted in European countries including Turkey and in GLOBOCAN 2012 report of International Agency for Research on Cancer (IARC), the age-standardised rate of cutaneous melanoma of Turkey was 2.1 (100.000 persons per year) for both sexes.[22,23] However, the incidence of melanoma of Turkey was based upon the data of cancer registries belonging to eight provinces other than Istanbul and Ankara.[22,23] Turkey's cancer data regarding melanoma incidence has been also used in another international multicenter study in which only one cancer registry (Izmir) data covering 5.3% of national population was used.[24] Furthermore, in the national cancer data report in 2014 belonging to Turkey Ministry of Health to which data was provided from Istanbul and Ankara cancer registries from 2012 and 2006, respectively, age-standardised rates of cutaneous melanoma were 1.8 (100.000 persons per year) in men and 1.2 (100.000 persons per year) in women.[25] Another data source about the frequency of melanoma and its variation over time in Turkey can be based on case series reported from various medical disciplines that deal with melanoma, such as the dermatology, plastic surgery, oncology, and pathology departments of tertiary centers in different geographic regions (see Table 1).[3–21] In this report originated from Istanbul and Ankara, some supporting data about the increasing frequency of melanoma diagnosis in Turkey have been obtained by comparing the two dermatology centers' five-year period results with each other and with all other series reported from various medical disciplines in Turkey.[3–21]

In the last 30 years, there have been many studies about cutaneous melanoma reported in Turkey (see Table 1).[3–21] However, the great majority of these studies were performed by medical

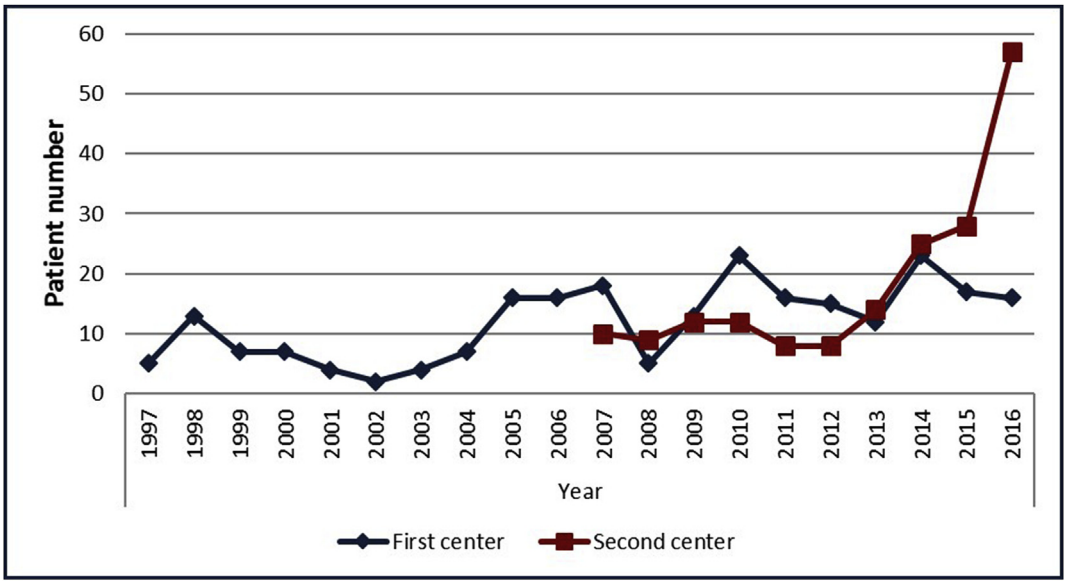

Fig. 1. The number of melanoma diagnosis per year for each center during the study period.

Table 1
Case studies about cutaneous melanoma reported from Turkey.

