Study	Study Population	Treatment/ intervention	Results	Validity /Conclusion
Doraiswamy et al, 2012. **Study type** Prospective observational. **Aim**: To examine whether ^{18}F-florbetapir- PET can predict subsequent cognitive decline in older at-risk subjects. **Endpoints:** Association between positive scan results and decline in memory and worsening of the disease. **N of patients:** N=151 (n=51 with mild cognitive impairment [MCI] n=31 with AD, and n= 69 cognitively normal controls [CN]). **Blinding**: Yes. **Follow-up:** 18 months in this report 97% complete for CN, 90% for MCI, and 87% for AD.	**Inclusion criteria:** 1. MCI group >50 years of age, with MMSE >24, CDR scale 0.5, and presenting for an initial evaluation, or were diagnosed with MCI within the previous year, 2. AD group: Individuals diagnosed clinically with AD and with MMSE <24. 3. Clinically normal healthy controls: >50 years of age, assessed clinically, CDR global of 0 and MMSE 29 or 30. **Exclusion:** Relevant neuropsychiatric disease, received amyloid investigational drugs, was unable to complete psychometric test, or had a contraindication to PET. **Patient characteristics**: There were differences between the groups in cognitive and functional variables; the AD group was slightly older, and there were no differences between the three groups in educational level, height, weight, gender, or race.	At screening all subjects underwent detailed history, physical and neurological exam, clinical interview, and laboratory evaluations. MRI at screening or within 6 months prior was performed to rule out significant CNS lesions. All participants underwent a 10-minute Florbetapir-PET imaging. The images we assessed visually by 3 nuclear medicine physicians using a semiquantitative score ranging from 0 (no amyloid to 4 (high level of cortical amyloid), and a binary qualitative scale (Aß+ and Aß-). The median rating served as the primary outcome. Subjects who completed the initial PET scan were eligible to participate in the follow-up. An interim assessment was made at 18 months, and a final will be performed at 36 months.	-Two of the three readers agreed with the majority in >96% of cases and the third reader agreed in 74% of cases (K statistics 0.58) *Baseline florbetapir amyloid positivity* |	Aß positive n/N (%)	Aß negative n/N (%)
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MCI	19/51 (37%)	32/51 (63%)
AD	21/31 (68%)	10/31 (32%)
CN	10/69 (14%)	59/69 (86%) | P for difference between groups <0.0001 Aß positive subjects tended to be older, and with worse cognitive performance at baseline. *Change from baseline to 18 months* | Study groups	Aß positive	Aß negative	P value
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Cognitively normal (CN)			
MMSE*	-1.20	-0.53	0.100
ADAS-Cog**	2.02	-0.13	**0.005**
CDR-SB***	0.43	0.09	**0.005**
Daily activities	-0.91	-0.41	0.570
Verbal fluency animals	-0.78	-0.35	0.777
Verbal fluency vegetables	0.02	0.00	0.987
WMS †delayed recall	1.08	0.88	0.877
WMS immediate recall	-0.93	0.95	0.091
MCI group			
MMSE	-2.54	-0.20	**0.003**
ADAS-Cog	3.84	-0.61	**0.001**
CDR-SB	1.18	0.25	**0.020**
Daily activities	-1.72	-1.59	0.937
Verbal fluency animals	-1.64	0.56	0.090
Verbal fluency vegetables	-1.97	0.29	**0.025**
WMS delayed recall	-1.99	1.56	**0.012**
WMS immediate recall	-2.35	1.00	**0.005**
Clinically diagnosed AD			
MMSE	-2.10	1.43	0.089
ADAS-Cog	1.57	4.86	0.165
CDR-SB	1.99	0.47	0.176
Daily activities	-10.15	-6.36	0.539
Verbal fluency animals	-3.06	0.27	**0.006**
Verbal fluency vegetables	-1.23	-0.11	0.273
WMS delayed recall	0.04	1.03	0.399
WMS immediate recall	-0.61	0.45	0.493 | *Mini mental state examination, ** AD assessment scale-cognitive subscale *** Clinical dementia rating-sum of boxes †Wechsler memory scale **Change in diagnosis after 18 months** MCI group: 8 subjects progressed to AD (5/17 [29.4%] with Aß+ and 3/29 [10.3%] with Aß-(P=0.996) 7 subjects reverted to CN (5.9% for Aß+ vs. 20%with Aß-(p=0.177).	**Advantages/ limitations:** The study had the advantage of following three groups of patients prospectively. However, It was relatively small, the authors did not adjust for multiple comparisons, the follow-up duration was short for such a disease, and there was a low agreement between one versus the other two readers. The study was conducted in a research setting with three trained readers interpreting the images, which would not be the case in clinical practice. The authors of the study had financial ties, and /or were employed by Avid Radiopharmaceuticals.