SUPPLEMENTARY MATERIAL

**Appendix 3: Results**

**Table 3S. Characteristics of included studies stratified by authorship.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **First Author**  **Year** | **Reference Number** | **Study Design** | **Inclusion/Exclusion Criteria** | **Method of dementia diagnosis** | **Study Location (Study Name, if applicable)** | **n included in relevant analyses** | **% incident dementia** | **Female (%)** | **Age Mean (*SD*) in years** | | **Length of**  **follow-up**  **(years)** | | | | | | |
| Aggarwal  2006 | 24 | Prospective cohort | Inclusion criteria:   * Catholic nuns, priests, and brothers * MCI   Exclusion criteria:   * Dementia at baseline | NINCDS-ADRDA | United States  (ROS) | 189 | NR | 67 | 78.7 (*7.0*) | Max: 10  Mean: 7.2 | | | | | | | |
| Albala  2014 | 25 | Prospective cohort | Inclusion criteria:   * Normal cognition | Validated screening test | Santiago, Chile  (CENEX) | 1575 | 1 | N/A | Range: 65-67.5 | | Max: 2 | | | | | |
| Amieva  2004 | 26 | RCT (nicergoline versus placebo) | Inclusion criteria:   * MCI   Exclusion criteria:   * History of stroke or other specific causes of cognitive impairment * Diagnosed depression | DSM-III-R | France | 90 | 32 | 44 | Dem: 73.3 (*5.8*)  NoDem: 68.7 (*7.9*) | | Max: 2 | | | | | |
| Anang  2014 | 19 | Prospective cohort | Inclusion criteria:   * UKPDSBB defined parkinsonism, with idiopathic PD determined as the most likely cause * Patients from the Movement Disorders clinic at McGill University Health Centre and the Centre Hospitalier de l'Université de Montréal   Exclusion criteria:   * Dementia at baseline * Alternate cause of parkinsonism diagnosis after comprehensive assessment | Level 2 Movement Disorder Society criteria for PD dementia | Montreal, Québec | 80 | 34 | 36 | 66.2  (*10.9*) | | Mean: 4.4  SD: 2.0 | | | | | |
| Bermejo-Pareja  2007 | 39 | Case-control embedded in prospective cohort  (cases: presence of ET; controls: no ET) | Inclusion criteria:   * > 65 years old * Living in three specific communities in central Spain   Exclusion criteria:   * Dementia at baseline | DSM-IV | Central Spain  (NEDICES) | 3,891  (Cases: 206 Controls: 3,685) | Cases: 8  Controls:  4 | Cases:  63  Control:  7 | Cases: 74.6 (*6.7*)  Control: 73.1 (*6.3*) | | Mean: 3.2  Median: 3.2  Range: 0.03 to 6.6 | | | | | |
| Buchman  2007 | 28 | Prospective cohort | Exclusion criteria   * Dementia at baseline * Missing cognitive data | NINCDS-ADRDA | United States  (ROS) | 877 | 15 | 69 | AD:  79.3  (*6.48*)  Non-AD: 73.5  (*6.58*) | | | Mean: 5.7  SD: 2.56 | | | | |
| Buchman  2011 | 18 | Prospective cohort | Exclusion criteria:   * Dementia at baseline * History of stroke * PD at baseline | NINCDS-ADRDA | Helsinki  (Rush Memory and Aging Project) | 919 | 17 | 74 | 79.7  (*7.3*) | | | Mean: 4.7  SD:2.4 | | | | |
| Bugalho  2013 | 34 | Prospective cohort | Inclusion criteria   * PD   Exclusion criteria   * Dementia at baseline * Existence of relevant psychiatric, medical or other neurological diseases | DSM-IV-R | Lisbon, Portugal | 61 | 7 | 54 | 71.9  (7.53) | | | Max: 2 | | | | |
| Camargo  2016 | 17 | Prospective cohort | Inclusion criteria   * Children and their spouses of the Original Framingham cohort   Exclusion criteria   * Dementia at baseline * Prevalent stroke * Known neurological conditions that would confound cognitive and/or motor testing (e.g. brain tumors, multiple sclerosis, hydrocephalus, sarcoidosis, Lyme disease, history of head trauma severe enough to produce loss of consciousness for >30min) * Missing covariate information * Lack of follow-up data | DSM-IV, symptoms for >6 months | United States  (Framingham Offspring Cohort) | 2046 | 2 | 54 | 62  (*9*) | | | Max: 11  Median: 6.5 | | | | |
| Camicioli  2007 | 40 | Prospective cohort | Exclusion criteria:   * Dementia at baseline * Cognitive impairment at baseline | DSM-III-R | Canada  (CSHA-1,2,3) | Wave 1: 538  Wave 2: 497 | NR | 62 | 80.1  (*7.0*) | | | | Two,  5 year waves | | | |
| Domellöf  2015 | 41 | Prospective cohort | Inclusion criteria:   * Previously undiagnosed idiopathic parkinsonism that met UKPDSBB criteria for PD * MCI   Exclusion criteria:   * Dementia at baseline * Normal presynaptic dopamine intake * Severe depression * Did not perform enough investigations | Consensus by three personnel based on medical records, clinical assessment, and clinical diagnostic criteria for dementia associated with PD | Northern Sweden  (NYPUM) | 49 | 51 | 39 | 71.3  (*14.7*) | | | | Max: 5 | | | |
| Duara  2011 | 42 | Prospective cohort | Inclusion criteria:   * 52 to 91 years of age * English and/or Spanish speaking * MCI or pre-MCI   Exclusion criteria:   * Dementia at baseline | Physician’s cognitive diagnosis, Neuropsychological Diagnosis, Algorithmic consensus cognitive diagnoses, MRI, and APOE genotyping | Miami Beach and Tampa, Florida | 115 | 21 | Pre-MCI: 42 naMCI:  40  aMCI:  49 | Range:  52-91 | | | | | Max: 3  Mean: 2.6  SD: 0.6 | | |
| Dumurgier  2016 | 16 | Prospective cohort | Inclusion criteria   * Aged > 65 years   Exclusion criteria   * Dementia at baseline * PD * Recent hip fracture * Disabling stroke * No gait assessment, lost to follow-up, or no date of death | Neuropsychological test battery, age- and education- specific test cut-offs, independent committee consensus | France  (Three-City Study; Dijon sub-study) | 3663 | 8 | 62 | 75.3  (4.7) | | | | Max: 9  Median: 7.8  SD: 2.7 | | | |
| Gago  2009 | 35 | Prospective cohort | Inclusion criteria:   * UKPDSBB criteria and with Hoehn-Yahr stage < 2 for PD * > 45 years old * > 3 years education   Exclusion criteria:   * Dementia at baseline * MMSE < 24 * Moderate/severe depression * Neurological or psychiatric disease * Severe medical conditions at baseline * No follow-up assessments | DSM-IV, clinical observation, and caregiver interview | Porto | 24 | 29 | 38 | Dem: 67.29 (2.69) NoDem: 62.24 (8.8) | | | Max: 6 | | | | |
