

SKELETAL INVOLVEMENT IN INFANTS WITH NEUROBLASTOMA A QUALITY CONTROL ATTEMPT

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Aims and background: In 1994, French authors hypothesized that positive skeletal mIBG spots in infants with stage 4 neuroblastoma were not prognostically unfavorable unless associated to abnormal standard X-ray or CT findings. In 1999, the European Infant Neuroblastoma Study adopted this definition, indeed reducing the number of patients candidate to chemotherapy. Such an approach requires high quality scans and standardized procedures. The present study critically reviewed and assessed the quality of mIBG scans performed in Italian patients enrolled in the European Infant Neuroblastoma Study.

Methods: Three independent nuclear medicine specialists reviewed scans of 25 Italian patients enrolled in Trials 99.2, 99.3, and 99.4 of the European Infant Neuroblastoma Study between January 2000 and September 2002. An arbitrary quality score was attributed to each mIBG scintigraphy, ranging from

1 (less than adequate) to 3 (excellent). One radiologist and 2 oncologists reviewed the X-rays and CT scans and correlated the results with clinical assessment.

Results: The quality of mIBG scans was rated from good to excellent in 15 of 25 cases, poor in 4, and inadequate for diagnostic evaluation in 6. X-rays confirmed the presence of metastases in 3 of 7 cases with mIBG bone uptake. CT scan confirmed skull metastases in 6 of 9 mIBG-positive cases. Discrepancies in scan interpretation, making trial and stage attribution questionable, were found in 2 patients and are discussed.

Conclusions: The quality of mIBG scans proved to be at least acceptable in most Italian pediatric oncology centers. Efforts should be made to further standardize evaluation of the scans. Additional techniques (^{99m}Tc scintigraphy, MRI, SPECT) might be useful to help understand the most complex cases.

Key words: bone metastases, metaiodobenzylguanidine scintigraphy, neuroblastoma, stage.

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