Supplementary Table 1 Definition of Comorbidities.

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| --- | --- |
| Comorbidity | Data sources & coding |
| Cardiovascular disease | Special reimbursement register codes 201 (heart failure), 205 (hypertension), 206, 213, 280 (coronary artery disease) |
| Diabetes | Prescription register: ATC code A10 excluding A10BX01(guar gum)  Special reimbursement register code 103 |
| Stroke | Care register for health care ICD-10 I60-I64, I69 |
| Asthma/chronic obstructive pulmonary disease | Special reimbursement register code 203  Care register for health care ICD-10 J44-J46 |
| Hip fracture | Care register for health care ICD-10 S72.0-S72.2 |
| Rheumatoid arthritis | Special reimbursement register code 202 |
| Cancer | Care register for health care ICD-10 C  Prescription register: ATC codes L01 (antineoplastic agents), L02 (endocrine therapy), L03AA (colony stimulating factors), L03AB01 (interferon alpha natural), L03AB04 (interferon alpha-2a), L03AB05 (interferon alpha-2b), L03AC (interleukins), L03AX (other immunostimulants, excluding L03AX13, glatiramer acetate), L04AA10 (sirolimus), L04AA18 (everolimus), L04AA34 (alemtuzumab), L04AX02 (thalidomide), and L04AX03 or L01BA01 (methotrexate, excluding persons with a Special Reimbursement for rheumatoid arthritis) |

Supplementary Table 2 Distribution of Comorbidities in the AD and Comparison Cohorts According to Mortality

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| --- | --- | --- | --- | --- | --- | --- |
| Comorbidity | AD cohort n (%) | | | Comparison cohort n (%) | | |
| Alive, n=10,893 | Dead, n=20,470 | P | Alive, n=14,362 | Dead, n=10,171 | P |
| Cardiovascular disease | 4,576 (42.0) | 10,442 (51.0) | <0.001 | 5,992 (41.7) | 5,821 (57.2) | <0.001 |
| Diabetes | 1,947 (17.9) | 4,843 (23.7) | <0.001 | 913 (6.4) | 1,273 (12.5) | <0.001 |
| Stroke | 434 (4.0) | 1,253 (6.1) | <0.001 | 392 (2.7) | 938 (9.2) | <0.001 |
| Asthma/Chronic obstructive pulmonary disease | 830 (7.6) | 1,753 (8.6) | 0.004 | 1,069 (7.4) | 1,099 (10.8) | <0.001 |
| Hip fracture | 192 (1.8) | 707 (3.5) | <0.001 | 145 (1.0) | 443 (4.4) | <0.001 |
| Rheumatoid arthritis | 330 (3.0) | 888 (4.3 | <0.001 | 442 (3.1) | 524 (5.2) | <0.001 |
| Active cancer treatment | 916 (8.4) | 2,380 (11.6) | <0.001 | 690 (4.8) | 901 (8.9) | <0.001 |

Supplementary Table 3 Frequency of Main and Indirect Causes of Death in the AD and Comparison Cohorts of the MEDALZ-2005 Study. Only Those Causes With Frequency >0.5% in Either of the Cohorts Are Listed.