| Gray  2013 | 43 | Prospective cohort | Inclusion criteria   * > 65 years old   Exclusion criteria   * Dementia at baseline * < 2 ACT visits after baseline * History of stroke or PD * Missing frailty components | DSM-IV and NINCDS-ADRDA | Washington  (ACT) | 2619 | 20 | 60 | 76.8 (5.9) | | Mean: 6.5  SD: 3.9 | | | | | |
| Hobson  2004 | 36 | Prospective cohort | Inclusion criteria   * Brain Bank clinical diagnostic criteria for PD   Exclusion criteria   * Dementia at baseline | DSM-IV | North Wales | 51 | 35 | 49 | 74.2 (8.6) | | Mean: 4.36  SD: 0.26  Median: 4 | | | | | |
| Israeli-Korn  2010 | 29 | Prospective cohort | Inclusion criteria:   * Wadi resident * > 65 years old between January 2003 and December 2007 * MCI   Exclusion criteria:   * Dementia at baseline * Excluded at follow-up if newly developed confounding comorbidities (end-stage renal failure, stroke, orthopedic) | DSM-IV, ICD-10, and NINCDS-ADRDA | Wadi Ara, northern Israel | 111 | 22 | N/A | 72.5 (*5.7*) | | Mean: 3.9  SD: 1.5 | | | | | |
| Lee  2015 | 38 | Retrospective cohort | Inclusion criteria:   * > 65 years old * Independent in ADLs and mobility * No apparent mobility, functional, or cognitive impairment   Exclusion criteria   * Dementia at baseline * History of stroke * PD * Significant cognitive impairment at baseline | International Statistical Classification of Disease and Related Health Problems, 10th Revision, or CDR rating 1 to 3 | Hong Kong, China | 1775 | 8 | 63 | Dem median: 75 NoDem median: 73 | | Max: 6 | | | | | |
| Lee  2016 | 30 | Prospective cohort | Inclusion criteria:   * UKPDSBB clinical criteria for PD   Exclusion criteria:   * Dementia at baseline * Vascular parkinsonism or retrospective medical record indication of an atypical course that was distinct from idiopathic PD, subsequent symptom recovery with no need for anti-Parkinson drugs * < 18 months follow-up * No brain MRI * Severe degenerative joint disease that affected the patient's gait. | DSM-IV | South Korea | 96 | NR | 72 | 70.6 (7.1) | Median: 4.9  Range: 1.5 to 13.6 | | | | | | |
| Levy  2000 | 20 | Prospective cohort | Inclusion criteria:   * Idiopathic PD with two of the following: resting tremor, shuffling gait, bradykinesia, or muscular rigidity * Living in the Washington Heights community in northern Manhattan, New York   Exclusion criteria:   * Dementia at baseline * Presence of secondary or symptomatic Parkinsonism (postencephalitic) * Parkinsonism resulting from any of the following drugs: phenothiazines, alphamethyldopa, reserpine, or metoclopramide hydrochloride * Progressive supranuclear palsy * Essential tremor * Shy-Drager syndrome * Presumed striatonigral degeneration * Olivopontocerebellar degeneration * Memory loss or dementia before motor manifestations of PD and any patient with "extrapyramidal form" of AD. | DSM-III-R | Northern Manhattan, New York | 173 | 29 | 44 | 74.3  (*8.2*) | | | | Mean: 3.6  SD: 2.2  Minimum: 1 | | | |
| Louis  2004 | 15 | Prospective cohort | Inclusion criteria   * > 65 years old   Exclusion criteria   * Dementia at baseline * PD | DSM-III-R | Northern Manhattan, New York  (WHICAP) | 1028 | 22 | 69 | 78.2 | | | Mean: 5.6  Median: 5.7  Range: 1 to 13 | | | | |
| Louis  2010 | 44 | Prospective cohort | Inclusion criteria:   * > 65 years old   Exclusion criteria:   * Dementia at baseline * PD * Parkinson Plus syndrome | DSM-III-R | Northern Manhattan, New York | 1851 | 9 | 66 | 76.1 | | | Max: 9  Mean: 3.7 | | | | |
| Montero-Odasso  2016 | 45 | Prospective cohort | Inclusion criteria:   * > 65 years old * English speaking * Able to ambulate one city block and walk > 10 metres independently without use of a mobility aid | DSM-IV | London, ON  (Gait and Brain Study) | 252 | 11 | 63 | 76.7  (8.6) | | | Mean: 1.5  Range: 0.5 to 5 | | | | |
| Ramakers  2007 | 49 | Retrospective case-control  (cases: dementia; controls: no dementia) | Cases: Dementia diagnosis registered in the Dutch GP registration network database between 1996 and 1999.  Controls: Two control subjects were randomly selected from the same practice, after matching for age (+ 5 years) and sex.  Exclusion Criteria:   * Insufficient data * Controls were excluded if they developed dementia between the index period and analysis | DSM-III-R | Southern region of the Netherlands | Cases  74 Control 125 | Cases  100  Control0 | Cases  62  Control 61 | Cases  79 (6.2)  Control  79 (7.4) | | | | Max: 5 | | | |
| Shill  2014 | 46 | Prospective cohort | Inclusion criteria:   * > 2 movement and cognitive exams   Exclusion criteria:   * Dementia or another neurodegenerative disorder at baseline (e.g. parkinsonism) * Tremor that did not meet ET criteria (low amplitude, nonpersisting tremor, or seocndary tremor) | DSM-IV | Maricopa County, Arizona  (AZSAND) | 507  (ET  83 Controls 424) | ET  6  Control  8 | ET  43 Control 71 | ET  80 (5.9) Control  77 (8.5) | | Median: 5.4  Range: 0.9 to 12.1 | | | | | |
| Taaffe  2008 | 31 | Prospective cohort | Inclusion criteria:   * Normal cognition at baseline   Exclusion criteria   * Dementia at baseline * CASI score <74 * CDR score of 0.5 * PD * Prevalent stroke * Requires use of a walker or cane * Missing data for physical activity, physical function, covariates * Died before the first follow-up or was unable to participate in follow-up dementia screening | DSM-III-R | Oahu, Hawaii  (HAAS) | 2263 | 8 | 0 | Dem:  78.9 (4.6)  NoDem:  76.4 (3.8) | | | | Mean: 6.1 | | | |
