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OPTIMIZATION OF THE ACQUISITION PROTOCOL OF 18F-FDG PET/CT IN ORDER TO AMELIORATE ITS DIAGNOSTIC ACCURACY IN THE ABDOMEN

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BACKGROUND-AIM

To evaluate the usefulness of a late acquisition of the abdomen in case of interpretative doubts that rise at the end of the standard whole body acquisition of 18F-FDG PET/CT.

METHODS

We have prospectively evaluated 168 consecutive patients (mean age 65 years, range 25-86, 78 male and 90 female) in one year period (from 01/01/2013 to 31/12/2013) who were referred to our center for 18F-FDG PET/CT, that have performed 1) the standard whole body acquisition one hour p.i. and 2) a late acquisition of the abdomen in order to clarify the nature of areas of focal uptake of the tracer in the abdomen that could create interpretative doubts during reporting (for example: intestinal stasis of the tracer? intestinal lesion?) and that would require further diagnostic procedures, like colonoscopy. Areas of doubtful uptake in the abdomen were identified promptly because in the end of the whole body acquisition all scans were controlled by a nuclear medicine physician and a technologist, with the patient still in the department, and in case of interpretative doubts in the abdomen further late acquisitions were performed asking patients to hydrate, deambulate and urinate. If the area of focal uptake disappears, changes form, decreases in SUV or moves it can be considered stasis of the tracer while if it remains focal and increases in SUV then it can be considered suspicious.

RESULTS

In the 58,4% (98/168) of the cases the area of focal doubtful uptake in the abdomen was not appreciable or changed significantly in the late images allowing to characterize it as aspecific accumulation due to the physiological intestinal/ureteral elimination of the tracer. On the other hand in 41.6% (70/168) of the cases the area of focal uptake remained focal also in the late images and in the final report further diagnostic procedures were suggested. In 44 of these patients the area of focal uptake was in the intestinal loops and colonoscopy was suggested in the final report. 8 patients performed the colonoscopy in our hospital and in only 5 of them a lesion was found that was malignant in two cases. Other 13 patients performed a new 18F-FDG PET/CT for other reasons that was negative for the area of uptake in the abdomen in 5 cases and positive in 8 cases.

CONCLUSION

Late acquisitions of the abdomen are very useful because in up to 58% of the cases solve interpretative doubts that could require useless further diagnostic procedures.