

Supplementary Table S1: Hazard ratios (multivariate Cox proportional hazards regression analysis) of the study cohort for Model 1 and Model 2.

All dementia	Crude HR (95% CI)	Adjusted HR (95% CI)
Model 1	2.285 (2.179–2.397)***	1.807 (1.643–1.988)***
Model 2	1.466 (1.461–1.470)***	1.462 (1.457–1.466)***

Model 1 adjusted for age group, sex, hypertension, DM, IHD, hyperlipidemia, TUD, alcoholism, obesity, AF, PD, CVA, depression, CKD, and CAI; all variables in the model were significant in univariate analysis.

Model 2 adjusted for age (continuous variable), sex, hypertension, DM, IHD, hyperlipidemia, TUD, alcoholism, obesity, AF, PD, CVA, depression, CKD, and CAI; all variables in the model were significant in univariate analysis.

Abbreviation: HR: hazard ratio; CI: confidence interval; PYs: person-years; Rate: incidence per 10,000 person-years; VBI: Vertebrobasilar insufficiency; DM: diabetes mellitus; IHD: Ischemic heart disease; TUD: Tobacco use disorder; AF: Atrial fibrillation; PD: Parkinson's disease; CVA: cerebral vascular accident; CKD: chronic kidney disease; CAI: carotid artery insufficiency.

*** $p < 0.001$

Supplementary Table S2: Incidence of dementia and dementia subtype and multivariate Cox proportional hazards regression analysis measured hazard ratio for study cohort

Variable	VBI cohort			Comparison cohort			Crude HR (95% CI)	Adjusted HR (95% CI)
	Event	PYs	Rate	Event	PYs	Rate		
All dementia	607	14,802	41.01	1,396	62,194	22.45	2.285 (2.179-2.397)***	1.807 (1.643-1.988)***
AD	64	14,802	4.32	138	62,194	2.22	2.356 (2.031-2.732)***	1.921 (1.428-2.583)***
VD	51	14,802	3.45	126	62,194	2.03	2.212 (1.879-2.603)***	1.693 (1.222-2.344)**
non-VD	492	14,802	33.24	1,132	62,194	18.20	2.283 (2.165-2.407)***	1.803 (1.622-2.044)***
<65 yrs								
All dementia	72	6,388	11.27	97	25,961	3.74	3.012 (1.745-5.642)***	2.997 (1.451-6.454)***
AD	6	6,388	0.94	6	25,961	0.23	3.298 (1.844-5.312)**	3.011 (1.125-7.435)*
VD	5	6,388	0.78	2	25,961	0.08	5.101 (2.344-10.998)**	4.398 (1.456-9.962)**
non-VD	61	6,388	9.55	89	25,961	3.43	3.009 (1.725-6.894)***	2.864 (1.313-6.797)***
≥65 yrs								
All dementia	535	8,415	63.58	1,299	36,234	35.85	2.250 (2.140-2.366)***	1.752 (1.584-1.937)***
AD	58	8,415	6.89	132	36,234	3.64	2.318 (1.986-2.705)***	1.859 (1.365-2.531)***
VD	46	8,415	5.47	124	36,234	3.42	2.144 (1.810-2.539)***	1.590 (1.133-2.331)**
non-VD	431	8,415	51.22	1,043	36,234	28.79	2.251 (2.129-2.382)***	1.754 (1.568-1.963)***
Male								
All dementia	300	7,058	42.51	721	29,709	24.27	2.337 (2.092-2.393)***	1.732 (1.514-1.981)***
AD	30	7,058	4.25	70	29,709	2.36	2.267 (1.830-2.808)**	1.778 (1.159-2.728)**
VD	24	7,058	3.40	76	29,709	2.56	1.953 (1.553-2.457)*	1.320 (0.834-2.089)
non-VD	246	7,058	34.86	575	29,709	19.35	2.300 (2.133-2.479)***	1.830 (1.575-2.126)***
Female								

All dementia	307	7,745	39.64	675	32,485	20.78	2.336 (2.183-2.498)***	1.888 (1.649-2.160)***
AD	34	7,745	4.39	68	32,485	2.09	2.445 (1.991-3.004)***	2.069 (1.371-3.112)**
VD	27	7,745	3.49	50	32,485	1.54	2.553 (2.021-3.227)**	2.256 (1.413-3.604)*
non-VD	246	7,745	31.76	557	32,485	17.15	2.266 (2.103-2.442)***	1.777 (1.531-2.063)***

Model adjusted for age, sex, hypertension, DM, IHD, hyperlipidemia, TUD, alcoholism, obesity, AF, PD, CVA, depression, CKD, and CAI; all variables in the model were significant in univariable analysis.