| Thawani  2009 | 14 | Prospective cohort | Exclusion criteria:   * Dementia at baseline * Refused writing tasks due to poor eyesight or difficulty following the instructions * Incomplete neuropsychological tests * Preliminary or confirmed diagnoses PD | DSM-III-R | Northern Manhattan, New York  (WHICAP II cohort) | 2056  (ET  93 Controls 1963) | ET  18  Control  9 | 68 | 78.2  (7.1) | | | | | Mean: 3.8  SD: 2.2 | | |
| Verghese  2002 | 21 | Prospective cohort | Inclusion criteria:   * English speaking   Exclusion criteria:   * Dementia at baseline * Previous diagnosis of idiopathic PD * Liver disease * Alcoholism * Known terminal illness * Visual or hearing impairment that interfered with completion of neuropsychological tests * No follow-up visit | DSM-III, DSM-III-R, or NINCDS-ADRDA | Bronx, New York  (Bronx Aging Study) | 422 | 30 | 65 | 75 to 80 | | | | Median: 6.6 | | | |
| Verghese  2007 | 13 | Prospective cohort | Inclusion criteria:   * 75 to 85 years old   Exclusion criteria:   * Dementia at baseline * PD * Liver disease * Alcoholism * Known terminal illness * Severe visual and hearing loss interfering with completion of cognitive tests * Bilateral above knee amputation * Developed dementia other than VaD over follow-up period | DSM-III-R and NINCDS-ADRDA | Bronx, New York  (Bronx Aging Study) | 399 | 6 | 65 | Abnormal gait: 79.6 (3.4)  Normal gait:  78.9 (3.0) | | | | | | | Max: 5 |
| Verghese  2007 | 47 | Prospective cohort | Inclusion criteria:   * > 70 years old   Exclusion criteria:   * Diagnosed dementia at baseline * No quantitative gait assessment | DSM-IV | Bronx, New York  (Einstein Aging Study) | 399 | 8 | 59 | 77.4  (*5.2*) | | | | | Median: 2  Max: 5 | | |
| Verghese  2013 | 48 | Prospective cohort | Inclusion criteria:   * > 70 years old   Exclusion criteria:   * Severe audiovisual loss * Bed bound * Institutionalized * Dementia at baseline * No follow-up data | DSM-IV | Bronx County, New York  (Einstein Aging Study) | 767 | 9 | 60 | 79.9 (*5.9*) | | Median: 3.1  Range: 0.7 to 9.1 | | | | | |
| Verghese  2014 | 27 | Pooled multiple cohorts | Inclusion criteria:   * Eligible cohorts for the MCR Consortium contained baseline info on cognitive complaints, gait speed, cognitive tests, mobility disability, and dementia. * MMSE > 25   Exclusion criteria:   * < 60 years old * Missing gait speed data * Cognitive complaints * Mobility disability (inability to ambulate with or without assistive devices) * Dementia at baseline | DSM-III-R or Clinical diagnosis | International  (MCR Consortium; MAP, ROS, H-EPESE) | 4550 | 20 | N/A | Range:  60 to 108 | | | | | Max: 12 | | |
| Waite  2005 | 32 | Prospective cohort | Inclusion criteria:   * Non-institutionalised * > 75 years old * Residing in the Central Sydney Area * Participated in the Sydney Older Persons study from 1991 to 1993   Exclusion criteria:   * Diagnosed dementia at baseline | DSM-III-R | Sydney, Australia  (Sydney Older Persons Study) | 394 | 28 | N/A | N/A | | | | | | Max: 6 | |
| Wang  2006 | 23 | Prospective cohort | Inclusion criteria:   * Aged > 65 years   Exclusion criteria:   * Dementia at baseline * Current residents of a nursing home * Participating in other studies * Invalid measurements on either the cognitive performance test or physical performance tests at baseline * No follow-up | DSM-IV | Seattle-area  (ACT) | 2288 | 14 | 60 | Dem:  78.7 (*6.1*)  NoDem: 73.5 (*5.2*) | | | | | Max: 5.9 | | |
| Welmer  2014 | 22 | Prospective cohort | Inclusion criteria:   * > 60 years old * Living at home or in institution in the Kungsholmen district   Exclusion criteria:   * Dementia at baseline * Unable to walk or severe walking impairment * MMSE < 24 | DSM-IV | Kungsholmen, Sweden  (Swedish National study on Aging and Care) | 2232 | 10 | 63 | 72.0  (9.9) | | | | | | Max: 6 | |
| Wilson  2003 | 33 | Prospective cohort | Inclusion criteria:   * Catholic nuns, priests, and brothers   Exclusion criteria:   * Dementia at baseline * PD at baseline | NINCDS-ADRDA | United States  (ROS) | 746 | 15 | 63 | 75.4  (*6.9*) | | | | | Max: 8  Mean: 4.6 | | |
| Zhu  2014 | 37 | Prospective cohort | Inclusion criteria:   * UKPDSBB criteria for idiopathic PD   Exclusion criteria:   * Dementia at baseline * No follow-up data | SCOPA-COG score < 22 | Western region of the Netherlands. | 261 | 26 | 35 | 58.19 (*10.6*) | | | Max: 5  Mean: 4.8  SD: 0.8 | | | | |

**Legend (in order of appearance):** n=Number of participants; SD = standard deviation; MCI = Mild Cognitive Impairment; NINCDS-ADRDA=National Institute of Neurological and Communicative Disorders and Stroke and Alzheimer’s Disease (AD) and Related Disorders Association for AD criteria; ROS=Religious Orders Study; NR=Not Reported; CENEX=Cost-effectiveness Evaluation of a Nutritional supplement and Exercise program for older people; N/A=not available; RCT=Randomized Controlled Trial; DSM=Diagnostic and Statistical Manual of Mental Disorders; Dem=Developed dementia over the follow-up period; NoDem=Remained dementia free over the course of follow-up; UKPDSBB=UK Parkinson’s Disease Society Brain Bank; UK = United Kingdom; PD = Parkinson’s Disease; ET = Essential Tremor; NEDICES=Neurological Disorders of Central Spain Study; ROS=Religious Orders Study; CSHA=Canadian Study of Health and Aging; NYPUM= New Parkinson Patient in Umeå project; MRI=Magnetic Resonance Imaging; APOE = Apolipoprotein E; NCI=Not cognitively impaired, naMCI=nonamnestic Mild Cognitive Impairment; aMCI=amnestic Mild Cognitive Impairment; MMSE = mini-mental state examination; ACT=Adult Changes in Thought study; ICD=International Classification of Disease; ADL=Activities of Daily Living; CDR=Clinical Dementia Rating; WHICAP=Washington/Hamilton Heights and Inwood Aging Project; GP=General Practitioner; AZSAND=Arizona Study of Aging and Neurodegenerative Disorders; CASI=Cognitive Abilities Screening Instrument;; HAAS=Honolulu-Asia Aging Study; VaD=Vascular Dementia; MCR=Motoric Cognitive Risk Syndrome; MAP=Memory and Aging Project; H-EPESE=Hispanic Established Populations for Epidemiologic Studies of the Elderly, SCOPA-COG=Short Parkinson’s Evaluation Scale-Scales for outcomes in Parkinson’s Disease-Cognitive

**Table 4S. Association between baseline motor performance and incident dementia stratified by motor domains**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **REFERENCE**  **Author (year) [#]** | **MOTOR FUNCTION Assessment Method** | **Covariates Adjustments** | **ASSOCIATION BETWEEN MOTOR FUNCTION AND DEMENTIA**  **[Effect Estimate (95% CI), *P*-value]** | **NOS Average Rating (Max 9)** |
| **GLOBAL PHYSICAL FUNCTION** | | | | **7.5** |
