P-63

Depressive symptoms and the subsequent risk of Parkinson's disease : A nationwide population-based cohort study

Seo Yeon Yoon[1], Seok-Jae Heo[2], Sang Chul Lee[1], Kun Wook Lee[1], Do Hun Jung[3], Jaeyoung Shin[4] Jang Woo Lee[3]

Department and Research Institute of Rehabilitation Medicine, Yonsei University College of Medicine, Seoul, Korea[1]
Department of Biostatistics and Computing, Yonsei University Graduate School, Seoul, Korea[2]
Department of Physical Medicine and Rehabilitation, National Health Insurance Service Ilsan Hospital, Korea[3]
Department of Preventive Medicine and Public Health, Yonsei University College of Medicine, Seoul, Korea[4]

Objectives

Despite many previous studies on the association between depression and the risk of Parkinson's disease (PD), only a few studies have focused on depressive symptoms and PD risk. As a time lag exists from the onset of depressive symptoms to the diagnosis of depression, elucidating the association between depressive symptoms and PD development might be helpful for the early prediction of PD. This study aimed to investigate the association between depressive symptoms and subsequent PD risk.

Methods

The nationwide population-based retrospective cohort study was conducted using the Korean National Health Insurance System-Health Checkup Cohort data. This nationwide cohort study enrolled individuals who had undergone a National Health Screening Program (NHSP) aged 66 years between 2007 and 2017, and followed up until December 31, 2019 or the date of death. The following three depressive symptoms were obtained for PD risk from a self-reported questionnaire from NHSP: 1) decreased activity or motivation, 2) worthlessness, and 3) hopelessness. The Fine–Gray subdistribution hazard model was used to evaluate the association between depressive symptoms and PD risk. Data were analyzed using the statistical software SAS System for Windows (version 9.4; SAS Institute Inc., Cary, NC, USA) and R version 3.4.4 (R Foundation for Statistical Computing, Vienna, Austria).

Results

Table 1. Crude and adjusted association between depressive symptoms and subsequent risk of PD

Depressive symptom	N	PD	Person-years	Incidence rate	Model 1	P value	Model 2	P value	Model 3	P value
Absent	81560	361	506791.9	0.712	1.00		1.00		1.00	
Present	17400	135	119297.6	1.132	1.49 (1.22–1.82)	<.001	1.49 (1.22–1.81)	<.001	1.48 (1.21–1.82)	<.001

Table 2. Crude and adjusted association between the number of depressive symptoms and the subsequent risk of PD

	N	PD	Person-years	Incidence rate	Model 1	P value	Model 2	P value	Model 3	P value
Depressive symptom (-)	81560	361	506791.9	0.712	1.00		1.00		1.00	
No. of depressive symptoms										
1	10623	73	71509.6	1.021	1.35 (1.05–1.74)	0.019	1.35 (1.05–1.74)	0.020	1.35 (1.05–1.74)	0.021
2	2586	22	18072.7	1.217	1.56 (1.03–2.44)	0.036	1.58 (1.03–2.43)	0.037	1.59 (1.03–2.44)	0.036
3	4191	40	29715.3	1.346	1.74 (1.26–2.42)	<0.001	1.74 (1.25–2.42)	<0.001	1.74 (1.25–2.42)	0.001

Figure 1. Comparison of cumulative incidence of PDaccording to the number of depressive symptoms (Gray's test, p < 0.001)

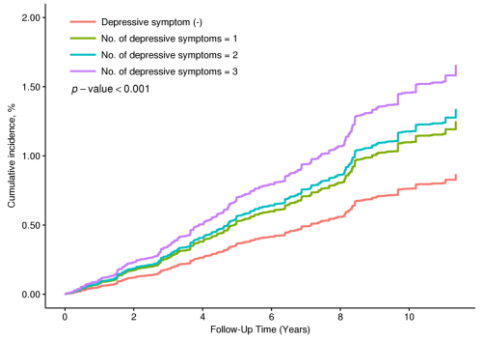
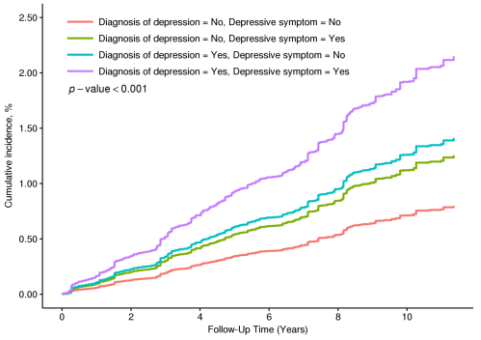


Figure 2. Comparison of cumulative incidence of PD according to depressive symptoms and the diagnosis of depression (Gray's test, p < 0.001)



Conclusion

Individuals with depressive symptoms were at an increased risk of developing PD, and there was a dose-response association between the number of depressive symptoms and PD risk. Depressive symptoms require more attention for PD prediction, and simple screening questions for depressive symptoms in the NHSP could be usefully applied to predict PD occurrence.