Interaction: VBI × Age groups: P = 0.025*, VBI × Sex: P = 0.679

Abbreviation: PYs: person-years; Rate: incidence rate, per 10,000 person-years; VBI: Vertebrobasilar insufficiency; DM: diabetes mellitus; IHD: Ischemic heart disease; TUD: Tobacco use disorder; AF: Atrial fibrillation; PD: Parkinson's disease; CVA: cerebral vascular accident; CKD: chronic kidney disease; CAI: carotid artery insufficiency; AD: Alzheimer's disease; VD: Vascular dementia; non-VD: Non-vascular dementia

*p<0.05; **p<0.01; ***p<0.001

Supplementary Table S3: Incidence of dementia and dementia subtype and multivariate Cox proportional hazards regression analysis measured hazard ratio for study cohort by various time intervals

Variable	VBI cohort			Comparison cohort			Crude HR (95% CI)	Adjusted HR (95% CI)
	Event	PYs	Rate	Event	PYs	Rate		
Follow <1 yr								
All dementia	248	118	2,100.27	508	296	1,713.44	1.958 (1.814-2.112)***	1.326 (1.139-1.544)***
AD	27	118	228.66	53	296	178.76	1.993 (1.580-2.513)*	1.374 (0.864-2.185)
VD	17	118	143.97	42	296	141.66	1.825 (1.375-2.423)*	1.152 (0.654-2.031)
non-VD	204	118	1,727.64	413	296	1,393.01	1.966 (1.808-1.924)**	1.337 (1.131-1.281)*
Follow $\geq 1, < 2$ yrs								
All dementia	112	287	390.76	206	871	236.60	2.251 (2.006-2.527)***	1.753 (1.392-2.209)***
AD	13	287	45.36	20	871	22.97	2.521 (1.771-3.588)**	2.199 (1.085-4.454)*
VD	15	287	52.33	18	871	20.67	2.781 (1.974-3.919)**	2.676 (1.348-5.314)**
non-VD	84	287	293.07	168	871	192.96	2.153 (1.888-2.455)***	1.604 (1.233-2.085)***
Follow ≥ 2 yrs								
All dementia	247	14,398	17.16	682	61,027	11.18	2.108 (1.960-2.267)***	1.537 (1.329-1.778)***
AD	24	14,398	1.67	65	61,027	1.07	2.125 (1.707-2.685)**	1.562 (1.008-2.945)*
VD	19	14,398	1.32	66	61,027	1.08	1.888 (1.462-2.437)*	1.233 (0.740-2.055)
non-VD	204	14,398	14.17	551	61,027	9.03	2.126 (1.962-2.304)***	1.564 (1.332-1.837)***

Model adjusted for age, sex, hypertension, DM, IHD, hyperlipidemia, TUD, alcoholism, obesity, AF, PD, CVA, depression, CKD, and CAI; all variables in the model were significant in univariate analysis.

Interaction: VBI \times follow-up groups: P = 0.726

Abbreviation: PYs: person-years; Rate: incidence rate, per 10,000 person-years; VBI: Vertebrobasilar insufficiency; DM: diabetes mellitus; IHD: Ischemic heart disease; TUD: Tobacco use disorder; AF: Atrial fibrillation; PD: Parkinson's disease; CVA: cerebral vascular accident;

CKD: chronic kidney disease; CAI: carotid artery insufficiency; AD: Alzheimer's disease; VD: Vascular dementia; non-VD: Non- vascular dementia

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Supplementary Table S4: Multivariate Cox proportional hazards regression and competing risk model analysis measured hazard ratio for study cohort

