DYNAMIC CHANGE OF METABOLIC SYNDROME AND CARDIOVASCULAR-RELATED MORTALITY: A POPULATION-BASED PROSPECTIVE COHORT STUDY IN TAIWAN

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Abstract:-

Background: Population-based evidence is limited for the association between dynamic changes in metabolic syndrome (MetS) status and the risk of cardiovascular diseases (CVD) and all-cause mortality. Weexamined whether changes inMetS status over time are associated with risk of CVD and all-cause mortality.

Methods: This prospective and longitudinal study useddata from Taiwan's MJ Cohort, comprising general population of adults aged over 18 years recruited between 1998-2016. We included 157,871 adults who had at least two repeated MetS measures 5.7 (4.3) years apart and were followed up for mortality over 12.3 (4.8) years. Participants were classified according to the change in their MetS status as follows: MetS-free at both time points (n=123,189), MetS-developed (n=13,993), MetS-recovered (n=7,850), and MetS-persistent (n=12,839). Cox proportional hazards and Fine-Gray sub-distribution hazard model with death from non-CVD causes as the competing risk was used to determine the association between change in MetS status andrisk of all-cause or CVD mortality, respectively.

Results: Over the 2,842,742 person-years follow-up period, 5,472 participants died, including 859 (15.7%) of CVD-related causes. The crude incidence rate of CVD mortality per 1,000 person-years by change in MetS group was as follows: MetS-free, 0.18; MetS-developed, 0.45; MetS-recovered, 0.67; and MetS-persistent, 1.06 (P <.001). Compared to the persistentMetS group, participants in the MetS-recovered group had alower risk of CVD (adjusted hazard ratio [aHR], 0.77; 95% confidence interval [CI], 0.60-0.99) and all-cause mortality (aHR, 0.84; 95% CI, 0.76-0.94). Development of MetS increased the risk for CVD (aHR, 1.42; 95% CI, 1.14-1.78) and all-cause mortality (aHR, 1.12; 95% CI, 1.03-1.23), compared to the MetS-free group.

Conclusion: Recovery from MetS was significantly associated with a lower risk of CVD and all-cause mortality, whereas development of MetS was associated with increased risk. Our findings inform practice by underlining the importance for both the prevention and the treatment of the MetS.

Keywords - Metabolic syndrome change, cardiovascular diseases, mortality, cohort study