| Wang (2006)  [23] | Physical Performance Score = Sum from 10-foot timed walk, chair-stand time, standing balance, and grip strength tests (each scored 0 to 4). Total score (Range 0 to 16; higher=better) entered as a continuous variable into Cox proportional hazards models. | Model 1: Age, sex  Model 2: Model 1, education, APOEε4 allele, family history of AD, baseline CASI, CESD, CHD, CVD | **Any dementia:**  Model 1: HR=0.88 (0.85,0.92), *P*<0.001  Model 2: HR=0.93 (0.89,0.97), *P*<0.001  **AD:**  Model 1: HR=0.90 (0.86,0.94), *P*<0.001  Model 2: HR=0.94 (0.90,0.99), *P*<0.05 |  |
| Taaffe (2008) [31] | Physical Function Score = Sum from 10-foot timed walk, chair-stand time, grip strength, and balance tests (each scored 0 to 4). Compared mean baseline score (Range 0 to 16; higher=better) between those who did versus did not convert to dementia over follow-up. | Age | **Any dementia:**  *P*<0.001 |  |
| **MANUAL DEXTERETY** | | | | **8.5** |
| Aggarwal (2006)  [24] | Purdue Pegboard Test, Score = mean number pegs correctly placed during each trial entered as continuous covariate in Cox proportional hazards model.   * Test for association between lower scores and incident dementia. | Model 1: Age, sex, educational, APOEε4 allele  Model 2: Model 1, stroke | **Any dementia:**  Model 1: RR=0.99 (0.90,1.09)  Model 2: RR=0.99 (0.90,1.09) |  |
| Anang (2014)  [19] | Purdue Pegboard Test, Score = mean number pegs correctly placed during each trial entered as continuous covariate into logistic regression model.   * Test for association between higher scores and incident dementia. | Age, sex, duration of PD, duration of follow-up | **Any dementia:**  OR=0.67 (0.48,0.94), *P*=0.049 |  |
| **FINGER TAPPING** | | | | **5** |
| Amieva (2004)  [26] | Finger Tapping Test, comparison of mean baseline score between those that did versus did not convert to dementia over the follow-up period. |  | **Any dementia:**  *P*=0.62 |  |
| **GRIP STRENGTH** | | | | **8.5** |
| Buchman (2007)  [28] | Isometric handgrip strength measured in pounds of force exerted with Jamar hydraulic hand dynamometer (range 0 to 200lb). Average of four trails (two per hand) entered as a continuous variable into Cox proportional hazards model. | Model 1: Age, sex, education  Model 2: Model 1, BMI, BMI2, rate of change in BMI  Model 3: Parkinsonian signs, physical and cognitive activity, vascular diseases and risk factors, depressive symptoms, late-life social networks, early SES | **AD:**  Model 1: HR=0.99 (0.97,1.00)  Model 2: HR=0.99 (0.97,1.00)  Model 3: HR=0.99 (0.98,1.00) |  |
| Camargo (2016)  [17] | Handgrip strength measured in kg of force exerted over 5 seconds using a Jamar Hydraulic Hand Dynamometer. Highest score from 6 trials exerting maximal force (3 per hand) entered into Cox proportional hazards model as:  A: Standardized z-scores within 10-year categories (continuous covariate)  B: Dichotomized variable using < 10th sex-specific percentile as cut off for low grip strength (15kg female, 30kg male) | Age, sex, diabetes mellitus, SBP, CVD, atrial fibrillation, smoking, waist-to-hip ratio, total cholesterol level, APOEε4 allele, total plasma homocysteine level, physical activity | **Any dementia:**  A: HR=1.42 (0.82,2.46), *P*=0.21  B: HR=2.17 (1.00,4.69), *P*=0.05  *Restricted to participants >65 years old:*  A: HR=1.51 (0.83,2.74), *P*=0.18  B: HR=1.44 (0.73,2.85), *P*=0.29  **AD:**  A: HR=1.44 (0.77,2.73), *P*=0.25  B: HR=2.75 (1.18,6.39), *P*=0.019  *Restricted to participants >65 years old:*  A: HR=1.44 (0.73,2.85), *P*=0.29  B: HR=3.22 (1.32,7.90), *P*=0.011 |  |
| Gray (2013)  [43] | Handgrip strength measured in kg of force exerted using handheld dynamometer. Average of three trials of maximal force with dominant hand calculated and dichotomized based on sex and BMI specific cut-points for low grip strength. Entered as dichotomous variable in Cox proportional hazards model. | Age, sex, education, race, BMI, depressive symptoms, antidepressant scale, self-reported health, hypertension, diabetes, myocardial infarction, congestive heart failure, smoking status, baseline CASI | **Any dementia:**  HR=1.06 (0.87,1.29)  **Possible or probable AD:**  HR=1.04 (0.84,1.28)  **Non-AD dementia:**  HR=1.28 (0.77,2.11) |  |
| Wang (2006)  [23] | Handgrip strength measured in kg of force exerted in dominant hand and scored from 0 to 4 based on sex-specific quartiles of the study population (higher=stronger). Categorical variable entered into Cox proportional hazards model. | Model 1: Age, sex  Model 2: Model 1, education, APOEε4 allele, family history of AD, baseline CASI, CESD, CHD, CVD | **Any dementia:**  Model 1: HR=0.85 (0.75,0.96), *P*<0.01  Model 2: HR=0.87 (0.77,0.99), *P*<0.05  **AD:**  Model 1: HR=0.84 (0.73,0.98), *P*<0.05  Model 2: HR=0.86 (0.74,1.00), *P*<0.05 |  |
| **OVERALL PARKINSONISM** | | | | **7.4** |
