Evidence Table 1

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Azari, Pettigrew,Schapiro,Haxby, Grady, et al. (1993) #2140	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* NIH-Bethesda, Maryland *Setting:* AD/cognitive impairment clinic *PET characteristics:* • Scanner model- Scanditronix • Resolution- Atransverse 6mm, axial 11mm. • Acquisition mode- NR • Acquisition time- NR • Dose of FDG- NR • State of patient- eyes closed and ears plugged • Criteria for diagnosis- quanttative • Assessment- NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 41 AD- 19 - MCI: 0 - Mild-: 10 - Moderate: 9 Controls (normal)- 22 *Inclusion criteria:* NINCDS-ADRDA criteria for AD Controls: NR *Exclusion criteria:* Current depression, neurologic disease, radiologic evidence of pathology *Age (range):* AD-52-81 Controls-53-75 *Gender (male/female):* AD- 14/8 Controls1- 12/7 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. CONTROLS** Criteria for PET positivity: fronto-parietal hypometabolism |	AD present	AD absent	Total
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PET+	18	1	
PET-	1		23
Total	19	21	41 | **SENSITIVITY: 94.7%** **SPECIFICITY: 95.2%**	*Quality score:* • Representative sample- 0 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 0 • Test reader blinded- 0 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 1

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Burdette, Minoshima, Borght, Tran, Kuhl (1996) #1620	*Design:* case series, concomitant controls *Dates of data collection:* 1989-92 *Location:* Ann Arbor, MI *Setting:* NR *PET characteristics:* • Scanner model- CTI Knoxville, TN 931/08-12 scanner • Resolution- 7-7.5mm in plane, 7-8 mm axial • Acquisition mode- 2D and 3D • Acquisition time- 30min. • Dose of FDG- 10mCi(370MBq) • State of patient- NR • Criteria for diagnosis- quantitative • Assessment- blindly *Criteria for diagnosis of AD:* Clinical diagnosis	*No .of subjects:* total 79 AD- 39: - Moderate severe: 11 Controls1 (normal)-22 Controls2(cerebrovascular disease)-18 *Inclusion criteria:* NINCDS-ADRDA criteria for AD Controls: *Exclusion criteria:* any neurologic or psychiatric disorder or major illness *Age (mean +/-SD, range):* AD- 68+/-7.6(53-82) Controls1- 64+/-7.5 (52-76) Controls2-47+/-18(21-78) *Gender (male/female):* AD- 15/24 Controls1- 7/15 Controls2-7/11 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. non-demented CONTROLS** Criteria for PET positivity: symmetrical parieto-temporal hypometabolism AD present / AD absent / Total PET+ 33 / 5 PET- 6 / 41 Total 39 / 40 / 79 **SENSITIVITY: 85%** **SPECIFICITY: 88%** *2x2 table 2:* Sub-population studied: **QUESTIONABLE MILD AD vs non-demented controls** Criteria for PET positivity: symmetrical parieto-temporal hypometabolism AD present / AD absent / Total PET+ 22 / 5 PET- 6 / 41 Total 28 / 40 / 69 **SENSITIVITY: 79%** **SPECIFICITY: 88%** *2x2 table 3:* Sub-population studied: **MODERATE TO SEVERE AD (MMSE < 15)** Criteria for PET positivity: any hypometabolism AD present PET+ 11 PET- Total 11 **SENSITIVITY: 100%**	*Quality score:* • Representative sample- 0 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 1 • Results categorized by disease severity- 1 • Follow-up complete- 1 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 5

