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Impact of the COVID-19 pandemic on melanoma diagnosis

Dear Editor,

Many healthcare systems have responded to the COVID-19 pandemic by delaying and/or cancelling elective surgical procedures, particularly during the lockdown.[1–3] There is a concern that this could have affected the early diagnosis of malignant melanoma (MM) that is critical to improve its prognosis.[4,5] The objective of this observational study was to investigate whether a reduction in the incidence of new diagnoses of MM has occurred following the COVID-19 outbreak. All the consecutive histological diagnoses of MM were retrospectively collected in the pathological laboratories of four provinces of the Veneto region in northern Italy, namely Verona, Vicenza, Rovigo and Treviso, between 1 March and 31 October 2020 and the same period of 2019. All cases were stratified into three categories according to Breslow thickness: *in situ*, <1 and ≥1 mm. The date of MM excision was considered for all the time-related analyses. The period March–October 2020 was compared with the same period of 2019. Incidence rates (IR) of MM per 100 000 person-year were computed by considering the overall population of the included provinces in the Veneto region and were presented along with their exact mid-P 95% confidence intervals (CI). Incidence rates ratios (IRR) comparing IR of 2020 vs. 2019 were produced along with their exact mid-P 95% CI and *P*-values. In addition, IRR comparing the number of observed cases in 2020 and the expected number based on the estimated annual per cent change (APC) of MM from the regional cancer registry was calculated.[6] Univariate logistic regression analysis was used to compare Breslow thickness categories in the same periods of 2020 and 2019. A total of 556 MM cases in the period March–October 2020 vs. 634 MM cases in the same period of 2019 were collected (Table 1). No difference in age, sex and Breslow thickness was observed between the two periods.

The number of MM cases stratified by Breslow thickness category and excision dates in the period March–October 2020 and 2019 with a finer division by 2-month interval is reported in Fig. 1. The number of missed expected cases, based on an estimated 3.4% annual change of MM incidence from Veneto regional data, is shown as well (Fig. 1).

The incidence of MM in the period March–October 2020 vs the same period of 2019 was 28.7 (95% C.I. 26.4–31.2) and 32.8 (95% C.I. 30.2–35.4), respectively; the corresponding IRR was 0.88 (95% C.I. 0.78–0.98, $P = 0.02$). When considering the number of cases observed vs. those expected based on estimated

Table 1 Demographics and clinical characteristics of patients by year in the period March-October 2019 and 2020

		March–October 2019		March–October 2020		*P*†
		***N* = 634**	**%**	***N* = 556**	**%**	
Sex	Female	283	44.6%	242	43.5%	0.70
	Male	351	55.4%	314	56.5%	
Age	Median, IQR	61.0	50.0–72.0	62.5	51.0–73.0	0.69
Breslow	Median, IQR‡	0.5	0.3–1.1	0.5	0.3–1.2	0.57
	In situ	163	25.7%	133	23.9%	0.62
	<1 mm	338	53.3%	295	53.1%	
	1+ mm	133	21.0%	128	23.0%	

IQR, interquartile range.

†Continuous variables were presented as medians with interquartile ranges (IQR), while nominal variables as numbers with percentages. Chi-square test and Mann–Whitney *U* test were used for nominal and continuous variables, respectively. ‡Excluding *in situ* melanoma.

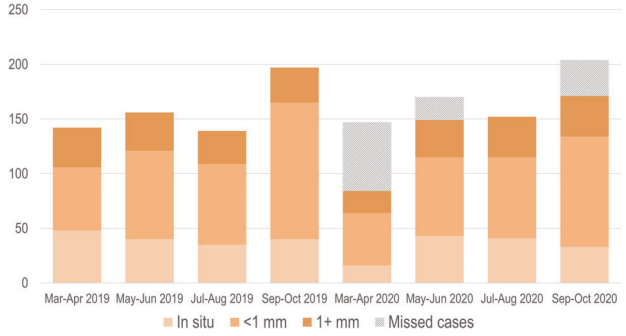

Figure 1 Number of melanoma excisions in the period March–October 2019 and 2020 by Breslow category and biopsy dates. The number of missed expected cases, based on an estimated 3.4% annual change of melanoma incidence from Veneto regional data, is shown as well.

APC from the regional cancer data for the same period March-October, a statistically significant difference was confirmed (556 observed vs. 654.7 expected; IRR = 0.85; 95% CI = 0.76–0.95; $P = 0.004$). The incidence of MM, comparing March–April 2020 vs. the same period of 2019, showed a significant reduction (84 vs. 142 cases per 100 000 person-years, IRR = 0.59; 95% CI = 0.45–0.77; $P < 0.001$). This decrease is also confirmed by taking into account the expected number of cases based on estimated annual per cent change from the regional cancer registry (84 vs. 146.7 expected, IRR = 0.57; 95% CI = 0.44–0.75; $P < 0.001$). The same differences in the reduction of the MM incidence were detected for males and females, while there was a trend in the reduction for increasing age groups, especially those aged ≥65 years. No difference in the distribution of cases according to Breslow thickness categories was documented in the logistic regression analysis. Our data document that a significant reduction in MM new diagnoses has occurred following the COVID-19 pandemic, similarly to what has been reported for other cancers,[7–9] potentially causing an increase of morbidity, mortality and healthcare costs, which could not be quantified at this stage.[10]

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Conflict of interest

None.

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