Polypathy as a Risk Factor for All-Cause Mortality among Older People in England

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Background Polypharmacy is a prevalent phenomenon in older people. Both positive and negative outcomes of polypharmacy have been reported, making the role of polypharmacy somewhat uncertain. Most previous studies have found polypharmacy is associated with increased mortality in older people, but the definition of polypharmacy varies widely. Therefore, we tested this relationship by using the most common definition of polypharmacy. This study aims to investigate the association between polypharmacy and all-cause mortality among older people.

Methods Participants were from the English Longitudinal Study of Ageing (ELSA), a nationally representative sample of people aged 50 and older. In 2012/2013, 7729 people participated in the nurse visits, of these, 7727 were followed up for mortality until March 2018. Complete data were available from 6757 people. Polypharmacy was defined as taking five to nine long-term medications a day for chronic diseases or chronic symptoms, while using ten or more medications was categorised as heightened polypharmacy. The presence of illness was defined as either self-reporting conditions or taking specific medications for the condition. Cox proportional hazards model was used in this study.

Results The age- and sex-adjusted hazard ratios of polypharmacy and heightened polypharmacy were 2.35 and 4.24, respectively, and these effects on all-cause mortality were primarily attenuated when adjusting for chronic conditions such as diabetes, coronary heart disease, lung diseases and cancer. The effects of polypharmacy and heightened polypharmacy on mortality were further attenuated after adjusting for disability and health behaviours but remained significant. After adjusting for demographics, existing chronic diseases, disability, health behaviours, cognitive function and high-risk medications, people reporting polypharmacy (n=1357) had 1.51 times higher risk of death (95% CI 1.05, 2.19) compared with people not taking any medications (n=1924). People reporting heightened polypharmacy (n=162) also had 2.12 times higher risk of death (95% CI 1.29, 3.50), by contrast, people taking one to four drugs no longer showed a higher risk of death after adjustments.

Conclusion People reporting polypharmacy and heightened polypharmacy had a higher risk of mortality than people who did not take any medications. The results imply the presence of polypharmacy or heightened polypharmacy could be an indicator of mortality for older people, highlighting the need to ensure the appropriateness of multiple medications.