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Letter to the Editor

Probability of sentinel lymph node positivity in melanoma

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Dear Editor,

Despite that guideline recommendations for its indication differ slightly per country, it is believed that sentinel lymph node biopsies (SLNBs) should be considered in melanoma patients with >1 mm Breslow thickness (BT). Some guidelines advise the procedure to be discussed with category T1b patients as well, meaning melanoma ≤0.8 mm BT with ulceration or melanoma 0.8–1.0 mm BT irrespective of ulceration [1]. Since 2012, Dutch guidelines recommend SLNB as a prognostic procedure for patients with melanoma stage T1b and higher. However, it is generally accepted that only 20% of all SLNB in melanoma harbour metastases [2], with wide variation between melanomas with low and high BT. In addition, it is an invasive procedure that can lead to complications such as infection, seroma, and lymphedema, as has been shown by Moody *et al.* in their recent systemic review [3]. Reasoning from this, this leaves room to optimise the yield of the SLNB. In this study, our aim was to evaluate the total percentage positive SLNBs for melanoma per T-category on a nation-wide level, with special focus on the subset of T1b patients. We obtained data from 'PALGA', the Dutch Nationwide Network and Registry of Histopathology and Cytopathology, yielding a cohort with primary, cutaneous melanoma patients between 2003 and 2014 who underwent SLNB. All patients were reclassified according to the 8th tumour-node-metastasis /American Joint Committee on Cancer (AJCC), and SLNB yield was evaluated accordingly. Melanoma category T1b were subdivided into three categories: <0.8 mm with ulceration, 0.8–1.0 mm without ulceration and 0.8–1.0 mm with ulceration. For the current study, the 6th AJCC was valid from 2003 to 2010, which meant no official SLNB indication in The Netherlands. The 7th AJCC was valid from 2010 to 2014 (end of study period), which meant a SLNB indication for all melanoma >1.00 mm or ≤1.00 mm with ulceration or mitotic rate ≥1/mm2 (the latter group categorised as pT1b).

A total of 10,523 melanoma patients were included. Melanoma metastases were found in 2441 (23.2%) of all

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Table 1
Distribution of stages according to the 8th TNM/AJCC and chances of sentinel lymph node biopsy (SLNB) positivity for all melanoma in The Netherlands 2003–2014.

Stage		Total	# SLNB	# Positive SLNB	Positive SLNB rate (%)
T1	a	18,377	296	24	8.1
	b (all) [a]	8708	1010	105	10.4
	<0.8 with ulceration		*17*	*2*	*11.8*
	0.8–1.0 without ulceration		*835*	*78*	*9.3*
	0.8–1.0 with ulceration		*57*	*11*	*19.3*
	nos	3095	29	1	3.4
T2	a	8375	3899	603	15.5
	b	1543	706	152	21.5
	nos	1246	401	63	15.7
T3	a	3579	1744	535	30.7
	b	2499	1148	421	36.7
	nos	607	210	66	31.4
T4	a	1121	405	164	40.5
	b	2114	618	280	45.3
	nos	246	57	27	47.4
Total		51,510	10,523	2441	23.2

[a] 101 patients were 0.8–1.0 mm Breslow thickness had a missing ulceration status; 14 positive SLNB were found in this group (13.9% positivity rate).

enacted SLNB. Stratified for T-category and ulceration, the chance of a positive SLNB significantly increased from 8.1% for T1a to 45.3% in T4b (Table 1). In the subset of T1b melanoma, the chance of a positive SLNB was 11.8% in melanoma <0.8 mm BT with ulceration, 9.3% for 0.8–1.0 BT without ulceration and 19.3% for 0.8–1.0 BT with ulceration, with a significant difference between the latter two ($p = 0.015$). Further analysis of category T1a patients showed that the patients in whom SLNB was performed more often had mitoses (45.3% versus 10.2%, $p < 0.001$) and were younger of age (51.57 years versus 55.06 years, $p < 0.001$) compared with the patients in whom SLNB was not performed (data not shown). Possibly, the 8.1% SLNB positivity rate in T1a melanoma patients could be explained by the fact that it has been shown that a mitotic rate ≥1/mm2 and younger age increase the chance of a positive SLNB in thin melanomas: German data by Kretschmer *et al.*, showed a positivity rate of 19.7% in young patients with 0.76–1.0 mm melanoma [4]. It seems SLNB has been performed selectively in this cohort.

Recently SLNB positivity was introduced as a biomarker to select patients for adjuvant treatment [5]. This gives a new dimension to the use of SLNB procedures in melanoma, because now SLNB positivity is not only providing more accurate prognostic information but also has therapeutic consequences. This makes the need to better inform patients on their chances of a positive SLNB even bigger. Instead of performing SLNB in all patients >1.0 mm (and in some <1.0 mm ulcerated melanoma), we strongly believe there is room for a more tailored approach, as we have shown SLNB positive patients comprise a heterogeneous group. Our data can be used for shared decision-making, as insight in the chance of a positive SLNB on an individual level can be weighted against the risk of the procedure, such as complications and narcosis. For example, while there will probably be little disagreement on the value of SLNB in T3 and T4 patients, shared decision-making in T1 and T2 may be easier having the present data at hand.

To the best of our knowledge, we present the largest data set available to describe SLNB positivity for cutaneous melanoma patients stratified for T-category and ulceration. Other strengths of our study include its generalisability, because we used nation-wide data instead of single-centre data. A limitation is that, because of the retrospective nature of our study, selection bias might have occurred. As we have discussed, SLNB enactment in T1a melanoma might have had specific reasons (e.g. presence of mitosis) which could have potentially led to an overestimated percentage of positive SLNBs we reported here. In conclusion, the chance of SLNB metastases increases with melanoma stage and when ulceration is present. It was interesting to note the impact of ulceration on SLNB yield in category T1b patients.

Conflict of interest statement

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