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Duara, Barker, Loewenstein et al. (1989) #3150	*Design*: case series, concomitant controls *Dates of data collection*: NR *Location:* Wien Ctr. For AD and Memory disorders, Mt.Sinai Med. Ctr., Miami beach, Fla *Setting*: AD center *PET characteristics:* Scanner model-PETT V Resolution-Image, in plane and axial: 15 mm. FWHM Acquisition mode-NR Acquisition time-30min. Dose of FDG-3-5 mCi State of patient-Eyes closed, blindfolded, in a quiet darkened room, resting Criteria for diagnosis-quantitative Assessment-done blindly *Criteria for diagnosis of AD*: Clinical diagnosis	*No. of subjects*: 152 AD-50 - MCI-NR - Mild-NR - Moderate-NR Severe-NR Controls1: young-29 Controls2: old-41 MID (multi-infarct-dementia) –17 MIX- 15 *Inclusion criteria*: Hachinski score for AD 0-4, MIX 5-7, MID >=8 *Exclusion criteria*: Pts. With neurological diagnoses other than AD, MID, MIX were excluded. Age (mean +/- SD): AD- 72.8 +/- 9.7 Controls1 (young)- 41.5 +/- 9.9 Controls2 (old)- 67.2+- 8.9 MID- 73.3+/-8 MIX- 74.3+/-8.8 *Gender (male/female*): NR *Race*: NR *Length of follow-up*: NR	*2x2 table 1*: Population studied: **AD vs. YOUNG NORMAL CONTROLS** Criteria for PET positivity: hypometabolism index AD present / Normal / Total PET+ 44 / 10 / 54 PET- 6 / 25 Total 50 / 29 / 79 SENSITIVITY: 88% SPECIFICITY: 65.5% 19 *2x2 table 2:* Population studied: **AD vs. OLD NORMAL CONTROLS** Criteria for PET positivity: hypometabolism index AD present / Normal / Total PET+ 44 / 19 / 63 PET- 6 / 28 Total 50 / 41 / 91 SENSITIVITY: 88% SPECIFICITY: 53.6% 22 *2x2 table 3*: Population studied: **AD vs. MID** Criteria for PET positivity: hypometabolism iindex AD present / Normal / Total PET+ 44 / 14 / 58 PET- 6 / 3 / 9 Total 50 / 17 / 67 SENSITIVITY: 88% SPECIFICITY: 17.6% *2x2 table 4*: Population studied: **AD vs. MIX** Criteria for PET positivity: hypometabolism index AD present / Normal / Total PET+ 44 / 12 / 56 PET- 6 / 3 / 9 Total 50 / 15 / 65 SENSITIVITY: 88% SPECIFICITY: 20%	*Quality score*: Representative sample-1 Setting/selection described-1 Scanner described-1 Standard criteria for interpretation-1 Test reader blinded-1 Results categorized by disease severity-0 Follow-up complete-0 Diagnosis confirmation done on the basis of long-term follow-up-0 *Total score*: 5

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Fazekas, Alavi, Chawluk, et al. (1989) #1170	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location*: Philadelphia, Pennsylvania *Setting*: AD/cognitive impairment clinic *PET characteristics:* Scanner model- PETT V Resolution- NR Acquisition mode- NR Acquisition time- NR Dose of FDG- NR State of patient- NR *Criteria for diagnosis*- qualitative *Assessment*- blindly *Criteria for diagnosis of AD:* Clinical diagnosis	*No. of subjects*: total 55 AD- 30: 24 probable, 6 possible - MCI: 0 - Mild-moderate: 14 - Moderate-severe: 16 Controls (normal)- 25 *Inclusion criteria:* Participants in an ongoing study of brain changes in normal aging and dementia NINCDS-ADRDA criteria for AD Controls: recruited from retirement communities or spouses of demented patients *Exclusion criteria*: NR *Age* (mean, range): AD- 65 (52-80) Controls- 65 (48-83) *Gender (male/female):* AD- NR Controls1- NR *Race:* AD- NR Controls- NR *Length of follow-up*: NR	*2x2 table 1*: Population studied: **AD vs. CONTROLS** Criteria for PET positivity: any hypometabolism AD present AD absent Total PET+ 27 4 PET- 1 22 Total 28 25 53 SENSITIVITY: 96% SPECIFICITY: 84% 31 21 *2x2 table 2:* Sub-population studied: **MODERATE TO SEVERE AD (MMSE < 15)** Criteria for PET positivity: any hypometabolism AD present PET+ 14 PET- Total 1 15 SENSITIVITY: 93% *2x2 table 3*: Sub-population studied: MILD TO MODERATE AD (MMSE > 15) Criteria for PET positivity: any hypometabolism AD present PET+ 13 PET- Total 0 13 SENSITIVITY: 100%	*Quality score*: Representative sample- 1 Setting/selection described- 1 Scanner described- 1 Standard criteria for interpretation- 0 Test reader blinded- 1 Results categorized by disease severity- 1 Follow-up complete- 0 Diagnosis confirmation done on the basis of long-term follow-up- 0 *Total score*: 5

