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Supplementary Material

Article Title: Mortality and Suicide Related to Major Depressive Disorder Before and After Type 2 Diabetes Mellitus

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Supplementary Table 1 Chronic Comorbidities and ICD-9-CM code defined in this study

Chronic complications in this study	ICD-9-CM codes
● Neurological disease	
Myasthetic syndromes in disease classified elsewhere (amyotrophy)	358.1
Others specified idiopathic peripheral neuropathy	
Mononeuritis of upper and lower limbs	356.8
Arthropathy associated w/neurological disorders (Charcot's arthropathy)	354,355 713.5
Peripheral autonomic neuropathy	
Polyneuropathy in diabetes	337.1
Neuralgia, neuritis, and radiculitis, unspecified	357.2
Diabetes with neurological complications	729.2
Occlusion of cerebral arteries	250.6
Hemorrhagic stroke	434
Late effects of cerebrovascular disease	430-432
Occlusion of stenosis of pre-cerebral arteries	438
Other and ill-defined cerebrovascular disease	433
Acute, but ill-defined, cerebrovascular disease	437
Transient ischemic attack	436
● Peripheral vascular disease	435
Atherosclerosis	
Embolism and thrombosis, structure of artery	440
Other peripheral vascular disease	444,447.1
Other disorders of circulatory system	443
Phlebitis and thrombophlebitis, portal vein thrombosis, and thrombolism and venous thrombolism	459 451,452
Other venous embolism and thrombolism	
Varicose veins of lower extremities	453
Gangrene and amputations	454
Chronic ulcer of skin	785.4,885-887,895-897
● Cardiovascular disease	707
Aortic and other aneurysms	
Hypotension	441,442
Angina	458
Conduction disorders and cardiac dysrhythmias	413
Atherosclerotic cardiovascular disease	426-427 429.2
Chronic complications	ICD-9-CM codes

Cardiomegaly	429.3
Cardiomyopathy	425
Other acute and subacute forms of ischemic heart disease	411
Heart failure	
Diabetes w/peripheral circulatory disorders	428
Myocardial degeneration	250.7
Myocardial infarction	429.1
Other chronic ischemic heart disease	410,412
Hypertension	414
● Renal complications	401-405
Infections of kidney	
Other disorders of bladder	590
Cystitis	596
Renal sclerosis, unspecified	595
Glomerulonephritis, nephritic syndrome, nephritis, nephropathy	587
Proteinuria	580-583
Renal failure and its sequelae	
Other disorders of kidney and ureter	791.0
Urinary tract infection	584,586,588
Diabetes and renal complications	593
Chronic renal failure (end-stage renal disease)	599.0
● Endocrine/metabolic complications	250.4
Dwarfism-obesity syndrome	585
Glycogenosis and galactosemia	
Disorders of iron metabolism	259.4
Hypercholesterolemia	271.0,271.1
Hyperchylomicronemia	275.0
Hyperkalemia	272.0
Hypertriglyceridemia	272.3
Macroglobulinemia	276.7
Lancereaux's disease	272.1
Lipidoses	273.3
Other specified endocrine disorders	261
	272.7
	259.8
Chronic complications	ICD-9-CM codes
Other and unspecified hyperlipidemia	272.4
Mixed hyperlipidemia	272.2

Renal glycosuria	271.4
● Ophthalmic complications	
Other retinal disorders	362
Vascular disorders of the iris and ciliary body	364.0,364.4
Disorders of the optic nerve and visual pathways	377
Diabetes with ophthalmic complications	250.5
Cataract	366
Glaucoma	365
Visual disturbance, low vision, blindness	368-369
● Other complications	
Bacteremia, bacterial infection, Cocksackie virus	079.2,790.7
Candidiasis of skin and nails	112.3
Chronic osteomyelitis of the foot	730.17
Other and unspecified noninfectious gastroenteritis and colitis	558.9
Impotence of organic origin	
Infective otitis externa	607.84
Degenerative skin disorders	380.1
Candidiasis of vulva and vagina	709.3
Cellulites	112.1
Diabetes with other specified manifestations	681,682
Diabetes with unspecified complication	250.8
Other bone involvement in disease classified elsewhere	250.9
	731.8

