



EpSSG Chronicle

The Monthly Newsletter for EpSSG Members

2

We have decided to dedicate the second issue of the EpSSG monthly newsletter to a recently published study. Although this is not strictly an EpSSG study, it was conducted by INSTRuCT, specifically by the INSTRuCT Imaging/Pathology/Biology Network.

The article "*Omitting Bone Marrow Sampling in FDG-Avid Rhabdomyosarcoma With 2-[18F]FDG PET-Negative Marrow: Results From an International Retrospective Study*"—with F. Mercolini as first author and S. Hettmer as senior author—was published online in late August in the *Journal of Clinical Oncology*, and we warmly invite you to read the full article (DOI: 10.1200/JCO-25-03080).

Here, we will simply provide some highlights to spark your interest.

The study was designed to evaluate whether FDG-PET/CT or PET/MRI could replace routine bilateral bone marrow aspirates and biopsies (BMAB) for the detection of bone marrow involvement in patients with newly diagnosed rhabdomyosarcoma (RMS).

Data were collected from 423 patients treated at 18 institutions across Europe and North America.

The main findings show that PET imaging and BMAB were performed (before chemotherapy and tumor resection) in 301 patients with FDG-avid RMS. In these cases, bone marrow metastases were detected by PET and BMAB in 54 patients, by PET only in 24, and by BMAB only in one. Conversely, the absence of bone marrow metastases was confirmed by both PET and BMAB in 222 out of 301 patients. These observations translated into 98% sensitivity and 90% specificity for PET in detecting bone marrow metastases when BMAB was considered the gold standard. Importantly, FDG-avid marrow involvement was patchy, with only one to five lesions in approximately one third of affected patients; therefore, conventional sampling from the iliac crests may miss disease located elsewhere in the skeleton.

Patients with concordant PET-positive/BMAB-positive findings had a greater number of marrow lesions, more metastatic sites, and significantly poorer progression-free and overall survival than patients with PET-positive/BMAB-negative findings, suggesting that BMAB positivity identifies a subgroup with a higher systemic disease burden. Conversely, PET-positive/BMAB-negative findings should not automatically be interpreted as false-positive PET results. The diagnostic performance of PET depended on appropriate timing and technique, as sensitivity decreased when PET was performed after chemotherapy or after resection of the primary tumor.

Caution is therefore required when drawing conclusions: the proposed omission of BMAB should be limited to patients with an FDG-avid primary tumor who undergo complete whole-body PET imaging before any treatment. On the other hand, BMAB remains appropriate when the primary tumor is not FDG-avid, PET is performed after treatment, or whole-body coverage is incomplete.

This study opens the door to a potential change in the RMS staging pathway, suggesting that routine BMAB may be omitted when pretreatment PET shows no focal bone marrow uptake. Although prospective validation is warranted, this strategy could improve staging accuracy while reducing invasive procedures, anesthesia exposure, and the diagnostic burden for children and adolescents with RMS.