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Grady, Haxby, Schapiro, Gonzalez-Aviles, et al. (1990) #3160	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Bethesda, Maryland *Setting:* AD/cognitive impairment clinic *PET characteristics:* • Scanner model- SCANDITRONIX PC 1024-7B • Resolution- transverse 6mm, axial 10mm. • Acquisition mode- 2D • Acquisition time- 45min. • Dose of FDG- 5mCi • State of patient- eyes closed, ears plugged • Criteria for diagnosis- qualitative • Assessment- blindly *Criteria for diagnosis of AD:* Clinical diagnosis [7 AD patients had a histopathological confirmation of diagnosis]	*No.of subjects:* 74 AD- 33 MCI: NR Mild-moderate: NR Moderate-severe: NR Controls (normal)- 41 *Inclusion criteria:* NINCDS-ADRDA criteria for AD Controls: ruled out all systemic, psychiatric, neurologic disease, head trauma, drug abuse. *Exclusion criteria:* All other causes of dementia ruled out, no medication at time of study *Age (mean +/- SD):* AD- 68.5+/-9.5 Controls- 64.9+/-10.9 *Gender (male/female):* AD- 17/16 Controls1- 17/24 *Race:* AD- NR Controls- NR *Length of follow-up (mean+/- SD):* 11.9+/-7.5 months	*2x2 table 1:* Population studied: **AD vs. CONTROLS** Criteria for PET positivity: parieto-temporal hypometabolism AD present / AD absent / Total PET+ 20 / 0 PET- 13 / 41 / 54 Total 28 / 41 / 69 **SENSITIVITY: 61%** **SPECIFICITY: 100%** 20	*Quality score:* • Representative sample- 0 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 1 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 4 *Notes:* Controls were considered negative for PET

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Herholz, Perani, Salmon, et al. (1993) #1140	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Germany, Italy, Belgium *Setting:* neurology clinics *PET characteristics:* • Scanner model- ECAT (Italy), NeuroECAT (Belgium), Scanditronix (Germany) • Resolution- inplane: 6 mm (Italy), 9.2 (Belgium), 7.8 (Germany) • Acquisition mode- NR • Acquisition time- 45 min (Italy & Belgium), 30 (Germany) • Dose of FDG- 250-300 MBq (Italy), 300 (Belgium), 185 (Germany) • State of patient- minimal sensory stimulation, eyes closed, ears without plugs, low noise room • Criteria for diagnosis- quantitative • Assessment- NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 71 AD- 37 - MCI: NR - Mild: NR - Moderate: NR - Severe: NR Controls (normal)- 34 *Inclusion criteria:* 40-80 year old NINCDS-ADRDA criteria for AD *Exclusion criteria:* NR *Age (mean ±SD):* AD-65.2 ± 7.4 Controls: - Italy 44.6 ± 15.7 - Belgium 58.2 ± 8.0 - Germany 65.4 ± 7.3 *Gender (male/female):* AD- 21/16 Controls: - Italy 5/5 - Belgium 5/5 - Germany 7/7 *Race:* NR AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. CONTROLS** Criteria for PET positivity: cut-off point at which sensitivity is 90% AD present / Controls / Total PET+ 33 / 5 PET- 4 / 32 Total 37 / 33 / 70 **SENSITIVITY: 89%** **SPECIFICITY: 85%** 28 38	*Quality score:* • Representative sample- 0 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 0 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up-0 Total score: 2 *Notes:* to fill the 2x2 table, a cut point for the metabolic ratio at which sensitivity is 90% was selected

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Herholz, Adams, Kessler, et al., (1990) #3450	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Koln, Germany *Setting:* AD/cognitive impairment clinic *PET characteristics:* • Scanner model- Scanditronix PC-384 • Resolution- In plane resolution 7.8mm. FWHM • Acquisition mode- NR • Acquisition time- 30-40 min. • Dose of FDG- 185MBq(5mCi) • State of patient- Eyes closed, ears unplugged, darkened room, with low ambient noise. • Criteria for diagnosis- quantitative • Assessment- NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 38 AD- 19 Controls (normal)- 19 *Inclusion criteria:* NINCDS-ADRDA criteria for AD Controls: NR *Exclusion criteria:* NR *Age (mean +/-SD):* AD- 60.6+/-7.1 Controls- 61.1+/-10.2 *Gender (male/female):* AD- 3/16 Controls-9/10 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. CONTROLS** Criteria for PET positivity: any hypometabolism AD present / AD absent / Total PET+ 19 / 0 PET- 0 / 19 Total 19 / 19 / 38 **SENSITIVITY: 100%** **SPECIFICITY: 100%** 19 19	*Quality score:* • Representative sample- 0 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 0 • Test reader blinded- 0 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 2