| Aggarwal (2006)  [24] | mUPDRS, average of the four sign scores entered as continuous covariate in Cox proportional hazards model. | Model 1: Age, sex, education, APOEε4 allele  Model 2: Model 1, stroke | Model 1: RR=1.04 (1.01,1.07)  Model 2: RR=1.04 (1.01,1.07) |  |
| Anang (2014)  [19] | UPDRS III, total score entered as continuous covariate in logistic regression model. | Age, sex, duration of PD, duration of follow-up | OR=0.97 (0.92,1.01), *P=*0.21 |  |
| Buchman (2011)  [18] | mUPDRS, average of the four sign scores entered as continuous covariate in Cox proportional hazards model | Age, sex, education | **AD:**  HR=1.35 (1.14,1.59) |  |
| Bugalho (2013)  [34] | UPDRS total score, compared proportion of participants with > median score (16) that did versus did not develop dementia using Fisher’s exact test. |  | *P*=0.118 |  |
| Camicioli (2007)  [40] | Physician rated parkinsonism as presence of 2/3 signs (tremor, rigidity, bradykinesia). Dichotomous variable entered into logistic regression model. | Age, sex, education | *Wave 1-2 (5 years)*  OR=3.17 (1.73,5.79), *P*<0.0001  *Wave 2-3 (additional 5 years)*  OR=8.16 (2.48,26.92), *P*=0.001 |  |
| Domellöf (2015)  [41] | UPDRS III, median score comparison between those that did versus did not convert to dementia using a non-parametric statistical test |  | **PDD:**  *P*=0.026 |  |
| Duara (2011)  [42] | UPDRS motor portion, compared total baseline scores of those that did versus did not convert to dementia using an F-test. |  | F[1,182]=14.46, *P*<0.001 |  |
| Gago (2009)  [35] | UPDRS III, mean score comparison between group that did versus did not develop dementia using the Mann-Whitney *U* test. |  | *P*=0.078 |  |
| Hobson (2004)  [36] | UPDRS motor section, score dichotomized at median (26) and entered as dichotomous variable in logistic regression model. |  | RR=1.33 (0.99,1.78) |  |
| Israeli-Korn (2010)  [29] | UPDRS motor portion, parkinsonian sign defined as present if summed score >2 across subcategories for tremor, rigidity, limb bradykinesia, and axial. Dichotomous variable in stepwise logistic regression model. | Age | *P*>0.1 |  |
| Levy (2000)  [20] | UPDRS motor portion, total score (range 0 to 100) entered as continuous covariate in Cox proportional hazards model | Age, gender, education, duration of PD, use of dopaminergic agonists and anticholinergic medications | RR=1.06 (1.04,1.09), *P*<0.0001 |  |
| Louis (2004)  [15] | Abbreviated (10 item) version of the motor portion of the UPDRS. Each item rated 0 to 4, with > 2=abnormal, and entered into Cox proportional hazards model as:  A: Parkinsonian sign score stratified into groups (0=reference compared to 1, 2, >3)  B: Continuous variable (total score range 0 to 40) | Age, education, ethnicity, diabetes mellitus, stroke, sex, hypertension, heart disease, drinker, smoker | A: *Score >3* RR=1.57 (1.07,2.32), *P*=0.02  *Score 2* RR=1.56 (1.04,2.33), *P*=0.03  *Score 1* RR=1.22 (0.82,1.83), *P*=0.33  B: RR=1.08 (1.01,1.16), *P*=0.02 |  |
| Louis (2010)  [44] | mUPDRS, mild parkinsonian signs present when:   1. Two or more UPDRS ratings = 1 2. One UPDRS rating ≥ 2 OR 3. UPDRS rest tremor rating = 1   Entered as dichotomous variable in Cox proportional hazards model | Model 1: Age  Model 2: Model 1, race, education, depression, diabetes mellitus, heart disease, stroke, arthritis | Model 1: HR=2.24 (1.57,3.20), *P*<0.001  Model 2: HR=1.98 (1.37,2.88), *P* <0.001 |  |
| Waite (2005)  [32] | EP defined as present if one severe sign, one moderate and one mild sign, or three mild signs on severity graded measures of tone, bradykinesia, resting tremor, postural flexion, and glabella tap AND/OR EP gait changes assessed by the time to complete a 5-m return walk. Entered as dichotomous variable in logistic regression model. |  | *3 year follow-up:* OR=2.9 (0.8,9.9)  *6 year follow-up:* OR=1.4 (0.6,3.2) |  |
| Wilson (2003)  [33] | mUPDRS, average of bradykinesia, PIGD, rigidity, and tremor sign scores (range 0 to 100) entered as continuous covariate into Cox proportional hazards model. | Age, sex, education | HR=1.04 (1.02,1.07) |  |
| **TREMOR** | | | | **7.4** |
| Aggarwal (2006)  [24] | UPDRS, tremor related items scored as 0 to 100 based on % total possible score and entered as continuous covariate in Cox proportional hazards model. | Model 1: Age, sex, education, APOEε4 allele  Model 2: Model 1, stroke | Model 1: RR=1.01 (0.97,1.05)  Model 2: RR=1.00 (0.97,1.05) |  |
| Bermejo-Pareja (2007)  [39] | UPDRS motor portion, score on tremor related items used to define ET as present and entered as dichotomous variable in Cox proportional hazard model. | Model 1: Age, education  Model 2: Model 1, drinker, stroke, hypertension, depressive symptoms | **Any Dementia:**  Unadjusted RR=2.08 (1.24,3.50), *P=*0.006  Model 1: RR=1.66 (0.99,2.80), *P*=0.05  Model 2: RR=1.50 (0.88,2.54), *P*=0.14  **AD:**  Model 1: RR=1.59 (0.85,2.96), *P*=0.15  Model 2: RR=1.52 (0.81,2.87), *P*=0.20  **Non-AD type dementia:**  Model 1: RR=2.06 (0.81,5.23), *P*=0.13  Model 2: RR=1.82 (0.71,4.73), *P*=0.22 |  |
| Bugalho (2013)  [34] | UPDRS items 20 and 21, compared proportion of participants with > median score (4) that did versus did not develop dementia using Fisher’s exact test. |  | *P*=0.582 |  |
| Domellöf (2015)  [41] | UPDRS III, comparison of median score on tremor related items between those that did versus did not develop dementia using a non-parametric test. |  | **PDD:**  *P*=0.212 |  |
| Israeli-Korn (2010)  [29] | UPDRS items 20 and 21, tremor defined as present if score > 2 and entered as dichotomous covariate in logistic regression model. | Age | **AD:**  *P* >0.1 |  |