	No competing risk in the model	Competing risk in the model #
	Adjusted HR (95% CI)	Adjusted HR (95% CI)
All dementia	1.807 (1.643-1.988)***	1.725 (1.452-1.996)***
AD	1.921 (1.428-2.583)***	1.843 (1.345-2.411)***
VD	1.693 (1.222-2.344)**	1.551 (1.267-2.121)**
non-VD	1.803 (1.622-2.044)***	1.704 (1.579-2.008)***
<65 yrs		
All dementia	2.997 (1.451-6.454)***	2.845 (1.376-5.897)**
AD	3.011 (1.125-7.435)*	3.004 (1.095-7.154)*
VD	4.398 (1.456-9.962)**	4.124 (1.398-8.969)**
non-VD	2.864 (1.313-6.797)***	2.765 (1.265-5.441)**
≥65 yrs		
All dementia	1.752 (1.584-1.937)***	1.672 (1.434-1.963)***
AD	1.859 (1.365-2.531)***	1.743 (1.307-2.442)***
VD	1.590 (1.133-2.331)**	1.484 (1.039-2.381)**
non-VD	1.754 (1.568-1.963)***	1.632 (1.435-1.976)***
Male		
All dementia	1.732 (1.514-1.981)***	1.644 (1.464-1.886)**
AD	1.778 (1.159-2.728)**	1.634 (1.267-2.456)**
VD	1.320 (0.834-2.089)	1.299 (0.855-1.976)
non-VD	1.830 (1.575-2.126)***	1.801 (1.434-2.011)**
Female		
All dementia	1.888 (1.649-2.160)***	1.799 (1.543-2.204)***
AD	2.069 (1.371-3.112)**	2.000 (1.243-3.004)*
VD	2.256 (1.413-3.604)*	2.142 (1.333-2.986)*
non-VD	1.777 (1.531-2.063)***	1.638 (1.568-2.125)***

#Fine and Gray's competing risk model

Model adjusted for age, sex, hypertension, DM, IHD, hyperlipidemia, TUD, alcoholism, obesity, AF, PD, CVA, depression, CKD, and CAI; all variables in the model was significant in univariable analysis.

Abbreviation: VBI: Vertebrobasilar insufficiency; DM: diabetes mellitus; IHD: Ischemic heart disease; TUD: Tobacco use disorder; AF: Atrial fibrillation; PD: Parkinson's disease; CVA: cerebral vascular accident; CKD: chronic kidney disease; CAI: carotid artery insufficiency; AD: Alzheimer's disease; VD: Vascular dementia; non-VD: Non- vascular dementia

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Supplementary Table S5: Multivariate Cox proportional hazards regression and competing risk model analysis measured hazard ratio for study cohort by various time intervals

	No competing risk in the model	Competing risk in the model [#]
	Adjusted HR (95% CI)	Adjusted HR (95% CI)
Follow <1 yr		
All dementia	1.326 (1.139-1.544)***	1.234 (1.102-1.495)**
AD	1.374 (0.864-2.185)	1.279 (0.895-1.975)
VD	1.152 (0.654-2.031)	1.103 (0.677-2.042)
non-VD	1.337 (1.131-1.281)*	1.267 (1.098-1.334)*
Follow $\geq 1, < 2$ yrs		
All dementia	1.753 (1.392-2.209)***	1.697 (1.328-2.121)**
AD	2.199 (1.085-4.454)*	2.012 (1.102-4.078)*
VD	2.676 (1.348-5.314)**	2.530 (1.225-5.110)**
non-VD	1.604 (1.233-2.085)***	1.597 (1.164-1.998)**
Follow ≥ 2 yrs		
All dementia	1.537 (1.329-1.778)***	1.502 (1.244-1.896)**
AD	1.562 (1.008-2.945)*	1.537 (1.002-2.764)*
VD	1.233 (0.740-2.055)	1.206 (0.779-1.976)
non-VD	1.564 (1.332-1.837)***	1.521 (1.254-1.790)**

[#]Fine and Gray's competing risk model

Model adjusted for age, sex, hypertension, DM, IHD, hyperlipidemia, TUD, alcoholism, obesity, AF, PD, CVA, depression, CKD, and CAI; all variables in the model was significant in univariable analysis.

Abbreviation: VBI: Vertebrobasilar insufficiency; DM: diabetes mellitus; IHD: Ischemic heart disease; TUD: Tobacco use disorder; AF: Atrial fibrillation; PD: Parkinson's disease; CVA: cerebral vascular accident; CKD: chronic kidney disease; CAI: carotid artery insufficiency; AD: Alzheimer's disease; VD: Vascular dementia; non-VD: Non- vascular dementia

* $p<0.05$; ** $p<0.01$; *** $p<0.001$