Study/Year	Province	Medical discipline/ Number of center	Study period	Patient number/Melanoma yearly per center	Variation of the melanoma frequency
Baykal/1996[4]	Istanbul	Dermatology/2	1991 –1995	31/3.1	NA
Aydıngoz/1998[5]	Istanbul	Pathology/1	1992 –1996	20/4	NA
Bilkay/2000[10]	Izmir	Plastic surgery/1	1990 –1999	87/9.6	NA
Buyukpinarbaşili/ 2002[21]	Istanbul	Pathology/1	1992 –2000	93/10.3	NA
Ozgenel/2002[11]	Bursa	Plastic surgery/1	1993 –2001	30/3.3	NA
Karasoy/2004[12]	Istanbul	Plastic surgery/1	1991 –2003	65/5	NA
Pinarbasi/2006[3]	Antalya	Dermatology/1	1994 –2003	30/3	Increase
Tas/2006[9]	Istanbul	Oncology/1	1991 –2003	475/36.5	NA
Gunes/2008[19]	Istanbul	Pathology/1	2003 –2008	46/9.2	NA
Kulahci/2008[13]	Ankara	Plastic surgery/1	1980 –2001	79/3.6	Increase
Sahin/2011[16]	Ankara	Plastic surgery/1	2001 –2009	46/5.1	Increase
Simsek/2012[14]	Samsun	Plastic surgery/1	1994 –2010	84/4.9	Increase
Uysal Sonmez/ 2013[8]	Sakarya, Muğla, Ankara, Düzce	Oncology/4	2007 –2012	98/4.9	NA
Gamsizkan/ 2014[7]	Erzurum, Istanbul, Ankara, Izmir, Denizli, Manisa, Bolu, Bursa, Adana, Antalya	Pathology/18	2008 –2012	1574/17.5	NA
Ozgen/2014[20]	Ankara	Oncology/1	2003 –2010	69/8.6	NA
Abali/2015[6]	Istanbul, Ankara, Izmir, Antalya, Mersin, Kayseri, Gaziantep, Diyarbakır, Zonguldak, Malatya, Trabzon	Oncology/22	1989 –2013	1157/2.2	NA
Devrim/2015[18]	Isparta	Pathology/1	1998 –2014	98/5.8	Increase
Ciloglu/2015[15]	Istanbul	Plastic surgery/1	2003 –2013	55/5.5	Increase
Sula/2016[17]	Diyarbakır	Dermatology-Oncology/1	2005 –2014	61/6.1	Increase
Present study/ 2017	Istanbul, Ankara	Dermatology/2	1997 –2016*	422**/14.07	Increase

* The data of the second center include only the years between 2007 and 2016, **422 PCM lesions diagnosed in 392 patients, NA: not available.

disciplines other than dermatology, and only some of them were multicenter studies (see Table 1). The previous studies originated from dermatology centers in Turkey involved a limited number of patients.[3,4] In a study reported from the Dermatology department of the Akdeniz Medical Faculty (Antalya), 30 patients (mean: 3 melanoma per year) were diagnosed with PCM between 1994 and 2003.[3] Aydingöz et al. reported 20 PCM patients (mean: 4 melanoma per year) by reviewing the 1992–1996 pathology registries of Haydarpaşa Numune Hospital in Istanbul.[5]

Recently, there have been multicenter studies reported from oncology and pathology departments investigating a large number of melanoma patients for the first time in Turkey.[6–8] In one of these studies, which involved 18 pathology centers located in metropoles in different geographic regions of Turkey, 1574 cases of PCM were diagnosed between 2008 and 2012 (mean: 17.5 melanoma yearly per center).[7] Two multicenter oncology-based studies reported from Turkey, one which recruited patients between 2007 and 2012 and the other which recruited patients from 1989 to 2013, revealed 98 (mean: 4.9 melanoma yearly per center) and 1157 (mean: 2.2 melanoma yearly per center) melanoma patients, respectively.[6,8] However, these results are very low in comparison with the result reported by Tas et al. from their single-center Oncology institute study conducted on patients between 1991 and 2003 in Istanbul (mean: 36.5 melanoma per year).[9] None of these above-mentioned oncology and pathology-based studies indicated the proportion of the melanoma cases initially diagnosed in the dermatology departments. Early-stage melanoma patients who require no further systemic treatment may not be included in oncology studies. Therefore, the results of pathology-based studies, which may include melanoma patients of any stage, may differ from the results of oncology-based studies. On the other hand, since Tas et al. reported their study from a reference Oncology center, where surgical treatment of the tumor is also performed, which may be the cause of the disproportionally high number of cases in their study.[9] However, there are seven single-center studies originated from different Plastic Surgery departments in Turkey that reported 3.3 to 9.6 new melanoma diagnosis per year, which are relatively low rates.[10–16]

In our study, there were 422 PCM lesions diagnosed in 392 patients (mean: 14.07 melanoma yearly per center) in the two centers, and this study appears to be the largest cohort ever reported from dermatology departments in Turkey. In a study performed in the dermatology departments of the Istanbul and Marmara medical faculties, 31 PCM patients were reported in a five-year period (1991–1995) (mean: 3.1 melanoma yearly per center).[4] The mean number of PCM lesions per year increased to 8.1 in the first ten-year period and to 15.8 in the second ten-year period in only one center (Istanbul Medical Faculty) of this former study

