

Supplementary Material

Article Title: Association Between Autoimmune Diseases, Treatments, and Dementia Risk: A Population-Based Case-Control Study from Taiwan

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DISCLAIMER

This Supplementary Material has been provided by the authors as an enhancement to the published article. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

Supplementary Table 1. Baseline Demographics and Clinical Features in Dementia and Comparison Groups by Dementia Subtypes

	Alzheimer's diseases (n=110,294)	Comparisons (n=441,176)	SMD	Dementia (n=133,459)	Comparisons (n=553,836)	SMD
	N (%)	N (%)		N (%)	N (%)	
Age, year	78.5 ± 8.0	78.5 ± 8.0	0.00	78.5 ± 8.1	78.5 ± 8.1	0.00
55-64	3,232 (3%)	12,926 (3%)	0.00	6,366 (5%)	25,464 (5%)	0.00
65-74	29,934 (27%)	119,735 (27%)	0.00	33,698 (25%)	134,794 (25%)	0.00
75-84	53,206 (48%)	212,823 (48%)	0.00	61,324 (46%)	245,298 (46%)	0.00
85+	23,923 (22%)	95,691 (22%)	0.00	32,070 (24%)	128,281 (24%)	
Sex						0.00
Male	41,647 (38%)	166,588 (38%)	0.00	64,060 (48%)	256,241 (48%)	0.00
Female	68,647 (62%)	274,588 (62%)	0.00	69,399 (52%)	277,595 (52%)	
Residency						0.00
Urban	57,011 (52%)	214,456 (49%)	0.04	64,394 (48%)	259,177 (49%)	0.00
Suburban	35,978 (33%)	154,323 (35%)	-0.04	46,991 (35%)	186,202 (35%)	0.00
Rural	17,305 (16%)	72,397 (16%)	-0.01	22,074 (17%)	88,457 (17%)	
Comorbid conditions						0.05
Myocardial infarction	2,338 (2%)	9,088 (2%)	0.00	4,017 (3%)	10,730 (2%)	0.10
Congestive heart failure	12,364 (11%)	48,485 (11%)	0.00	19,912 (15%)	54,078 (10%)	0.52
Cerebrovascular disease	27,066 (25%)	81,706 (19%)	0.10	66,543 (50%)	93,368 (17%)	0.06

Chronic pulmonary disease	28,809 (26%)	106,853 (24%)	0.03	35,140 (26%)	119,846 (22%)	0.02
Chronic liver disease	18,540 (17%)	63,397 (14%)	0.05	18,150 (14%)	66,302 (12%)	0.02
Chronic liver disease	412 (0%)	1,399 (0%)	0.01	561 (0%)	1,495 (0%)	-0.01
Cancer	11,040 (10%)	43,191 (10%)	0.01	11,664 (9%)	48,793 (9%)	0.18
Hypertension	71,437 (65%)	278,206 (63%)	0.03	95,717 (72%)	318,487 (60%)	0.08
Dyslipidemia	45,982 (42%)	168,309 (38%)	0.05	51,075 (38%)	175,205 (33%)	0.16
Type 2 diabetes mellitus	36,198 (33%)	129,485 (29%)	0.05	49,713 (37%)	143,388 (27%)	0.11
Sepsis	5,426 (5%)	18,662 (4%)	0.02	9,996 (7%)	20,339 (4%)	0.12
Pneumonia	19,026 (17%)	70,235 (16%)	0.03	27,132 (20%)	75,538 (14%)	0.08
Cellulitis	29,823 (27%)	106,103 (24%)	0.05	33,485 (25%)	109,116 (20%)	0.14
Urinary tract infection	21,353 (19%)	75,618 (17%)	0.04	29,975 (22%)	78,901 (15%)	0.00

Supplementary Table 2. Healthcare Utilizations in Dementia and Comparison Groups

	Dementia (n=634,563)	Comparisons (n=2,538,228)	SMD
	N (%)	N (%)	
Health care utilization, per year			
<10	73,419 (12%)	519,068 (20%)	-0.17
10-19	133,639 (21%)	650,040 (26%)	-0.08
20 or more	427,505 (67%)	1,369,120 (54%)	0.20

Supplementary Table 3. Sensitivity Analysis for Crude and Adjusted Odds Ratios of Autoimmune Disease Associations with Dementia in Older Adults