| Lee (2016)  [30] | Physician rated rest tremor entered as dichotomous variable in Cox proportional hazards model. |  | HR=0.51 (0.20,1.35), *P*=0.18 |  |
| Shill (2014)  [46] | Persistent tremor > 3 years without secondary cause or previous medical diagnosis of ET entered as dichotomous covariate in Cox proportional hazards model. | Model 1: Age, sex  Model 2: Model 1, APOEε4 allele | Unadjusted: HR=0.79 (0.33,1.85), *P*=0.58  Model 1: HR=0.50 (0.21,1.20), *P*=0.12  Model 2: HR=0.46 (0.17,1.23), *P*=0.12 |  |
| Thawani (2009)  [14] | Tremor score based off of 6 item assessment (range 0-12). ET defined as present if tremor score > 5.5 or if diagnosed by senior neurologist. Dichotomous covariate in Cox proportional hazards model | Model 1: Age, education, ethnicity  Model 2:  Model 1, medication.  Model 3: Mode1, cohort | Unadjusted: HR=2.78 (1.69,4.57), *P*<0.001  Model 1: HR=1.64 (0.99,2.72), *P*=0.055  Model 2: HR=1.71 (0.97,3.01), *P=*0.06  Model 3: HR=1.61 (0.97,2.67), *P*=0.07 |  |
| **BRADYKINESIA** | | | | **7.4** |
| Aggarwal (2006)  [24] | mUPDRS, bradykinesia related items scored as 0 to 100 based on % total possible score and entered as continuous covariate in Cox proportional hazards model | Model 1: Age, sex, education, APOEε4 allele  Model 2: Model 1, stroke | Model 1: RR=1.02 (1.00,1.04)  Model 2: RR=1.02 (1.00,1.04) |  |
| Bugalho (2013)  [34] | UPDRS items 23 to 27 score summed and split at median. Fisher’s exact test to assess if difference in number of participants with > median score who went on to develop dementia |  | *P*=0.053 |  |
| Domellöf (2015)  [41] | UPDRS III, comparison of median score on bradykinesia related items between those that did versus did not develop dementia using non-parametric test (unadjusted) and generalized linear model with tweedie log link function (adjusted) | Age, education, sex | **PDD:**  Unadjusted: *P*=0.026  Adjusted: *P*=0.102 |  |
| Israeli-Korn (2010)  [29] | UPDRS items 23 to 26, bradykinesia rated as present if score > 2 and entered as dichotomous covariate in logistic regression model. | Age | **AD:**  *P* >0.1 |  |
| Levy (2000)  [20] | UPDRS, score on bradykinesia related items entered as continuous covariate in Cox proportional hazards model. | Age, gender, education, duration of PD, use of dopaminergic agonists and anticholinergic medications | RR=1.09 (1.01,1.18) *P*=0.02 |  |
| **RIGIDITY** | | | | **7** |
| Aggarwal (2006)  [24] | UPDRS, rigidity related items scored as 0 to 100 based on % total possible score and entered as continuous covariate in Cox proportional hazards model. | Model 1: Age, sex, educational, APOEε4 allele  Model 2: Model 1, stroke | Model 1: RR=1.01 (0.99,1.04)  Model 2: RR=1.01 (0.99,1.04) |  |
| Bugalho (2013)  [34] | UPDRS item 22 score summed and split at median (1). Fisher’s exact test to assess if difference in number of participants with > median score who developed dementia. |  | *P*=0.039 |  |
| Domellöf (2015)  [41] | UPDRS III, comparison of median score on rigidity related items between those that did and did not convert to dementia using a non-parametric test (unadjusted), and generalized linear model with tweedie log link function (adjusted). | Age, education, sex | **PDD:**  Unadjusted: *P*=0.013  Adjusted: *P*=0.038 |  |
| Lee (2016)  [30] | Rigidity defined as present by physician. Dichotomous variable in Cox proportional hazards model. |  | HR=1.01 (0.47,2.18), *P=*0.98 |  |
| **Postural Instability Gait Difficulty (PIGD)** | | | | **6.8** |
| Aggarwal (2006)  [24] | UPDRS, gait disorder related items scored as 0 to 100 based on % total possible score and entered as continuous covariate in Cox proportional hazards model | Model 1: Age, sex, education, APOEε4 allele  Model 2: Model 1, stroke | Model 1: RR=1.02 (1.01,1.03)  Model 2: RR=1.02 (1.00,1.04) |  |
| Bugalho (2013)  [34] | UPDRS items 29 to 30 score summed and split at median (1). Fisher’s exact test used to assess if difference in number of participants with > median score who developed dementia |  | *P*=0.046 |  |
| Camicioli (2007)  [40] | Physician rated gait or posture abnormality was entered as a dichotomous variable into logistic regression model. | Age, sex, education | *Wave 1-2 (5 years)*  OR=3.17 (1.73,5.79), *P*<0.0001  *Wave 2-3 (additional 5 years)*  OR=4.41 (2.22,8.77), *P*<0.001 |  |
| Domellöf (2015)  [41] | UPDRS III, comparison of median score on PIGD related items between those that did and did not convert to dementia using a non-parametric test. |  | **PDD:**  *P*=0.162 |  |
| Gago (2009)  [35] | UPDRS III A: posture relevant items and B: gait relevant items, compared mean score between those who did versus did not convert to dementia using the Mann-Whitney *U* test. |  | A: *P*=0.80  B: *P*=0.12 |  |
| Zhu (2014)  [37] | SPES-SCOPA, PIGD score (range 0 to 12) = sum on items related to postural instability, gait, freezing, and walking. Entered as continuous covariate in Cox proportional hazards model. | Age, education, SCOPA-SLEEP-EDS, daily levodopa dose, disease duration, hallucinations, autonomic dysfunction, Hoehn & Yahr stage, dyskinesia score, Beck depression inventory, deep brain stimulation surgery | HR=1.04 (0.82,1.33), *P*=0.72 |  |
| **BALANCE** | | | | **7.3** |
| Lee (2015)  [38] | Poor one-leg balance = failed to maintain balance on dominant leg while flexing opposite knee for 5s.  A: Compared proportion of participants with poor balance who did versus did not develop dementia using a Chi-square test.  B: Dichotomous variable in logistic regression. | Age | A: Unadjusted: *P*<0.001  B: Adjusted: OR=2.27 (1.53,3.37), *P*<0.001 |  |