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Higuchi, Tashiro, Arai, et al. (2000) #590	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Tohoku University School of Medicine, Sendai, Miyagi 980, Japan *Setting:* outpatient clinic department of geriatric medicine, Parkinson's disease patient registry *PET characteristics:* • Scanner model-SET2400W, Shimadzu Inc., Japan • Resolution-spatial, 4 mm transaxial, 4.5 mm axial at FWHM at the center of the FOV • Acquisition mode-NR • Acquisition time-60 min • Dose of FDG-NR • State of patient-with minimal sensory stimulation, quite and dimly lit room, eyes open • Criteria for diagnosis-quantitative, metabolic ratios • Assessment-NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 28 Probable AD-11 - MCI: NR - Mild: NR - Moderate: NR - Severe: NR Controls1-Dementia with Lewy bodies (DLB): 7 Controls2-normal controls: 10 *Inclusion criteria:* NINCDS-ADRDA criteria for probable AD Consensus guidelines for DLB (McKeith) *Exclusion criteria:* NR *Age (mean ±SD):* AD- 66.5 ± 5.7 Controls1 (DLB)- 65.0 ± 8.8 Controls2 (Normal)- 65.0 ± 8 *Gender (male/female):* AD- 4/7 Controls1 (DLB)- 3/4 Controls2 (normal)- 4/6 *Race:* NR *Length of follow-up:* NR *MMSE (mean ±SD):* AD: 18.8 ± 3.3 months DLB: 16.1 ± 7.1 months	*2x2 table 1:* Population studied: **PROBABLE AD vs. DLB** Criteria for PET positivity: metabolic ratio, cut-off point of 0.92 AD present / DLB / Total PET+ 10 / 1 PET- 1 / 6 / 7 Total 11 / 7 **SENSITIVITY: 91%** **SPECIFICITY: 86%** *2x2 table 2:* Population studied: **PROBABLE AD vs. NORMAL CONTROLS** Criteria for PET positivity: metabolic ratio, cut-off point in order to obtain 90% sensitivity AD present / Normal / Total PET+ 10 / 7 PET- 1 / 3 / 4 Total 11 / 10 / 21 **SENSITIVITY: 91%** **SPECIFICITY: 30%**	*Quality score:* • Representative sample- 0 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 0 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 2 *Notes:* to fill the 2nd 2x2 tables, a cut-off point for the metabolic ratio at which sensitivity is 90% was selected

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Ishii, Imamura, Yamaji, Sakamato, et al, (1998) #2610	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Himeji, Japan *Setting:* AD/cognitive impairment clinic *PET characteristics:* • Scanner model- Headtome IV(Shimadzu Corp.) • Resolution- NR • Acquisition mode- 3D • Acquisition time-12 min. • Dose of FDG- 185-259 MBq • State of patient- Eyes closed, with minimal sensory stimulation • Criteria for diagnosis- quantittative • Assessment- blindly *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 36 AD- 12 Controls1 (normal)- 12 Controls2 (Dementia with Lewy Bodies-DLB))- 12 *Inclusion criteria:* NINCDS-ADRDA criteria for AD Controls1: recruited from community, MMSE >28 Controls2:Consortium for DLB criteria *Exclusion criteria:* AD:Complications of other neurologic diseases, focal brain lesions on mRI, arterial occlusive lesions on cerebral and cranial MR angiography Controls:Abnormal findings on MRI *Age (mean +/-SD):* AD- 73.2+/-6.3 Controls1- 72.8+/-4.9 Controls2: 73.3+/-5.1 *Gender (male/female):* AD- 3/9 Controls1and 2- 3/9 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. Normal Controls** Criteria for PET positivity: any hypometabolism AD present / AD absent / Total PET+ 11 / 10 / 21 PET- 1 / 2 / 3 Total 12 / 12 / 24 **SENSITIVITY: 92%** **SPECIFICITY: 17%** *2x2 table 1:* Population studied: **AD vs. DLB** Criteria for PET positivity: any hypometabolism AD present / AD absent / Total PET+ 11 / 4 PET- 1 / 8 / 3 Total 12 / 12 / 24 **SENSITIVITY: 92%** **SPECIFICITY: 67%**	*Quality score:* • Representative sample- 0 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 0 • Test reader blinded- 1 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 3

