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Diagnostic value of 18F-fluorodeoxyglucose positron emission tomography (18F-FDG PET) in patients with fever of unknown origin

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Introduction & Aim: Fever of unknown origin (FUO) is defined as prolonged fever over 38.3 oC in the last ≥3 weeks, without any known diagnosis at the end of one week of detailed clinical investigation. After detailed examination, the most frequent diagnosis is infectious, non-infectious inflammatory diseases and neoplasia; whereas a wide spectrum of diseases may be the cause as well. In this study, the role of 18F FDG-PET in FUO diagnosis was examined.

Material & Method: 52 patients, who were hospitalized with various complaints in Istanbul Faculty of Medicine, Department of General Internal Medicine between June 2008 and August 2014, examined and their 18F FDG-PET results were included in the study. All patients had FUO criteria (fever lasting 3 or more weeks, continuous or repetitive properties with over 38.3 oC body temperature, no causes of fever being found despite examination with at least one week of pre-hospitalization). During retrospective analysis, it was observed that all 18F FDG-PET's were done in Nuclear Medicine Laboratory with 6 dissection multidetector BT integrated in high-resolution scanner (Siemens Biograph LSO HI-RES PET-BT) and with at least 4 hours of starving before the process. All patients were observed to take 8-19th FDG injection through method IV. During the evaluation of the images, the FDG uptakes detected outside the physiological uptake regions of the body were accepted as pathological. The basic diagnosis tests of all patients made before 18F FDG-PET were analyzed.

Results: 26 female and 26 male patients with an average age of 54.2±19.5 years (18-93) were included into the study. The average fever duration was found as 5.5±13.6 months (4 weeks-96 months). In 49 patients (94%), it was determined that final diagnosis was reached with the help of 18F FDG-PET. 28% of the patients had (n=15) neoplasia, 36% had (n=19) infections, 26% had (n=14) non-infectious inflammatory diseases and 2% had (n=1) other diagnosis. 18F FDG-PET did not give any information in three patients (6%). 18F FDG-PET contributed to diagnosis in 69% of patients. In FUO diagnosis, the sensitivity of 18F FDG-PET was 100 and specificity was 71%.

Conclusion: 18F FDG-PET is a valuable imaging method used in the evaluation of FUO, especially with its high sensitivity and specificity.

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Growth from within: A case of desmoplastic small round cell tumor

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Desmoplastic small cell round tumors are rare tumors primarily affecting young adolescent and adult males which is commonly present as intra-abdominal masses. Presenting symptoms are non-specific and may only relate to mass effects. Thus, the diagnosis mainly relies on histology and immunohistochemistry. In this report, we present a 33 year old male with an enlarging abdominal mass. The patient underwent imaging procedures, colonoscopy and exploratory laparotomy with biopsy of the intra-abdominal mass, revealing a desmoplastic small round cell tumor. Optimum treatment modality is yet to be determined however a multimodal approach may provide better survival outcome.

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