| Lee (2016)  [30] | Postural instability defined as present if retropulsion or fall in the presence of the fall test. Dichotomous variable in Cox proportional hazards model. | Model 1: Age  Model 2: Unclear | Unadjusted:HR=4.08 (1.99,8.37), *P*<0.001  Model 1: HR=3.51 (1.35,9.11), *P*=0.01  Model 2: HR=3.45 (1.30,9.11), *P*=0.013 |  |
| Wang (2006)  [23] | Standing balance, given one point for ability to hold each of four positions: side by side for 10s, semitandem for 10s, full tandem for 1 to 9s, and full tandem for 10s. Score from 0 to 4 entered into Cox proportional hazards model. | Model 1: Age, sex  Model 2: Model 1, education, APOEε4 allele, family history of AD, baseline CASI, CESD, CHD, CVD | **Any dementia:**  Model 1: HR=0.80 (0.72,0.89), *P*<0.001  Model 2: HR=0.87 (0.78,0.98), *P*<0.05  **AD:**  Model 1: HR=0.86 (0.75,0.97), *P*<0.05  Model 2: HR=0.93 (0.82,1.06), *P*>0.05 |  |
| **CHAIR STAND** | | | | **9** |
| Wang (2006)  [23] | Time to stand from a seated position in a chair to a standing position, repeated 5 times. Scored 0 to 4 based on quartiles used as cut-off points and entered as categorical covariate into Cox proportional hazards model. | Model 1: Age, sex  Model 2, Model 1, education, APOEε4 allele, family history of AD, CASI, CEDS, CHD, CVD | **Any dementia:**  Model 1: HR=0.86 (0.79,94), *P*<0.01  Model 2: HR=0.95 (0.86,1.05), *P*>0.05  **AD:**  Model 1: HR=0.87 (0.79,0.97), *P*<0.05  Model 2: HR=0.96 (0.96,1.08), *P*>0.05 |  |
| **QUANTITATIVE GAIT** | | | | **8.3** |
| Albala (2014)  [25] | A: Distance walked in 6 minutes compared between those who did versus did not develop dementia.  B: TUG time entered as continuous covariate in logistic regression model.  C: Dichotomized TUG >10s as low gait velocity and entered into logistic regression model. | B & C: Age, sex, physical activity, education | A: *P*=0.04  B: RR=1.22 (1.03,1.45), *P*=0.022  C: RR=3.65 (1.36,9.80), *P*=0.010 |  |
| Anang (2014)  [19] | TUG, gait velocity (s) entered as continuous covariate in logistic regression model. | Age, sex, PD disease duration, follow-up duration | OR=1.09 (0.84,1.40), *P*=0.60 |  |
| Camargo (2016)  [17] | Walking speed (m/s) when asked to walk as fast as possible for 4m. Cox proportional hazards models:  A: Gait speed as standardized z-scores within 10-year age categories entered as a continuous covariate.  B: Slow gait speed classified as lowest 5th percentile (< 1m/s) and entered as dichotomous covariate. | Age, sex, diabetes mellitus, SBP, CVD, atrial fibrillation, smoking, waist-to-hip ratio, total cholesterol level, APOEε4 allele, total plasma homocysteine level, physical activity | **Any dementia:**  A: HR=1.76 (1.20,2.58), *P*=0.004  B: HR=2.53 (1.11,5.74), *P*=0.027  *Restricted to participants >65 years old:*  A: HR=1.19 (1.24,2.93), *P*=0.003  B: HR=2.72 (1.15,6.41), *P*=0.023  **AD:**  A: HR=1.68 (1.11,2.54), *P*=0.014  B: HR=2.92 (1.19,7.14), *P*=0.019  *Restricted to participants >65 years old:*  A: HR=1.78 (1.14,2.79), *P*=0.012  B: HR=2.98 (1.19,7.47), *P*=0.020 |  |
| Dumurgier (2016)  [16] | Walk 6m at usual pace with walking aids, if needed.  Multistate (illness-death) models:  A: Gait speed modeled as continuous covariate whereby risk estimate is for every 1-SD lower speed (SD=0.204 m/s)  B: Slow gait speed defined as < 1.0 m/s and entered as dichotomous variable | Age, sex | **Any dementia:**  A: HR=1.59 (1.39,1.81), *P*<0.001  B: HR=2.28 (1.76,2.96), *P*<0.001  **AD:**  A: HR=1.47 (1.27,1.71), *P*<0.001  B: HR=2.08 (1.55,2.80), *P*<0.001  **VaD:**  B: HR=12.11 (4.04,36.31) |  |
| Gray (2013)  [43] | Walk at usual pace for 10-feet with walking aids, if needed. Two trials, average taken. Slow walking speed defined as <0.6m/s and entered as dichotomous variable in Cox proportional hazards model. | Age, sex, education, race, BMI, depressive symptoms, antidepressant scale, self-reported health, hypertension, diabetes, myocardial infarction, congestive heart failure, smoking status, CASI | **Any dementia:**  HR=1.27 (0.96,1.69)  **Possible or Probable AD:**  HR=1.16 (0.85,1.59)  **Non-AD dementia:**  HR=2.13 (1.09,4.16) |  |
| Montero-Odasso (2016)  [45] | Walk at usual pace for 6m. Slow gait velocity defined as <1m/s and entered as dichotomous covariate in Cox proportional hazards model. | Age, sex, education, number of comorbidities | **Any dementia:**  HR=4.93 (1.71,14.21), *P*=0.003 |  |
| Verghese (2007)  [47] | Pace, rhythm and variability summary factors obtained from factor analysis with orthogonal varimax rotation applied to individual gait parameters (velocity, cadence, stride length, stride length variability, swing time, swing time variability, stance time, double support time) measured with computerised walkway with embedded pressure sensors. The three summary factors were entered into Cox proportional hazards model. | Model 1: age, sex, education  Model 2: Model 1, baseline memory  Model 3: Model 1, executive function  Model 4: Model 1, neurologic gaits, chronic illness, Hachinski ischemic score | **Any dementia:**  Model 1: Pace: HR=1.30 (0.95,1.78)  Rhythm: HR=1.48 (1.03,2.14)  Variability: HR=1.37 (1.05,1.78)  Model 2: Rhythm: HR=1.36 (0.86,2.13)  Variability: HR=1.56 (1.10,2.23)  Model 3: Rhythm: HR=1.48 (1.01,2.15)  Variability: HR=1.29 (0.99,1.67)  Model 4: Rhythm: HR=1.55 (1.06,2.27)  Variability: HR=1.35 (1.03,1.76)  **AD:**  Model 1: Pace: HR=0.95 (0.48,1.88)  Rhythm: HR=1.55 (0.81,2.99)  Variability: HR=1.18 (0.67,2.00)  **VaD:**  Model 1: Pace: HR=1.60 (1.06,2.41)  Rhythm: HR=1.59 (0.95, 2.67)  Variability: HR=1.22 (0.78,1.9) |  |
| Verghese (2013)  [48] | Slow gait velocity (cm/s) classified by age and sex:   * aged 70-74 men <80.7, women: <77.8 * aged 75-79 men: <79.1, women <71.4 * aged 80-84: men:<74.1, women: <66.2 * aged 85+ men: <65.9, women <57.5   Entered as dichotomous variable in Cox proportional hazards model. |  | **Any type Dementia**:  HR=1.7 (0.8,3.2)  **VaD:**  HR=4.5 (1.8,11.4) |  |
