Journal of Nuclear Medicine, published on July 21, 2016 as doi:10.2967/jnumed.116.179960

[^{68}Ga]-DOTATATE PET/CT versus MRI: why the comparison of [^{68}Ga]-DOTATATE PET/CT to an appropriate MRI protocol is essential

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Words: 777

We read with interest the article by Janssen and colleagues[1] that analyzed the clinical utility of [(^{68}Ga)-DOTA0,Tyr3]Octreotate ([^{68}Ga]-DOTATATE) positron emission tomography/ computed tomography (PET/CT) in the detection of head and neck paragangliomas (HNPGLs) compared to anatomical imaging with CT/MRI and other functional imaging modalities, including [^{18}F]-fluorohydroyphenylalanine ([^{18}F]-FDOPA) PET/CT, [^{18}F]-fluoro-2-deoxy-D-glucose ([^{18}F]-FDG) PET/CT and [^{18}F]-fluorodopamine ([^{18}F]-FDA) PET/CT.

In this study, [^{68}Ga]-DOTATATE PET/CT was able to detect more lesions (38/38) than all other imaging modalities when only 23 lesions were identified by CT/MRI ($p<0.01$). Based on those results, the authors concluded that [^{68}Ga]-DOTATATE PET/CT may become the preferred functional imaging modality for HNPGLs. Although [^{68}Ga]-DOTATATE PET/CT seems a more efficient imaging modality than [^{18}F]-FDOPA PET/CT, [^{18}F]-FDG PET/CT and [^{18}F]-FDA PET/CT, we believe that the comparison with MRI is not valid.

First, the MRI protocol used in Janssen and colleagues' study was suboptimal due to the lack of a contrast-enhanced angio-MRI (CE-MRA) covering the head and neck area. The CE-MRA is known to be the key sequence for the detection of HNPGLs[2–4] and is now broadly used in radiologic departments. Paragangliomas are highly vascularized tumors and the arterial enhancement of HNPGLs highlighted by the CE-MRA, in combination with the localization of the lesion, make MRI a very specific imaging modality unlike what the authors state, with specificity exceeding 94%.[2–4] Furthermore, detection rates of MRI in the study are not consistent with the current literature as sensibility and specificity reach 90% and more with a proper MRI protocol.[2–4]

Secondly, CT and MRI were evaluated together as a single imaging modality even though 3 patients didn't receive a head and neck MRI. This may have biased the results by underestimating the detection rates of CT/MRI as MRI has been known for a long time to be superior to CT for the detection of HNPGLs.[5]

The authors also state that [^{68}Ga]-DOTATATE PET/CT provides the advantage of a whole-body imaging unlike MRI. Yet, whole-body MRI is feasible and is currently recommended by the Endocrine Society and by the European Society of Endocrinology for the follow-up of genetically predisposed patients.[6–8]

To our knowledge only one study showed a higher detection rate of [^{68}Ga]-DOTATATE PET/CT when compared to a proper MRI protocol that included a CE-MRA.[9]

We acknowledge that [^{68}Ga]-DOTATATE PET/CT is a very promising imaging modality for the detection of HNPGLs. However, we believe that the superiority of [^{68}Ga]-DOTATATE PET/CT over MRI cannot be asserted by this study and should be confirmed by further studies comparing [^{68}Ga]-DOTATATE PET/CT to an appropriate MRI protocol including a CE-MRA.

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