Contribution ID: **102** Type: **Oral**

Integrated PET/MR Scanner as Reference Imaging Tool in the Study of Dementia: Results from the PM-D project

Monday, 20 May 2024 09:50 (20 minutes)

The challenge of screening and follow-up of subjects at risk of dementia is becoming of crucial importance for the sustainability of the national healthcare system. Although imaging biomarkers play an essential role in supporting the diagnosis and prognosis of dementia, several MR markers are still being evaluated in terms of technical and clinical suitability. In this context, hybrid PET/MR imaging offers a unique opportunity for a comprehensive collection of imaging biomarkers within the same diagnostic session. In this work, we present the preliminary results of the PM-D project, funded by the Italian Ministry of Health. To evaluate the impact of PET/MR imaging in terms of diagnostic accuracy and patient benefits/compliance, data from a cohort of 130 dementia subjects, scheduled to perform MR and PET imaging, was acquired and processed. Different processing pipelines were implemented to emulate PET/MR as well as standalone PET/CT and MR data availability, also using accelerated MR sequences. The assessment of both diagnostic accuracy and the mutual relationship among imaging variables suggests the clinical suitability of an effective PET/MR imaging protocol that maximizes the trade-off between diagnostic accuracy and patient compliance.

Field

Systems and applications

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Session Classification: PET/MR applications

Track Classification: PET/MR and SPECT/MR