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| --- | --- | --- | --- |
| ICD-10 code | Disease | Comparison cohort, n (%) | AD cohort, n (%) |
| I25 | Chronic ischemic heart disease | 1925 (18.9) | 2008 (9.8) |
| I21 | Acute myocardial infarction | 1256 (12.3) | 1707 (8.3) |
| I63 | Cerebral infarction | 607 (6.0) | 961 (4.7) |
| I61 | Nontraumatic intracerebral hemorrhage | 159 (1.6) | 232 (1.1) |
| I70 | Atherosclerosis | 105 (1.0) | 182 (0.9) |
| I69 | Sequelae of cerebrovascular disease | 272 (2.7) | 180 (0.9) |
| I11 | Hypertensive heart disease | 197 (1.9) | 175 (0.9) |
| I50 | Heart failure | 153 (1.5) | 150 (0.7) |
| I48 | Atrial fibrillation and flutter | 105 (1.0) | 125 (0.6) |
| I35 | Nonrheumatic aortic valve disorders | 132 (1.3) | 87 (0.4) |
| I64 | Stroke, not specified as haemorrhage or infarction | 37 (0.4) | 116 (0.6) |
| I71 | Aortic aneurysm and dissection | 103 (1.0) | 89 (0.4) |
| G30 | Alzheimer's disease | 282 (2.8) | 9880 (48.3) |
| G20 | Parkinson's disease | 100 (1.0) | 158 (0.8) |
| G31 | Other degenerative diseases of nervous system, not elsewhere classified | 22 (0.2) | 130 (0.6) |
| C34 | Malignant neoplasm of bronchus and lung | 283 (2.8) | 173 (0.8) |
| C61 | Malignant neoplasm of prostate | 174 (1.7) | 141 (0.7) |
| C25 | Malignant neoplasm of pancreas | 166 (1.6) | 136 (0.7) |
| C18 | Malignant neoplasm of colon | 134 (1.3) | 110 (0.5) |
| C50 | Malignant neoplasm of breast | 118 (1.2) | 107 (0.5) |
| C16 | Malignant neoplasm of stomach | 70 (0.7) | 71 (0.3) |
| C80 | Malignant neoplasm without specification of site | 54 (0.5) | 65 (0.3) |
| C22 | Malignant neoplasm of liver and intrahepatic bile ducts | 74 (0.7) | 64 (0.3) |
| C20 | Malignant neoplasm of rectum | 61 (0.6) | 59 (0.3) |
| C67 | Malignant neoplasm of bladder | 67 (0.7) | 50 (0.2) |
| C64 | Malignant neoplasm of kidney, except renal pelvis | 53 (0.5) | 45 (0.2) |
| C56 | Malignant neoplasm of ovary | 58 (0.6) | 34 (0.2) |
| C83 | Non-follicular lymphoma | 55 (0.5) | 36 (0.2) |
| F03 | Unspecified dementia | 413 (4.1) | 243 (1.2) |
| F01 | Vascular dementia | 306 (3.0) | 175 (0.9) |
| J44 | Other chronic obstructive pulmonary disease | 202 (2.0) | 181 (0.9) |
| J18 | Pneumonia, unspecified organism | 119 (1.2) | 64 (0.3) |
| J84 | Other interstitial pulmonary diseases | 69 (0.7) | 34 (0.2) |
| W01 | Fall on same level from slipping, tripping and stumbling | 170 (1.7) | 294 (1.4) |
| N10 | Acute pyelonephritis | 51 (0.5) | 52 (0.3) |
| E11 | Type 2 diabetes mellitus | 100 (1.0) | 102 (0.5) |

Supplementary Table 4 Odds Ratios for Having AD Listed as Main or Any Cause of Death According to Time since AD Diagnosis.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Time since AD diagnosis (years) | AD as main cause of death | | | AD as any cause of death | | |
| n (%) with other main cause | n (%) with AD as main cause | OR (95% CI) | n (%) with no mention of AD | n (%) with AD as any cause | OR (95% CI) |
| <1 | 150 (1.4) | 22 (0.2) | 1.00 (reference) | 109 (1.8) | 63 (0.4) | 1.00 (reference) |
| 1 | 666 (6.3) | 174 (1.8) | 1.78 (1.10-2.87) | 455 (7.7) | 385 (2.6) | 1.46 (1.04-2.05) |
| 2 | 1215 (11.5) | 478 (4.8) | 2.68 (1.69-4.25) | 778 (13.1) | 915 (6.3) | 2.03 (1.47-2.82) |
| 3 | 1521 (14.4) | 872 (8.8) | 3.91 (2.48-6.16) | 894 (15.1) | 1499 (10.3) | 2.90 (2.10-4.00) |
| 4 | 1606 (15.2) | 1174 (11.9) | 4.98 (3.17-7.85) | 927 (15.6) | 1853 (12.7) | 3.46 (2.51-4.76) |
| 5 | 1523 (14.4) | 1386 (14.0) | 6.20 (3.94-9.76) | 826 (13.9) | 2083 (14.3) | 4.36 (3.17-6.01) |
| 6 | 1370 (12.9) | 1436 (14.5) | 7.15 (4.54-11.25) | 708 (11.9) | 2098 (14.4) | 5.13 (3.72-7.07) |
| 7 | 1120 (10.6) | 1452 (14.7) | 8.84 (5.61-13.92) | 557 (9.4) | 2015 (13.9) | 6.26 (4.53-8.65) |
| 8 | 718 (6.8) | 1165 (11.8) | 11.06 (7.00-17.47) | 351 (5.9) | 1532 (10.5) | 7.55 (5.42-10.52) |
| 9 | 368 (3.5) | 804 (8.1) | 14.90 (9.36-23.69) | 173 (2.9) | 999 (6.9) | 9.99 (7.04-14.17) |
| 10 | 190 (1.8) | 471 (4.8) | 16.90 (10.48-27.26) | 86 (1.4) | 575 (4.0) | 11.57 (7.88-16.99) |
| 11 | 98 (0.9) | 266 (2.7) | 18.51 (11.18-30.63) | 50 (0.8) | 314 (2.2) | 10.87 (7.06-16.71) |
| 12 | 30 (0.3) | 111 (1.1) | 25.23 (13.81-46.08) | 11 (0.2) | 130 (0.9) | 20.45 (10.26-40.73) |
| 13 | 12 (0.1) | 58 (0.6) | 32.95 (15.32-70.88) | 5 (0.1) | 65 (0.4) | 22.49 (8.60-58.80) |
| 14 | 3 (<0.1) | 11 (0.1) | 25.00 (6.46-96.70) | 3 (0.1) | 11 (0.1) | 6.34 (1.71-23.60) |