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Kippenhan, Barker, Pascal, et al. (1992) #1160	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Miami, Florida *Setting:* center for AD and memory disorders *PET characteristics:* • Scanner model- PETT V • Resolution- inplane and axial. 15 mm at FWHM • Acquisition mode- NR • Acquisition time- 30 min • Dose of FDG- 3-5 mCi • State of patient- eyes closed, blindfolded, quiet, darkened room • Criteria for diagnosis- qualitative • Assessment- blindly *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total: 91 Probable AD- 41 - MCI: NR - Mild: NR - Moderate: NR - Severe: NR Controls (normal)- 50 *Inclusion criteria:* NINCDS-ADRDA criteria for AD *Exclusion criteria:* NR *Age (mean ± SD):* Probable AD- 70.9 ± 8.8 Controls- 67.7 ± 8.9 *Gender (male/female):* AD- 21/20 Controls- 25/25 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. NORMAL CONTROLS** Criteria for PET positivity: any deficit present, cut-off point at which sensitivity is 90% AD present / AD absent / Total PET+ 37 / 15 / 52 PET- 4 / 35 / 39 Total 41 / 50 / 91 **SENSITIVITY: 90%** **SPECIFICITY: 70%** *2x2 table 2:* Population studied: **AD vs. NORMAL CONTROLS** Criteria for PET positivity: mild or greater deficit present, cut-off point at which sensitivity is 90% AD present / AD absent / Total PET+ 37 / 18 / 55 PET- 4 / 32 / 36 Total 41 / 50 / 91 **SENSITIVITY: 90%** **SPECIFICITY: 64%**	*Quality score:* • Representative sample- 0 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 0 • Test reader blinded- 1 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 2 *Notes:* to fill the 2x2 table, a cut-off point for the metabolic ratio at which sensitivity is 90% was selected. We accepted 'any deficit' as the diagnostic criterion for PET positivity, which yielded a higher specificity.

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Messa, Perani, Lucignani, et al. (1994) #3300	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Milan, Italy *Setting:* NR *PET characteristics:* • Scanner model- Siemens • Resolution- 6.3mm full width at half maximum in axial plane • Acquisition mode- NR • Acquisition time-45 min • Dose of FDG- 250-300MBq • State of patient- eyes open, ears unplugged • Criteria for diagnosis- quantitative • Assessment- NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total: 31 Probable AD(mild to moderate)-21 Controls-normal subjects-10 *Inclusion criteria:* NINCDS-ADRDA criteria for AD *Exclusion criteria:* NR *Age (mean ±SD):* AD- 62.8 ± 7.8 Controls-47+/-13 *Gender (male/female):* AD- 10/11 Controls- 3/7 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. NORMAL CONTROLS** Criteria for PET positivity: out of mean +/- 2 SD AD present / AD absent / Total PET+ 21 / 1 PET- 0 / 9 / 9 Total 21 / 10 / 31 **SENSITIVITY: 100%** **SPECIFICITY: 90%** 22	*Quality score:* • Representative sample- 0 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 0 • Test reader blinded- 0 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 1

