The many faces of sarcoidosis: PET

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Gallium-67 scintigraphy in sarcoidosis: extrathoracic muscle uptake

Before treatment    After treatment

**67Ga scintigraphy**

- Radiation dose: 18.5 mSv
- Acquisition after 48 hours
- Moderate resolution
- Kappa 0.19-0.59

**FDG PET/CT**

- Radiation dose: 5 mSv
- Completed within 2 hours
- Excellent resolution
- Kappa 0.65-0.84
- Significantly more lymph node and spleen involvement than 67Ga scintigraphy

$^{67}$Ga scintigraphy       FDG PET
Organs involved in sarcoidosis
Usefulness of a PET-scan in the management of sarcoidosis

- PET sensitive to assess inflammatory activity and extent of disease
- not indicated in the standard work-up
- PET appears especially helpful in:
  - persistently symptomatic patients without serological signs of inflammatory activity
  - the detection of active cardiac sarcoidosis
  - uncover a suitable location for biopsy
  - explaining (mainly extrathoracic) symptoms
  - offering prognostic value
Sarcoidosis patient with inflammation

Chest X-ray

CXR stage IV

PET/CT
ROC Curve: association of PET positivity and serological markers

AUC:
- sIL-2R: 0.93
- neopterin: 0.88
- ACE: 0.65

Multiorgan involvement monitoring with PET $^{18}$FDG

before treatment

after 6 months treatment
PET-scan cardiac involvement: pre and after treatment
18F-FDG PET: assessment of inflammatory activity in sarcoidosis
MIBG versus Thallium scintigraphy in a sarcoidosis patient

Impaired $^{123}$I-Metaiodobenzylguanidine (MIBG) uptake without myocardial perfusion disturbances assessed by Thallium scintigraphy
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