which investigates the PCM patients diagnosed between 1997 and 2016 in the present study. These results may underline the striking increase in the frequency of melanoma diagnosis at this center. The population of Istanbul has increased by 59.34% over the past 20 years.[26,27] This increase might be one of the reasons for the increasing number of melanoma patients at the Istanbul Medical Faculty. However, the number of outpatients at this department has not changed significantly over these years. Additionally, at Istanbul Medical Faculty the ratios of older age groups (50–69 years and ≥70 years) were nearly steadily increased in melanoma patients during five-year periods probably related with expansion in elderly population due to increased life expectancy by time in our country. It was previously noted in an international multicenter study about melanoma that both incidence and mortality rates were increased in older men (70 + ages) from Turkey similar with the first center results of present study.[24] Remarkably, the yearly number of PCM diagnosis was 18.3 at the Ankara Medical Faculty during the last ten-year period, which was slightly higher than the PCM diagnosis at the Istanbul Medical Faculty in this period (15.8). On the other hand, the increase in frequency was more than twofold in second center (Ankara) for five-year periods between 2007 and 2016. The population of Ankara has increased by 19.69% over the past 10 years of the study period.[28] Additionally, at Ankara Medical Faculty, the ratios of older age groups (50–69 years and ≥70 years) were decreased and the other age groups (0–24 years and 25–49 years) ratios were increased during the study period. This may be related with increasing experience in computerized dermoscopy in this center, especially for the follow-up of the patients with xeroderma pigmentosum, congenital and dysplastic nevi who might have melanomas in early periods of life.

In both centers of our study, a remarkable increase in the frequency of PCM diagnosis was observed during study period (see Fig. 1). However, both dermatology departments are referral centers in which nevomelanocytic tumors are closely followed up, so the increased awareness of this fact by physicians referring melanoma patients and more easily accessing to health system could be other factors leading to the increased frequency of melanoma diagnosis in our study. The importance of a dermatological approach to melanoma diagnosis is now well understood, and direct excision of the tumor by surgeons has decreased over years. In addition, due to the increase in public awareness about melanoma, patients present with early stage lesions especially in-situ melanomas and admissions before melanoma metastasis are mostly related with dermatology departments. All these factors may also explain the high numbers of melanoma patients diagnosed in the dermatology departments included in this study. Among the studies about cutaneous melanoma in Turkey, the oncology-based study from Istanbul[9] had the highest rate of melanoma (mean: 36.5 melanoma per year) and was followed by a multicenter pathology-based study (mean: 17.5 melanoma yearly per center).[7] In the last ten-year period of our study, the number of yearly PCM diagnosis per center was 17.05, which was a striking result.

Similar to our study, there have been several reports pointing out an increase in the frequency of melanoma diagnosis in Turkey over time.[3,13–18] A dermatology-based study reported from Antalya revealed that there was a threefold increase in the PCM diagnosis between 1999 and 2003 in comparison with the time between 1994 and 1998.[3] A plastic surgery-based study reported from Samsun that included melanoma patients from 1994 to 2009 noted a significant increase in the frequency of melanoma diagnosis after 2007.[14] Another plastic surgery-based study from Ankara underlined a higher incidence between 1990 and 2001 in comparison with the time between 1980 and 1989.[13] A further study that evaluated melanoma patients diagnosed between 2001 and 2009 in the same center in Ankara stated that frequency of melanoma diagnosis is on rise according to the previous study.[13,16]

Another recently published study reported from one of our centers (Istanbul Medical Faculty), which included 234 melanomas diagnosed between 1997 and 2015 (most of them also included in the present study), focused mainly on the clinical presentation of melanoma skin lesions during admission and the distribution of PCM subtypes.[29] In this study, it was emphasized that the rates of superficial spreading melanoma (37.19%) and nodular melanoma (6.76%) subtypes were low, but lentigo malignant melanoma (31.4%) and acral lentiginous melanoma (19.32%) rates were higher than studies originating from European countries.[29] This difference in PCM subtypes between Turkey and European countries was attributed to the predominant skin type and the longer sunny period of Istanbul compared to most of the European cities.[29] Therefore, one may expect that the frequency of melanoma in Turkey must also be different from Europe. Nevertheless, the results of our present study with two tertiary dermatology centers supported an increase of melanoma diagnosis in Turkey that is similar with European studies, compatible with GLOBOCAN 2012 report of IARC.[23]

More evidence than the data from the case studies is needed to conclude definitively that the overall incidence of melanoma has increased among the Turkish population. However, recently, melanoma patient series with larger cohorts from various disciplines are being increasingly published, and a significant number of these cohorts have revealed an increase in the frequency of melanoma diagnosis that agrees with our study results. Therefore, these results all together may support former limited epidemiologic data that the frequency of PCM diagnosis is increasing in Turkey.

Funding sources

None.

Conflict of interest disclosure

None.

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