

Micrometastasis in Malignant Melanoma

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Ragnar Solberg Faye defended his PhD thesis on April 25, 2013, titled “Micrometastasis in malignant melanoma”, at the University of Oslo. Opponents and members of the evaluation committee were Olle Larkö, Gothenburg, Olbjørn Klepp, Trondheim, and Stein Olav Kvaløy, Oslo. Main supervisors were Steinar Aamdal and Øystein Fodstad.

Malignant melanoma is a malignant tumour arising from melanocytes, primarily in the skin. In 2009, 1,413 new cases of cutaneous malignant melanoma were diagnosed in Norway. Approximately 20–25% of the patients will develop metastasis and die. Extracutaneous malignant melanoma, including ocular malignant melanoma, is rare, but is often diagnosed very late, resulting in a poor prognosis. The diagnosis of malignant melanoma is based on histological examination of excision specimen.

Isolated malignant melanoma cells and malignant melanoma cell deposits may be detected in the blood and/or bone marrow of patients with malignant melanoma, using several methods, including immunocytochemical methods and molecular detection methods. Detection of micrometastatic tumour cells has been found to be associated with disease aggressiveness in several forms of cancer.

Our aims were to detect malignant tumour cells in bone marrow and peripheral blood from cutaneous and uveal malignant melanoma patients by an immunomagnetic detection method, to compare the results with immunocytochemical examinations of cytopins, and to analyse the prognostic significance of such findings. Also, we wanted to investigate S100B levels in bone marrow from malignant melanoma patients and its relation to prognosis, as well as in healthy individuals.

A significant number of patients with cutaneous (19%) and uveal (30%) malignant melanoma had detectable tumour cells in the bone marrow (1, 2). In patients with cutaneous malignant melanoma, presence of melanoma cells in the bone marrow was a predictor for survival, both from time of testing and from time of excision of the primary tumour (1).

Median S100B protein levels in bone marrow aspirates from female malignant melanoma patients and from healthy female volunteers were more than 40 times higher than the recommended cut-off value for S100B protein in peripheral blood (3). We found no significant difference between the levels of S100B in bone marrow from malignant melanoma patients and healthy volunteers. The median S100B level in the bone marrow samples from male melanoma patients was nearly three times higher than for female melanoma patients.



Ragnar Solberg Faye defended his PhD thesis. From left to right: Olbjørn Klepp (Opponent 2), Stein Olav Kvaløy (member of the evaluation committee), Petter Gjersvik (Acting Dean), Olle Larkö (Opponent 1), and Ragnar Solberg Faye. Photo: Private.

In conclusion, malignant tumour cells are frequently present in the bone marrow in cutaneous and uveal malignant melanoma patients. Detection of bone marrow micrometastasis has prognostic significance in cutaneous malignant melanoma patients. S100B levels are higher in the bone marrow than in peripheral blood, the significance of which is unclear. Detection of micrometastasis by immunomagnetic methods in the bone marrow in patients with malignant melanoma may become important to identify patients with poor prognosis and to select candidates for more aggressive adjuvant treatment and follow-up.

References

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