**D-dimers as prognostic markers in melanoma patients under immune checkpoint inhibition - a bicentre study**

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**Abstract**

Background:

Immune checkpoint inhibition (ICI) has become the gold standard in the treatment of high-risk or metastatic malignant melanoma. It is known that venous and arterial thromboembolic events (TEE) occur more frequently in cancer patients and have a negative impact on overall survival. While an increased risk of these thromboembolic events has already been demonstrated in melanoma patients undergoing ICI, biomarkers to quantify the risk of TEE in this patient population are still lacking.

Objective:

To uncover the role of D-dimers as blood-based markers for systemic coagulation activity, TEE and cancer progression.

Methods:

In a cohort analysis, 363 stage III or IV melanoma patients treated with ICI between April 2013 and July 2024 at the University Skin Cancer Center Hamburg and the University Medical Center Mannheim were included D-dimers and differential blood counts were determined prospectively before the start of treatment and recorded sequentially every 3-6 weeks during treatment. TEEs were recorded and classified as thrombosis (e.g. deep vein thrombosis), apoplexy, pulmonary embolism or transient ischaemic attack.

Results:

Patients with an elevated D-dimer concentration in the blood (>0.6 mg/l) before the first cycle of ICI had a significantly higher risk of developing thromboembolic events during treatment. (Odds Ratio 4.3, p=0.0293)

At the same time, patients with an elevated D-dimer concentration in the blood showed a reduced overall survival (OS) and a reduced progression-free survival (PFS). In addition, the D-dimer levels were assessed during ICI therapy.

Conclusion:

Patients with increased pro-coagulatory activity have a higher risk of thromboembolic events during ICI therapy, and at the same time this pro-coagulatory activity is associated with a poorer prognosis.

**Do you have any conflicts of interest?**

No, I do not have a conflict of interest.