Autoimmune diseases	Dementia (n=634,563)	Comparisons (n=2,538,228)	Crude odds ratios		Adjusted odds ratio	
	N (%)	N (%)	OR 95%CI	Q-value	OR 95%CI	Q-value
Overall autoimmune disease	66,790 (10.5)	220,760 (8.7)	1.24 (1.22, 1.25)	<.001	1.07 (1.06, 1.08)	<.001
Specific autoimmune diseases						
Ankylosing Spondylitis	7,555 (1.2)	24,857 (1.0)	1.22 (1.19, 1.25)	<.001	1.06 (1.03, 1.06)	<.001
Autoimmune Hemolytic Anemia	165 (0.0)	490 (0.0)	1.35 (1.13, 1.61)	0.001	1.15 (0.96, 1.15)	0.179
Behcet'S Disease	197 (0.0)	444 (0.0)	1.78 (1.50, 2.10)	<.001	1.49 (1.25, 1.49)	<.001
Dermatomyositis	356 (0.1)	1,105 (0.0)	1.29 (1.14, 1.45)	<.001	1.05 (1.02, 1.05)	0.001
Graves' Disease	9,537 (1.5)	30,549 (1.2)	1.25 (1.22, 1.28)	<.001	1.14 (1.01, 1.14)	0.054
Guillain–Barre´ Syndrome	398 (0.1)	1,148 (0.0)	1.39 (1.24, 1.56)	<.001	1.27 (1.14, 1.27)	<.001
Hashimoto's Thyroiditis	1,446 (0.2)	4,559 (0.2)	1.27 (1.20, 1.35)	<.001	1.09 (0.97, 1.09)	0.212
Inflammatory bowel diseases	7,283 (1.1)	24,600 (1.0)	1.19 (1.16, 1.22)	<.001	1.09 (1.03, 1.09)	0.007
Multiple Sclerosis	98 (0.0)	195 (0.0)	2.02 (1.58, 2.57)	<.001	1.44 (1.12, 1.44)	0.009
Myasthenia Gravis	905 (0.1)	2,878 (0.1)	1.26 (1.17, 1.36)	<.001	1.02 (0.94, 1.02)	0.823
Pemphigus	270 (0.0)	767 (0.0)	1.41 (1.23, 1.62)	<.001	1.08 (0.94, 1.08)	0.353
Pernicious Anemia	462 (0.1)	1,285 (0.1)	1.44 (1.29, 1.60)	<.001	1.27 (1.14, 1.27)	<.001
Polymyalgia Rheumatica	623 (0.1)	2,058 (0.1)	1.21 (1.11, 1.33)	<.001	1.01 (0.92, 1.01)	0.905
Polymyositis	164 (0.0)	524 (0.0)	1.25 (1.05, 1.49)	0.012	1.06 (0.89, 1.06)	0.646
Psoriasis	5,725 (0.9)	19,012 (0.7)	1.21 (1.17, 1.24)	<.001	1.05 (1.02, 1.05)	0.004
Rheumatoid Arthritis	11,695 (1.8)	39,654 (1.6)	1.18 (1.16, 1.21)	<.001	1.05 (1.02, 1.05)	<.001
SjoGren Syndrome	17,571 (2.8)	54,458 (2.1)	1.30 (1.28, 1.32)	<.001	1.14 (1.12, 1.14)	<.001
Systemic Lupus Erythematosus	1,492 (0.2)	4,143 (0.2)	1.44 (1.36, 1.53)	<.001	1.23 (1.16, 1.23)	<.001
Systemic Sclerosis	259 (0.0)	831 (0.0)	1.25 (1.08, 1.43)	0.002	1.13 (0.98, 1.13)	0.160
Systemic vasculitis	649 (0.1)	1,961 (0.1)	1.32 (1.21, 1.45)	<.001	1.10 (1.00, 1.10)	0.072
Type 1 Diabetes	4,883 (0.8)	14,193 (0.6)	1.38 (1.34, 1.43)	<.001	1.07 (1.04, 1.07)	<.001
Uveitis	4,410 (0.7)	16,754 (0.7)	1.05 (1.02, 1.09)	0.002	0.96 (0.93, 0.96)	0.030

Adjustment for age, sex, residency, healthcare utilization, and comorbid conditions.

Bolded odds ratios indicate statistical significance at Q-value < 0.05.