Prevalence and risk of malignancy of Thyroid Incidentalomas discovered by 18F-Fluorodeoxyglucose Positron Emission Tomography

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Introduction
The use of 18F-Fluorodeoxyglucose Positron Emission Tomography (18F-FDG-PET) has increased the detection of thyroid incidentalomas (TI). These are associated with a risk of malignancy between 25 and 50%. Some studies have shown an association between SUVmax uptake and malignancy.

Objectives
Determine the prevalence of malignancy on 18F-FDG-PET positive thyroid nodules. Evaluate if a higher SUVmax uptake is associated with malignancy.

Matherial and Methods
Retrospective analyses of all 18F-FDG-PET exams performed between 2008-2013 HGO. The inclusion criterion was focal thyroid uptake in patients studied for non-thyroid purposes. Data was analysed with SPSS version 21°.

Results

<table>
<thead>
<tr>
<th>Positive thyroid uptake</th>
<th>Population n = 1364 patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuse thyroid uptake</td>
<td>Focal thyroid uptake</td>
</tr>
<tr>
<td>56 (4,1%)</td>
<td>13 (0,9%)</td>
</tr>
<tr>
<td>43 (3,2%)</td>
<td>28 (60,5%)</td>
</tr>
<tr>
<td>Mean age</td>
<td>Mean age</td>
</tr>
<tr>
<td>68 ±12,9 years</td>
<td>68 ±12,9 years</td>
</tr>
</tbody>
</table>

Source of patients in %

- Surgery: 27%
- Haematology: 20%
- Infection: 12%
- Internal Medicine: 11%
- Oncology: 9%
- ENT: 2%
- Pneumology: 9%

Nodule size in ultrasound
- Mean size: 20,5 ± 9,4 mm

Mean SUVmax

<table>
<thead>
<tr>
<th>Benign cases</th>
<th>Malignant cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 40</td>
<td>N = 3</td>
</tr>
<tr>
<td>5</td>
<td>7,95</td>
</tr>
<tr>
<td>P = 0,38 (NS)</td>
<td></td>
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Discussion and Conclusions
Our work confirmed that despite a low rate of focal 18F-FDG-PET uptake in thyroid (3,2%), it carries a significant risk of malignancy (19%). Because only 37,2% were evaluated by FNAC and around 30% had non-diagnostic results the true prevalence might have been actually higher than 19%. Two possible explanations are the end of life status of these patients but also the possible lack of knowledge, on non-endocrine services, regarding the risk of malignancy of TI patients. In conclusion despite an undervaluation of patients at risk and the rather high number of non-diagnostic FNAC we recommend FNAC in focal thyroid uptake of 18F-FDG-PET.

Bibliography