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The Role of 18F-FDG PET/CT Scan in Adult Langerhans Cell Histiocytosis: A Single-Center Experience

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INTRODUCTION

Langerhans cell histiocytosis (LCH) is the clonal expansion of myeloid precursors with differentiation to CD1a+/CD207+ cells. The data regarding LCH in adults is scarce.

A comprehensive evaluation should be performed to assess the involved system's number and sites.

AIM

This study aimed **to evaluate the potential role of 18F-fluorodeoxyglucose positron emission tomography-computed tomography (18F-FDG PET/CT scan) in adult patients with LCH** by integrating glycometabolic activity and anatomical images.

METHOD

Patients diagnosed with LCH who underwent an 18F-FDG PET/CT scan between 1997-2022 were included

Data were collected electronically

Statistical analyses were performed using SPSS 25.0

The results were presented as

Mean ± standard deviation

Median ± interquartile range, or frequency

RESULTS

- The data of **43 patients reviewed**
- **Mean age at diagnosis was 31 years** (range: 2-63 years)
- **Male** to female predominance (2.9-1)
- Of the patients, **34 underwent PET/CT scans**, with 7 patients having FDG-negative scans
- 9 patients had more than 10 FDG-positive lesions, and 2 had multiple lung lesions
- **Bone lesions were the most commonly encountered (82%)**
- The mean maximum standardized uptake value (SUVmax) among involved organs were as follows:

bone 7.35, lung 5.33, lymph node 5.56, brain 36.35, skin 10.44, and thyroid 16.

Involved Tissue	Number of Patients	Mean SUVmax	Median SUVmax	Min-Max SUVmax
Bone	28	7.35	5.9	0-24.7
Lung	6	5.33	2	1.1-16
Lymph Node	6	5.56	3.9	1.4-14
Brain	2	36.35	36.35	34.7-38
Skin	5	10.44	11.4	2.7-14.4
Thyroid	1	16	16	16

CONCLUSIONS

This study provides valuable insights into the use of 18F-FDG PET/CT imaging in adult LCH.

The whole-body imaging capability of PET/CT scans can help identify risk organ involvement and guide treatment decisions.

Our study did not prospectively schedule data for response monitoring and it is premature to draw conclusions based on SUVmax ratios.

Further research is needed to validate the potential of 18F-FDG PET/CT in monitoring treatment response in adult LCH patients.

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