USEFULNESS OF SPECT-CT WITH RADIOISOTOPE LABELED LEUCOCYTES FOR DIAGNOSIS OF LEAD-DEPENDENT INFECTIVE ENDOCARDITIS

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Aim of the study

To evaluate the diagnostics accuracy of SPECT-CT with radioisotope labeled leucocytes (SCY) in patients with suspected LDIE.
Methods

Study population consisted of 11 patients (2F +9M), mean age 69.8±11.9 years, with different types of CIED and intracavitary masses (vegetation/thrombus) detected by TTE/TEE.
Methods

In every patient SPECT-CT with radioisotope labeled leucocytes (SCY) was performed:

– 99mTc - isotope, $T_{\frac{1}{2}}$ - 6h,

– long labeling process (2-3h) requiring ca. 40-50ml of patients blood,

– dose 300-925MBq, imaging 4 – 24h after administration,

– collimator LEAP, WB + SPECT/CT.
Methods

Transvenous lead extraction (TLE) was performed according to modified Duke criteria (ESC Guidelines 2009).
Negative SPECT-CT
Positive SPECT-CT
Results

11 SCY

Positive

4 SCY +

Duke criteria positive

3 TLE +

asymptomatic follow-up for 6.1 ± 1.2 months (4.4–7.8)

Duke criteria negative

1 TLE -

Negative

7 SCY -

Duke criteria negative

5 TLE -

Duke criteria positive

2 TLE +
Results

<table>
<thead>
<tr>
<th>SCY</th>
<th>Modified Duke Criteria</th>
<th>Predictive value</th>
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| Sensitivity/specificity | Sensitivity = 60.0% | Specificity = 83.3% |

- SCY in 11 patients population showed a sensitivity of 60% and specificity of 83.3%.
- Positive predictive value (PPV) and negative predictive value (NPV) of the procedure were found to be 75% and 71.4%, respectively.
### Results

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- After the exclusion of 2 patients due to preceding antibiotic use and evaluation of SCY in 9 patients it showed a sensitivity of 100% and specificity of 83.3%.
- PPV of 75% and NPV of 100% in the diagnosis of LDIE.
Conclusions

• SCY is an additional tool with high specificity (83.3%) and high NPV which helps to establish LDIE diagnosis in patients with masses vegetation/thrombus attached to the endocavitary leads.

• In patients with firm diagnosis of LDIE according to Duke Criteria the antibiotic therapy caused SCY false negative results.
Thank you for attention