G5 Bone Scintigraphy and Battered Children: Limit and Indication About a Case Report

Laurent Martrille, Anne Dorandell, MD, Lauren Boismenu, Oliver Cougnenc, and Eric Baccino, MD, Service de Médecine Légale, CHU Lapeyronie, 191 av, Montpellier, France*

The goals of this presentation are to clarify the place of bone scinitgraphy in the diagnosis of child abuse.

The diagnosis of battered child is difficult to make in certain cases. Because this diagnosis can have legal and administrative implications, a reliable diagnosis is crucial. A false-positive diagnosis of ill treatment could have as serious consequences as a false negative diagnosis. Bone scintigraphy may reveal some bone lesions which are undetected on standard radiography. Conversely, images on bone scintigraphy are not specific to non-accidental injury syndrome. The authors present the case of a young child who had an abnormal image on bone scintigraphy. Based exclusively upon these results, the pediatrician notified the authorities. The resulting inquiry revealed that the image was due to accidental muscular lesions and not to inflicted skeletal trauma.

Most traumatic injuries are identifiable by routine radiography which is highly sensitive, particularly in the detection of skull fractures and subtle metaphyseal injury. False negatives may occur however. The superior sensitivity of bone scintigraphy is most evident in the assessment of rib fractures, acute non-displaced long bone fractures, and subperiosteal hemorrhage. This exam also lacks specificity and should not be performed individually as it may lead to mistakes as in the presented case. In addition, bone scintigraphy is not ideal for certain body areas principally the cranium, and there is no broad consensus on indications for bone scintigraphy. Literature review indicates that certain authors suggest the use of radiological surveys before the age of 2, and after the age of 2 only perform bone scintigraphy. If images are noted on scintigraphy, examination is completed with focus radiography. Other authors suggest that both exams be carried out systematically, while still others suggest bone scintigraphy after the age of 1 with radiological survey or a scintigraphy recommended.

Faced with the absence of consensus, the authors have proposed a multicenter (5 hospital) study to clarify the role of radiographic skeletal survey versus scintigraphy in the diagnosis of child abuse. A concordance study is used between the diagnosis of child abuse based upon clinical features and skeletal survey either with clinical features or bone scintigraphy. Bone scintigraphy and radiographic skeletal surveys are performed on all children within the first 48 hours of hospitalization if possible based upon strict protocols which are followed in all centers. Independent examinations will be carried out and the findings correlated. Because the pediatrician and the medical examiner need precise diagnostic tools for the diagnosis of battered child syndrome, the final stage of the project is to quickly improve recognition of child abuse by reliable methods to limit the number of complementary examinations and irradiation.

Battered Children, Bone Scintigraphy, Skeletal Survey

 ** Presenting Author*