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Mielke, Pietrzyk, Jacobs, et al. (1994) #540	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Koln, Germany *Setting:* Neurology clinic *PET characteristics:* • Scanner model- Siemens ECAT • Resolution- Image, transaxial :>6mm, axial :5mm at the center • Acquisition mode- NR • Acquisition time-NR • Dose of FDG- 370MBq • State of patient- Eyes closed, with minimal sensory stimulation • Criteria for diagnosis- quantittative • Assessment- blindly *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 45 AD- 10 Controls1 (normal)- 13 Controls2 (Vascular Dementia)- 12 *Inclusion criteria:* NINCDS-ADRDA criteria for AD Modified Hachinski score <=2 *Exclusion criteria:* NR *Age (mean +/-SD):* AD- 68.8+/-5.6 Controls1- 59.5+/-11.1 Controls2: 69.0+/-9.4 *Gender (male/female):* AD- 14/6 Controls1- 6/6 Controls2: 5/8 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. NORMAL CONTROLS** Criteria for PET positivity: cut off point at which sensitivity is 90% AD present / AD absent / Total PET+ 18 / 5 PET- 2 / 8 / 10 Total 20 / 13 / 33 **SENSITIVITY: 90%** **SPECIFICITY: 62%** 23 *2x2 table 2:* Population studied: **AD vs. VASCULAR DEMENTIA** Criteria for PET positivity: cut off point at which sensitivity is 90% AD present / AD absent / Total PET+ 18 / 5 PET- 2 / 7 / 9 Total 20 / 12 / 32 **SENSITIVITY: 90%** **SPECIFICITY: 58%** 23	*Quality score:* • Representative sample- 1 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 0 • Test reader blinded- 1 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 3 *Notes:* to fill in the 2*2 tables, a cut point for the metabolic ratio at which sensitivity is 90% was selected

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Minoshima, Kirk, Foster, et al. (1995) #2170	*Design:* case series, concomitant controls *Dates of data collection:* 1989-1992 *Location:* Michigan *Setting:* AD/cognitive impairment clinic *PET characteristics:* • Scanner model- Siemens ECAT • Resolution- 8mm full width at half maximum • Acquisition mode- NR • Acquisition time- 30 min. • Dose of FDG- 370 MBq • State of patient- quiet, dimly lit room. • Criteria for diagnosis- quantitative • Assessment- NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 59 Probable AD- 37 Controls (normal)- 22 *Inclusion criteria:* NINCDS-ADRDA criteria for AD Controls: No history of neurological or psychiatric disorder, normal neurologic exam. *Exclusion criteria:* NR *Age (mean +/-SD):* AD- 64 +/- 8 Controls- 68 +/- 7 *Gender (male/female):* AD- NR Controls- NR *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **Probable AD vs. CONTROLS** Criteria for PET positivity: Glucose metabolic rate of parieto-temporal cortex AD present / AD absent / Total PET+ 36 / 0 PET- 1 / 23 Total 37 / 22 / 59 **SENSITIVITY: 97%** **SPECIFICITY: 100%** 36 22	*Quality score:* • Representative sample- 1 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 0 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 4

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Ohyama,Senda, Mishina, et al. (2000) #1250	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Tokyo,Japan *Setting:* AD/cognitive impairment clinic *PET characteristics:* • Scanner model- Headtome 4 • Resolution- NR • Acquisition mode- NR • Acquisition time- NR • Dose of FDG- NR • State of patient- NR • Criteria for diagnosis- quantitative • Assessment-NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 31 AD- 21 - MCI: NR - Mild- - Moderate: NR - Severe: NR Controls (normal)- 10 *Inclusion criteria:* NR Controls: NR *Exclusion criteria:* NR *Age (mean +/-SD):* AD- 61 +/-10 Controls- 55 +/-12 *Gender (male/female):* AD- NR Controls1- NR *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. CONTROLS** Criteria for PET positivity: any hypometabolism AD present / AD absent / Total PET+ 18 / 1 PET- 3 / 9 / 12 Total 21 / 10 / 31 **SENSITIVITY: 86%** **SPECIFICITY: 90%**	*Quality score:* • Representative sample- 1 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 0 • Test reader blinded- 1 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 4 *Notes:* Threshold value of uptake in the parietal lobe was set as 5.