| Verghese (2014)  [27] | Slow gait defined as 1 SD below age- and sex-specific means individualized to each cohort | Age, sex, education, cohort source, baseline MMSE, vascular disease | HR=1.77 (1.38,2.27) |  |
| Wang (2006)  [23] | Walk for 10-feet, time scored from 0 to 4 (higher=better) based on sex-specific quartiles from the study population. Entered as categorical variable in Cox proportional hazards model | Model 1: Age, sex  Model 2: Model 1, education, APOEε4 allele, family history of AD, CASI, CESD, CHD, CVD | **Any dementia:**  Model 1: HR=0.68 (0.62,0.76), *P*<0.001  Model 2: HR=0.79 (0.70,0.89), *P*<0.001  **AD:**  Model 1: HR=0.70 (0.62,0.79), *P*<0.001  Model 2: HR=0.81 (0.71,0.94), *P*<0.01 |  |
| Welmer (2014)  [22] | Walk 2.4m or 6m at self-selected pace, depending on self-report of normal walking pace. Gait velocity (m/s) regardless of distance walked was converted to normalized scores using baseline mean and SD as standardization base and entered into logistic regression (Model 1 results are for 1SD lower gait speed) and linear mixed-effects models (Model 2 & 3) | Model 1: Age, gender, education, stroke, pain  Model 2: Model 1, baseline processing speed  Model 3: Model 1, global cognition | Model 1: OR=1.61 (1.31,1.98)  Model 2: OR=1.26 (1.01,1.58)  Model 3: OR=1.45 (1.17,1.80) |  |
| **CLINICAL GAIT** | | | | **8** |
| Ramakers (2007)  [49] | Medical Records, indications of gait disturbances (falls or problems with walking) entered as dichotomous covariate into logistic regression model. |  | **Stroke included in analyses:**  Gait disturbance present # years prior to dementia diagnosis:  5 years prior: OR=3.5 (1.2,10.0)  4 years prior: OR=1.5 (0.6,3.6)  3 years prior: OR=3.8 (1.4,11.0)  2 years prior: OR=2.2 (0.98,4.9)  1 year prior: OR=6.1 (3.1,12.0)  **Stroke removed from analyses:**  5 years prior: OR=3.3, *P* *<*0.05  4 years prior: OR=1.3, *P* *>*0.05  3 years prior: OR=5.2, *P* *<*0.01  2 years prior: OR=2.5, *P* *<*0.05  1 year prior: OR=7.3, *P* *<*0.001 |  |
| Verghese (2002)  [21] | Clinical examination, 7 classifications of abnormal neurological gait patterns:   1. Unsteady: if two or more of marked swaying, loss of balance, or falls while walking, or walking in a straight line placing one foot directly in front of the other 2. Ataxic (resulting from cerebral ataxia): wide based gait with other features associated with cerebellar disease, such as heel-to-shin incoordination or intention tremor 3. Frontal gait: characterized by short steps, a wide base, and difficulty in picking the feet off the floor (magnetic response) 4. Parkinsonian: small, shuffling steps, have a flexed posture, do not swing their arms, make en bloc turns, exhibit festination, and have postural instability 5. Neuropathic: unilateral or bilateral foot drop and other neuropathic signs 6. Hemiparetic gait: swinging legs outward and in a semicircle from the hip (circumduction). Usually have a history or other clinical signs of stroke 7. Spastic gait: both legs circumduct, and when this abnormality is severe, the legs cross in front of one another (scissoring)   Entered as dichotomous covariates in Cox proportional hazards model. | Age, education, sex, stroke, cardiac disease, hypertension, diabetes, head injury, baseline-cognitive status | **Any Dementia:**  Any Abnormal: RR=2.03 (1.39,2.99)  Adjusted:  Any Abnormal: HR=1.96 (1.30,2.96)  Unsteady: HR=1.68 (0.94,3.01)  Frontal: HR=2.36 (0.85,6.59)  Hemiparetic: HR=5.53 (2.49,12.27)  Neuropathic: HR=0.93 (0.29,2.05)  Ataxic: HR=0.93 (0.32,2.66)  Parkinsonian: HR=1.02 (0.32,3.31)  Spastic: insufficient # of observations  **Non-AD type Dementia:**  Any Abnormal: RR=3.75 (2.20,6.38)  Adjusted:  Any Abnormal: HR=3.51 (1.98,6.24)  Unsteady: HR=2.43 (1.13,5.23)  Frontal: HR=3.45 (1.03,11.55)  Hemiparetic: HR=11.66 (4.45,30.54)  Neuropathic: HR = 0.66 (0.90, 5.01)  Ataxic: HR=0.62 (0.08,4.84)  Parkinsonian: HR=1.36 (0.31,5.99)  **VaD:**  Any Abnormal: RR=3.91 (2.20,6.94)  Adjusted:  Any Abnormal: HR=3.46 (1.86,6.42)  Unsteady: HR=2.61 (1.14,5.99)  Frontal: HR=4.32 (1.26,14.83)  Hemiparetic: HR=13.13 (4.81,35.81)  Neuropathic: HR=0.79 (0.10,6.02)  Ataxic: HR=0.57 (0.07,4.51)  Parkinsonian: HR=0.75 (0.10,5.72)  **AD:**  Any Abnormal: RR=1.1 (0.60,2.01)  **Other Dementia:**  Any Abnormal: RR=2.9 (0.69,12.14) |  |
| Verghese (2007)  [13] | A: High-Risk Neurological Gait Syndrome classified as the presence of any one of hemiparetic, frontal, or unsteady gait.  B: Any abnormal neurological gait.  Dichotomous covariates in Cox proportional hazards models. | Age, sex, education, prior strokes | **VaD:**  *3-years:*  A: HR=3.3 (1.82,5.99), *P*=0.04  B: HR=2.4 (1.3,4.2), *P*=0.11)  *5-years:*  A: HR=2.66 (1.69,4.18), *P*=0.03 |  |

**Legend (in order of appearance):** CI=Confidence Interval; NOS=Newcastle-Ottawa Quality Assessment Scale; APOE = Apolipoprotein E; AD=Alzheimer’s Disease; CASI=Cognitive Abilities Screening Instrument; CESD=Centre for Epidemiologic Studies Depression Scale; CHD=Coronary heart disease; CVD=Cardiovascular disease; HR=Hazard Ratio; RR=Relative Risk; PD=Parkinson’s Disease; OR=Odds Ratio; BMI=Body Mass Index; SES=Socioeconomic status; kg=kilogram; SBP=Systolic Blood Pressure; UPDRS = Unified Parkinson Disease Rating Scale; mUPDRS = Modified version of the UPDRS motor portion; EP = extrapyramidal features (bradykinesia, rigidity and tremor); PIGD = postural instability and gait difficulty parkinsonism subtype; ET=Essential Tremor; SPES-SCOPA= Short Parkinson’s Evaluation Scale-Scales for outcomes in Parkinson’s Disease; EDS=Excessive Daytime Sleepiness; s=seconds; TUG=Timed Up and Go Test; m=metre.