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The temporal relationship between mental illness and substance-related disorders: A nationwide population-based cohort study

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Background & Aim: Many studies revealed the association between mental illness (MI) and substance-related disorders (SRD) but little is known about the temporal relationship on this association. Therefore, the purpose of this study was to examine whether individuals with mental illness would have a higher risk of subsequent onset of substance-related disorders compared to those without mental illness.

Methods: A retrospective cohort study was conducted by using the nationwide population-based Taiwan National Health Insurance Research Dataset (NHIRD) consisting of 2,000,000 patient's records from 2000 to 2009. We observed two study cohorts. The case cohort was patients diagnosed with ICD-9-CM codes 296.xx, 300.xx, 301.xx since January 1, 2001 to December 31, 2006. The control cohort was simultaneously and randomly selected from those without the diagnosed codes with matching age, gender, income and urban levels. A total of 124, 423 case and the same size of control cohorts were followed up to see the subsequent onset of SRD (diagnosed codes 291-292, 303-305) till the end of 2009. Cox Proportional Regression Models were used.

Results: The risk of subsequently developing SRD in patient's with MI is about 5 times (HR=5.09, 95% CI: 4.74-5.48) higher than those without, with controlling for age, gender, urban and income levels. After using cox regression models for analyzing stratified sub-samples by age strata, gender, urban levels, and income levels, we found in all results of the subsamples, the hazard ratios of the onset of SRD between cases and controls were all significantly higher than 1.0 (hazard ratios with 95% CI ranged from 2.12 (1.65-2.87) to 14.55 (7.89-26.83)). Among the results, age drew a lot of attentions because the onset of mental illness for youngsters aged 10 to 19 years could increase 14.55-fold risk for them to develop SRD in their later life. And the hazard ratio increased with declining age.

Conclusions: The results in our study suggested that the onset of mental illness in people's earlier life did have a potential risk for them to develop substance-related disorders in later life. Therefore, health professionals for developing prevention programs on substance use and abuse should pay more concerns on the population at risk, especially on adolescents or young adults with mental illness; and practitioners in clinical settings should adopt more comprehensive approaches in the treatment of substance-related disorders with taking psychiatric disorders into accounts.

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