Supplementary Table 2. Demographic status, comorbidity and outcome compared in matched I cohort

variable	class	total	MDD before T2DM		T2DM without MDD		P-value
			N	%	N	%	
Total		13190	2638	20.0	10552	80.0	
Sex	Male	5165	1033	39.2	4132	39.2	1
	Female	8025	1605	60.8	6420	60.8	
Age		13190	57.17±14.00		57.17±13.71		1
Income	0	3210	620	23.5	2590	24.6	0.0003
	0-19200	2443	561	21.3	1882	17.8	
	>=19200	7537	1457	55.2	6080	57.6	
Region	0	264	45	1.7	219	2.1	0.0001
	Northern	5884	1174	44.5	4710	44.6	
	Central	2253	388	14.7	1865	17.7	
	Southern	4398	963	36.5	3435	32.5	
	Eastern	391	68	2.6	323	3.1	
Education level	primary school	6261	1219	46.2	5042	47.8	0.0408
	Secondary school	2332	514	19.5	1818	17.2	
	High school	2855	574	21.8	2281	21.6	
	University above	1742	331	12.5	1411	13.4	
Marital status	unmarried	1500	334	12.7	1166	11.0	0.0000
	married	9692	1843	69.9	7849	74.4	
	divorce/Spouse dies	1998	461	17.4	1537	14.6	
CCI score	mean±SD	13190	2.57±2.06		2.75±2.29		0.0002
CCI index	0	1720	369	14.0	1351	12.8	0.1132
	1	2555	529	20.1	2026	19.2	
	>=2	8915	1740	66.0	7175	68.0	
Comorbidities							

Neurological disease	6365	1259	47.7	5106	48.4	0.5400
Peripheral vascular disease	2203	452	17.1	1751	16.6	0.5059
Cardiovascular disease	9895	1953	74.0	7942	75.3	0.1911
Renal disease	7739	1518	57.5	6221	59.0	0.1877
Endocrine/metabolic disease	6091	1230	46.6	4861	46.1	0.6044
Ophthalmic disease	5253	1052	39.9	4201	39.8	0.9527
GAD	1825	401	15.2	1424	13.5	0.0232
Outcomes						
All-cause mortality	2540	525	19.9	2015	19.1	0.3461
Committed Suicide	41	23	0.9	18	0.2	<0.0001
Suicide attempt	17	13	0.5	4	0.0	<0.0001
Suicide behavior	58	36	1.4	22	0.2	<0.0001

T2DM: Type 2 diabetes mellitus, MDD: Major Depressive Disorder

CCI: Charlson Comorbidity Index, GAD: General anxiety disorder

Supplementary Table 3. Demographic status, comorbidity and outcome compared in matched II cohort

variable	class	total	MDD after T2DM		T2DM without MDD		P-value
			N	%	N	%	
Total		25570	5114	20.0	20456	80.0	
Sex	Male	9915	1983	38.8	7932	38.8	1
	Female	15655	3131	61.2	12524	61.2	.
Age		25570	58.07±12.5		58.07±12.6		1
Income	0	7240	1460	28.5	5780	28.3	0.0008
	0-19200	4752	1036	20.3	3716	18.2	.
	>=19200	13578	2618	51.2	10960	53.6	.
Region	0	552	95	1.9	457	2.2	0.0004
	Northern	11216	2165	42.3	9051	44.2	.
	Central	4520	869	17.0	3651	17.8	.
	Southern	8493	1802	35.2	6691	32.7	.
	Eastern	789	183	3.6	606	3.1	.
Education level	primary school	15396	3001	58.7	12395	60.6	0.0439
	Secondary school	3923	839	16.4	3084	15.1	.
	High school	4187	862	16.9	3325	16.3	.
	University above	2064	412	8.1	1652	8.1	.
Marital status	unmarried	1894	375	7.3	1519	7.4	0.0161
	married	19394	3814	74.6	15580	76.2	.
	divorce/Spouse dies	4282	925	18.1	3357	16.4	.
CCI score	mean±SD	25570	1.43±1.8		1.32±1.7		0.0001
CCI index	0	11180	2160	42.2	9020	44.1	0.0222
	1	5435	1084	21.2	4351	21.3	.
	>=2	8954	1870	36.6	7084	34.6	.

Comorbidities						
Neurological disease	6018	1276	25.0	4742	23.2	0.0077
Peripheral vascular disease	1711	397	7.8	1314	6.4	0.0006
Cardiovascular disease	12643	2600	50.8	10043	49.1	0.0254
Renal disease	7587	1592	31.1	5995	29.3	0.0107
Endocrine/metabolic disease	6163	1275	24.9	4888	23.9	0.1212
Ophthalmic disease	5719	1174	23.0	4545	22.2	0.2582
GAD	887	177	3.5	710	3.5	0.9773
Outcomes						
All-cause mortality	5694	1675	32.8	4019	19.6	<0.0001
Committed Suicide	81	63	1.2	18	0.1	<0.0001
Suicide behavior	94	75	1.5	19	0.1	<0.0001

T2DM: Type 2 diabetes mellitus, MDD: Major Depressive Disorder

CCI: Charlson Comorbidity Index, GAD: General anxiety disorder

*Since suicide attempt number is too small, so the analysis only conduct all-cause mortality ,Committed Suicide and Suicide behavior