

Barcelona, Spain

Joint Symposium 3

Bone & Joint + Paediatrics Committee / European Paediatric Orthopaedic Society (EPOS)

Sunday, October 13, 11:30-13:00

Session Title

Role of Bone SPECT/CT in the Paediatric Population

Chairpersons

Deborah Eastwood (London, United Kingdom / EPOS)

Lidija Antunovic (Milan, Italy)

Programme

- 11:30 - 12:00 Isabel Roca (Barcelona, Spain): Bone Scan with SPECT/CT in the Assessment of Bone Viability
- 12:00 - 12:20 Klaus Strobel (Lucerne, Switzerland): SPECT/CT of the Jaw in Condylar Hyperplasia
- 12:20 - 12:40 Deborah Eastwood (London, United Kingdom / EPOS): Complex Adolescent Foot Pain - Clinical Scenarios and Management
- 12:40 - 13:00 Lorenzo Biassoni (London, United Kingdom): SPECT/CT in Complex Adolescent Foot Pain - Initial Experience

Educational Objectives

1. Present clinical scenarios in paediatrics which differ from those in adult general nuclear medicine practice highlighting where SPECT/CT can be clinically helpful;
2. Introduce the audience to the use of bone scintigraphy with SPECT/CT in paediatrics; in particular, how to programme the CT component in order to achieve the highest diagnostic yield for a particular clinical context with the minimum radiation exposure;
3. Show examples from everyday clinical practice where SPECT/CT findings, in conjunction with other imaging modalities, have successfully guided clinical management of paediatric patients.

Summary

Bone scintigraphy with SPECT/CT is increasingly utilised in clinical practice, especially in benign bone pathology. In paediatrics, programming in the CT component to achieve the maximum diagnostic value with the minimum radiation exposure is a special challenge. The session will present three clinical scenarios where bone scan with SPECT/CT is currently considered clinically helpful.

SPECT/CT is an excellent tool to assess bone viability. The functional information provided, combined with accurate anatomical localization, is crucial in several clinical conditions, like detection of avascular necrosis, septic embolism, frostbite lesions and osteonecrosis, and to evaluate the results of surgical

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Annual Congress of the
European Association of Nuclear Medicine

October 12 – 16, 2019
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treatment in cases of avascular necrosis. Indications for SPECT/CT imaging, acquisition protocols of the SPECT and CT components, and interpretation of the SPECT/CT findings in comparison with other imaging modalities will be presented.

Condylar hyperplasia typically affects adolescents and results in hemi-mandibular elongation and significant asymmetric facial deformity with alteration of dental occlusion. Bone SPECT/CT with quantification plays an important role in determining the growth activity of the mandibular condyles, to show the morphology of the mandible and to guide treatment. In this session the SPECT/CT imaging protocols, quantification methods, interpretation and interesting cases will be demonstrated.

Children with foot and ankle pain often present with vague, chronic symptoms and the close proximity of multiple small joints may confuse clinical and radiological findings. Previous surgical intervention, trauma or comorbidities related to an underlying syndrome can make differentiation between organic and functional pain difficult. MRI has evolved into the imaging reference standard following plain radiographs for undiagnosed foot and ankle pain due to its high sensitivity and specificity for benign osseous and soft tissue pathology. However, MRI is of limited benefit with subtle structural abnormalities, multiple coexisting pathologies and metal work in place following surgery. The two presentations will introduce the audience to the main clinical scenarios of complex adolescent foot pain and how SPECT/CT can help the referring orthopaedic surgeon identify the pain generators, thus guiding clinical management.

Key Words

paediatric population; SPECT/CT; bone viability; condylar hyperplasia; adolescent foot pain