P1470 - Impact of CP-GEP to improve selection of patients with melanoma who may forgo sentinel lymph node biopsy based on real world data

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Aim

To validate the impact CP-GEP on treatment decisions in clinical practice

Background

Sentinel lymph node biopsy (SLNB) is indicated for patients with pT1b or higher melanoma. Many of these patients (~85%) will not have metastases but are exposed to potential surgical complications. Clinicopathological Gene-Expression Profiling (CP-GEP), a previously validated test, identifies patients at low risk for SN metastases, who may forgo SLNB. This study describes how CP-GEP may guide treatment decisions in clinical practice.

Methods

Setting: two specialized melanoma centers, experienced with CP-GEP

Test: algorithm combining the expression of 8 genes with age and Breslow thickness to obtain binary outcome (i.e. high or low risk for SN metastasis).

Inclusion period: September 2023 -March 2024, all patients aged 18 years or older with cutaneous melanoma (pT1b-pT4), eligible for SLNB were consulted on CP-GEP.

Exclusion: In case SLNB would not have clinical consequences or the clinical risk for SN metastasis was deemed negligible.

Procedures: Patients were consulted regarding SLNB and possibility of forgoing SLNB following a “low risk” CP-GEP result. Upon completion of the analysis, results (either high-risk or low-risk) were returned to surgeon. The patient was consulted on the test result and a treatment decision was made following shared decision making.

Outcome: ratio of patients not undergoing SLNB.

[1]Stassen, R. C., Mulder, E. E. A. P., Mooyaart, A. L., Francken, A. B., van der Hage, J., Aarts, M. J. B., van der Veldt, A. A. M., Verhoef, C., & Grünhagen, D. J. (2023). Clinical evaluation of the clinicopathologic and gene expression profile (CP-GEP) in patients with melanoma eligible for sentinel lymph node biopsy: A multicenter prospective Dutch study. *European Journal of Surgical Oncology*, *49*(12), 107249.

Results

Table 1. Patient characteristics

		N (%)
Gender	Female	17 (37,8%)
	Male	28 (62,2%)
Age (years)	Mean (standard deviation)	62 (12,8)
Breslow thickness (mm)	Median (interquartile range)	1 (0.9 – 1,3)
Ulceration	Absent	43 (95,6%)
	Present	2 (4,4%)
CP-GEP	Low-risk	29 (62,2%)
	High-risk	11 (26,7%)
	Unknown	5 (11,1%)
T-categories	T1a	0 (0%)
	T1b	26 (57,8%)
	T2a	14 (31,1%)
	T2b	1 (2,2%)
	>T2b	4 (8,9%)

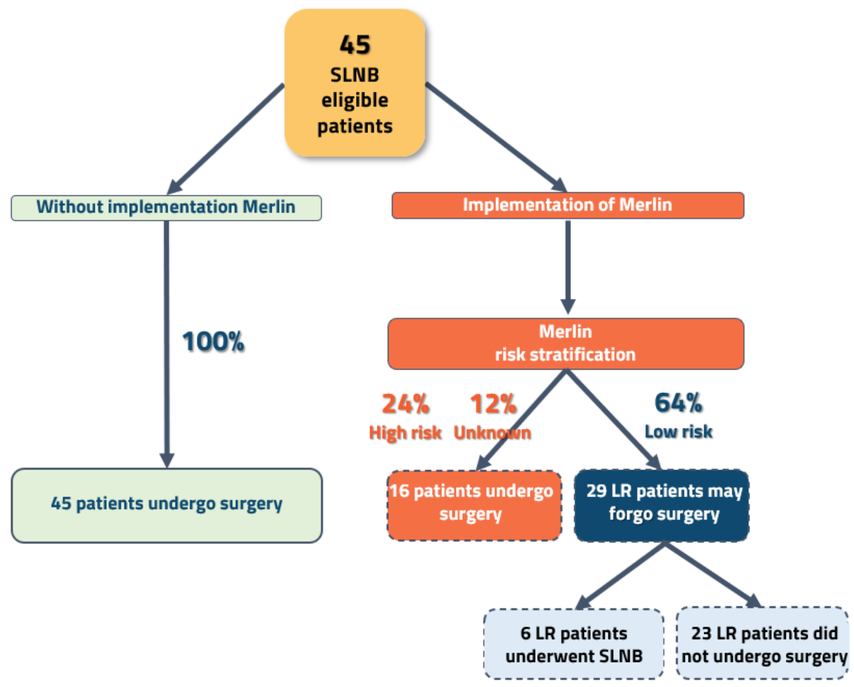

Figure 1. Overview of Merlin use in clinical practice affecting treatment decisions in clinical practice. Left arm (light green): current standard of care. Right arm (orange): patients stratified by Merlin test. Patients with a high or invalid test result, had surgery. Out of 29 patients with a low risk, 23 did not undergo surgery. Six patients with a low risk score underwent SLNB and were not found to have sentinel node metastases. For five patients, the test yielded an invalid result due to insufficient sample RNA. Re-evaluation of these samples provided valid results for two tests. However, this was after surgical decisions had been made.

- The test yielded a low risk for 29 (64%) of 45 patients
- Following shared decision making 23 patients opted for follow-up rather than SLNB

Conclusion

CP-GEP is able to identify patients at low risk for sentinel node metastases and may support clinical decision making regarding the sentinel node biopsy

Implementation of this test in the appropriate population[1], can reduce the amount of unnecessary surgery and adding to more personalized treatments for patients with melanoma.