INPLASY PROTOCOL

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None declared.

Association between Frailty and Mortality, Falls, and Hospitalization among Dialysis Patients: A Systematic Review and Meta-Analysis

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Review question / Objective: **Our aim is to verify the association between frailty and mortality, falls and hospitalization of dialysis patients through systematic review and meta-analysis.**
Condition being studied: **Frailty is a clinical syndrome that is more likely to restore poor homeostasis after stress, which increases the risk of adverse consequences. Its characteristic is that due to the decline of the body's physiological reserve or multi system imbalance, the anti stress ability decreases, the body's vulnerability and the incidence of adverse clinical events increases.ESRD patients commonly have protein energy wasting, uremic toxin accumulation, inflammation and oxidative stress, which are accompanied by the need of chronic dialysis, so they are more prone to frailty than the general population. It was reported that the incidence rate of frailty has increased with the progression of kidney disease, and the highest among dialysis population. Statistics from the United States show that the prevalence of frailty among dialysis patients is 67.7%.Although dialysis itself is a predictor of adverse clinical outcomes, coexistence of dialysis and frailty seems to further increase risks of mortality, falls, and hospitalization.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 April 2022 and was last updated on 29 April 2022 (registration number INPLASY202240173).

INTRODUCTION

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METHODS

Participant or population: Dialysis patients.

Intervention: Frailty diagnosed by recognized assessment tools.

Comparator: Non-frailty.

Study designs to be included: Observational cohort or longitudinal studies.

Eligibility criteria: Inclusion criteria: (a) a prospective cohort study or population-based longitudinal study; (b) the subjects included patients receiving dialysis (including hemodialysis and peritoneal dialysis), age≥18 years; (c) The diagnostic criteria for physical frailty needs to be the internationally agreed-upon(e.g., Frailty Phenotype, Frailty Index, Frail Scale, or others); (d) reported the hazard ratio (HR), the odds ratio (OR), or risk ratio (RR) of the primary outcomes (mortality, falls, and hospitalization) and other adverse outcomes or basic data that could facilitate the calculation of the above values.There were no language restrictions on our inclusion.Exclusion criteria: (a) duplicate publication of the same data; (b) review or systematic review, conference paper, dissertation, case report; (c) full text could not be found; (d) data cannot be extracted or merged.

Information sources: PubMed, EMbase, Cochrane, CNKI, WangFang, China Science and Technology Journal(VIP).

Main outcome(s): Mortality, Falls, and Hospitalization.

Quality assessment / Risk of bias analysis: The cohort study were evaluated by Newcastle Ottawa scale (NOS).

Strategy of data synthesis: We extracted the hazard ratios (HR) or odds ratios (OR) or risk ratios (RR) with 95 % confidence interval (95 % CI) of all cause mortality, hospitalization and falls for frailty compared with non-frailty from each study that included in meta-analysis as measure effect. We also extracted the prevalence of frailty in dialysis patients in each study for meta-analysis. The heterogeneity of the study was evaluated by chi square test. If the p value was less than 0.05, heterogeneity was considered to exist. The degree of heterogeneity was analyzed by I-square (I2) statistics. If the heterogeneity was small (P > 0.1, I2 < 50%), the fixed effect model was selected for meta-analysis, otherwise, we selected the fixed effect model for analysis. Subgroup analysis was conducted according to the age of the subjects, different evaluation tools, dialysis type, follow-up time and publication area. We also conducted sensitivity analysis and evaluated publication bias with funnel chart. All meta-analysis was conducted by using Review Manager (RevMan) 5.3 software provide by the Cochrane Collaboration and Stata 16.0 (StataCorp, TX, USA).

Subgroup analysis: Subgroup analysis was conducted according to the age of the subjects, different evaluation tools, dialysis type, follow-up time and publication area.

Sensitivity analysis: We will conduct sensitivity analysis on the association between frailty and mortality, and test the impact of various studies on the stability of results.

Country(ies) involved: All authors come from China.

Keywords: Dialysis; Frailty; Mortality; Falls; Hospitalization.

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