Interesting images

Amyloid Pet imaging with $^{11}$C-PIB in two patients with cognitive impairment

Deteción de amiloide en PET/TAC con $^{11}$C-PIB en dos pacientes con deterioro cognitivo

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A 58-year-old patient showing mild impairment of verbal fluency, short-term memory and mental calculation on exams was classified as Mild Cognitive Impairment. On the upper row of the figure, the axial and sagittal slices show absence of $^{11}$C-PIB uptakes in cortical structures.

We present two patients, in whom an N-methyl-$[^{11}]$C2-(4$'$-methylaminophenyl)-6-hydroxybenzothiazole ($[^{11}]$C-PIB) PET/CT was carried out in order to visually evaluate brain β-amyloid deposition. The radiotracer was administered as compassionate use and a written informed consent was obtained.

Fig. 1. The axial slices, through the level of mid-thalamus (A) and just above the fourth ventricle (B) as well as the sagittal slice (C) through the left hemisphere (red lines), showed a normal distribution pattern of $^{11}$C-PIB. The axial slices at two different levels (lower (D) and upper (E)) show a striking intense uptake of $^{11}$C-PIB in both hemispheres, although much higher in the right one. Cortical areas of temporal and parietal lobes as well as the frontal lobes and posterior cingulate are the most affected. The sagittal slice through the left hemisphere (red lines) shows the same findings.
A 68-year-old patient, non-dependant for daily basic activities, was classified on examination as Alzheimer’s Disease (GDS4) and therefore was on Donezepil treatment. On the lower row of the figure, cortical areas of parietal, temporal, and frontal lobes show an increased uptake of $^{11}$C-PIB (Fig. 1).

In conclusion the outcome of the examination is indicative of the presence of β-amyloid plaques in the areas previously mentioned, resulting in a positive PIB PET/CT.

References