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Szelies, Mielke, Herholz, Heiss. (1994) #2010	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Cologne, Germany *Setting:* AD/cognitive impairment clinic *PET characteristics:* • Scanner model- Scanditronix 384 • Resolution- NR • Acquisition mode- 2D • Acquisition time- 20min. • Dose of FDG- 185mBq(5mCi) • State of patient- ears unplugged, darkened room, low ambient noise • Criteria for diagnosis- quantitative • Assessment- NR *Criteria for diagnosis of AD:* Clinical diagnosis	*No.of subjects:* total 58 AD probable: 24 -MCI: NR -Mild: 14 -Moderate: 10 Controls1-Normal- 15 Controls2-Vascular dementia – 19 -Mild:12 -Moderate:7 *Inclusion criteria:* NINCDS-ADRDA criteria for probable AD Vascular dementia- modified Hachinsky score >=4 Controls: MMSE scores>=28 *Exclusion criteria:* depression or other mental disorders *Age (mean, range):* AD- 65.9+/-7.6 Controls1-60+/-7.3 Controls2- 68.5+/-9.77 *Gender (male/female):* AD- 10/14 Controls1- 8/7 Controls2- 14/5 *Race:* AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. VD** Criteria for PET positivity: metabolic ratio AD present AD absent Total PET+ 18 9 PET- 6 16 Total 24 19 43 **SENSITIVITY: 75%** **SPECIFICITY: 53%** 27 10 *2x2 table 2:* Sub-population studied: **AD vs NORMAL** Criteria for PET positivity: any hypometabolism AD present AD absent PET+ 18 5 PET- 6 10 Total 24 15 **SENSITIVITY: 75%** **SPECIFICITY: 67%**	*Quality score:* • Representative sample- 0 • Setting/selection described- 0 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 0 • Results categorized by disease severity- 0 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 2

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Hoffman, Welsh-Bohmer, Hanson, Crain, et al. (2000) #1000	*Design:* case series, concomitant controls *Dates of data collection:* NR *Location:* Durham, NC *Setting:* center for AD *PET characteristics:* • Scanner model- ECAT III (CTI, Knoxville, TN), or GE4096 Plus • Resolution- NR • Acquisition mode- 2D • Acquisition time- NR min • Dose of FDG- 370mBq(10mCi) • State of patient- with minimal sensory stimulation • Criteria for diagnosis- qualitative • Assessment- blindly *Criteria for diagnosis of AD:* Histopathological diagnosis	*No.of subjects:* total: 22 Probable AD- 16 - MCI: NR - Mild: NR - Moderate: NR - Severe: NR Controls (normal)- 6 *Inclusion criteria:* NINCDS-ADRDA criteria for AD, diagnostically challenging memory loss, pathologic confirmation of diagnosis *Exclusion criteria:* NR *Age (mean ± SD):* Probable AD- 66.4(54-77) Controls- 62.5(37-80) *Gender (male/female):* AD- 10/6 Controls- 5/1 *Race:* AD- NR Controls- NR *Length of follow-up:* 24.9 months+/- 28.1 months	*2x2 table 1:* Population studied: **AD vs. Other causes of dementia** Criteria for PET positivity: any deficit present, cut-off point at which sensitivity is 90% AD present / AD absent / Total PET+ 14 / 2 PET- 2 / 4 / 6 Total 16 / 6 **SENSITIVITY: 87.5%** **SPECIFICITY: 66.7%** 16 22	*Quality score:* • Representative sample- 0 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 1 • Results categorized by disease severity- 0 • Follow-up complete- 1 • Diagnosis confirmation done on the basis of long-term follow-up- 1 Total score: 6

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Salmon, Sadzot, Maquet, et al. (1994) #1090	*Design:* case series, concomitant controls *Dates of data collection:* RN *Location:* Liège, Belgium *Setting:* patients referred for PET for differential diagnosis *PET characteristics:* • Scanner model- Neuro ECAT • Resolution- transverse 12.4 mm, axial 15 mm, at FWHM • Acquisition mode- NR • Acquisition time- 40 min • Dose of FDG- 8 mCi • State of patient- resting, minimal noise, eyes closed • Criteria for diagnosis- quantitative • Assessment- blindly *Criteria for diagnosis of AD:* Clinical diagnosis [5 AD patients had a histopathological confirmation of diagnosis]	*No. of subjects:* total 129 AD- 65 - MCI: 0 - Mild: 16 - Moderate: 25 - Severe: 24 Controls- 64 (19 degenerative dementias + 45 other dementias) *Inclusion criteria:* Patients referred for differential diagnosis of dementia NINSA-ADRA criteria for AD *Exclusion criteria:* NR *Age (mean ±SD):* AD- 65.9 ± 7.4 Controls (degenerative dementia)- 59.5 ± 10.6 *Gender (male/female):* AD- NR Controls- NR *Race:* NR AD- NR Controls- NR *Length of follow-up:* NR	*2x2 table 1:* Population studied: **AD vs. NON-AD DEMENTIAS** Criteria for PET positivity: Temporo-parietal bilateral or unilateral AD present / Non-AD dementia / Total PET+ 56 / 25 / 81 PET- 9 / 39 / 47 Total 65 / 64 / 128 **SENSITIVITY: 86%** **SPECIFICITY: 61%** *Sensitivities for sub-groups of AD* Sub-population studied: **MILD AD** AD present PET+ 12 PET- Total 16 **SENSITIVITY: 75%** Sub-population studied: **MODERATE AD** AD present PET+ 22 PET- Total 25 **SENSITIVITY: 88%** Sub-population studied: **SEVERE AD** AD present PET+ 22 PET- Total 24 **SENSITIVITY: 92%**	*Quality score:* • Representative sample- 1 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 1 • Results categorized by disease severity- 1 • Follow-up complete- 0 • Diagnosis confirmation done on the basis of long-term follow-up- 0 Total score: 6

Study	Design and PET characteristics	Patient population	Results	Quality Score/Notes
Silverman D, Small G, Chang C, et al. (2001) #4250	*Design:* case series *Dates of data collection:* 1984-2000 *Location:* Los Angeles, CA, Berkeley, CA, Bethesda, MD, Durham, NC, Philadelphia, PA, Liège, Belgium, Köln, Germany *Setting:* centers for AD *PET characteristics:* • Scanner model- Siemens/CTI ECAT 831 or 931, ECAT EXACT HR or HR+ (CTI, Knoxville, TN) in California. NR for other centers • Resolution- NR • Acquisition mode- NR for each center • Acquisition time- 40 min in California, NR for other centers • Dose of FDG- 10 mCi or 370 MBq in California, NR for other centers • State of patient- eyes open in a dimly lit, quiet room in California, NR for other centers • Criteria for diagnosis- progression = (1) focal cortical hypometabolism in parietal, temporal, and/or frontal lobes, or (2) diffuse hypometabolism in associative cortex with relative sparing of sensorimotor cortex, or (3) a pattern of cerebral metabolism pathognomonic for a known neurodegenerative disease associated with progressive cognitive decline • Assessment- blind Criteria for diagnosis of AD: Histopathological diagnosis	*No. of subjects:* 97 with pathologically confirmed diagnosis of AD - 41 patients with questionable or mild dementia at time of diagnosis Controls – 23 patients with other pathologically confirmed diagnosis of dementia, 16 patients without confirmed cause of dementia at autopsy - 14 patients with questionable or mild dementia at time of diagnosis *Inclusion criteria:* Patients evaluated with PET and who had subsequent neuropathological examination *Exclusion criteria:* NR *Age (mean ±SD):* NR *Gender (male/female):* AD- NR Controls- NR *Race:* AD- NR Controls- NR *Length of follow-up:* autopsies performed an average of 2.9 years after PET (range- 0.1-9.5 years)	*2x2 table 1:* Population studied: **AD confirmed by autopsy vs. Other causes of dementia/no cause of dementia** Criteria for PET positivity: Hypometabolism AD present / AD absent / Total PET+ 91 / 11 / 102 PET- 6 / 36 Total 97 / 41 / 138 **SENSITIVITY: 93.8%** **SPECIFICITY:73.2%** 30 *2x2 table 2:* Population studied: **Patients with questionable or mild dementia at time of PET, AD confirmed by autopsy vs. Other causes of dementia/no cause of dementia** Criteria for PET positivity: Hypometabolism AD present / AD absent / Total PET+ 39 / 4 PET- 2 / 12 Total 41 / 14 / 55 **SENSITIVITY: 95.1%** **SPECIFICITY:71.4%** 43 10 *2x2 table 3:* Population studied: **Patients with moderate to severe dementia at time of PET, AD confirmed by autopsy vs. Other causes of dementia/no cause of dementia** Criteria for PET positivity: Hypometabolism AD present / AD absent / Total PET+ 52 / 7 PET- 4 / 24 Total 56 / 27 / 83 **SENSITIVITY: 92.8%** **SPECIFICITY: 74.1%** 59 20	*Quality score:* • Representative sample- 0 • Setting/selection described- 1 • Scanner described- 1 • Standard criteria for interpretation- 1 • Test reader blinded- 1 • Results categorized by disease severity- 0 • Follow-up complete- 1 • Diagnosis confirmation done on the basis of long-term follow-up- 1 Total score: 6