Adverse health effects of frailty among chronic kidney disease (CKD) patients: A systematic review

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A B S T R A C T

Aim: Frailty is associated with increased susceptibility to adverse health outcomes. This systematic review uncovers the adverse health effects of frailty in patients with chronic kidney disease (CKD); we also deliberate the causes and prevalence of the comorbidities of frailty.
Study design: PubMed, Medline, CINAHL, Web of Science, Google Scholar, and Cochrane were used to identify the articles.
Data synthesis: Articles available online before the 17th of February 2019 which mentioned adverse effects of frailty in patients with CKD was qualified for the systematic review.
Results: The literature search yielded 564 articles, of which 76 met the criteria and were included (n = ___, age range: ___ years). Several biological (cardiovascular, renal, immunological, cognitive, endocrinologic, etc) and psychological effects are because of frailty in CKD patients. They also present with worse quality of life and increased risk of health-care utilization.
Conclusions: Frailty in patients with CKD is associated with an increased risk of adverse health outcomes, with a considerable amount of evidence showing causality between frailty and worsened health.

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1. Introduction

2. Method

2.1. Search strategy

The following search terms were used to identify articles that assessed adverse health outcomes associated with frailty among patients with CKD: ('frail' OR 'frailty' OR 'frail phenotype' OR 'frailty index') AND ('chronic kidney disease' OR 'chronic renal disease' OR 'chronic renal insufficiency' OR 'kidney transplant' OR 'renal transplant' OR 'end-stage kidney disease' OR 'end-stage renal disease' OR 'dialysis') AND ('frail' OR 'complication' OR 'cause' OR 'etiology' OR 'aetiology').

This review intends to find out the adverse health outcomes caused by frailty among patients with CKD. Thus, we limited the search criteria to find out results including causality. To make the search less strict, we add 'frail' after the second AND operator to look for articles in which 'complication', 'cause', 'etiology' or 'aetiology' are not used but covers the adverse effects of frailty.

2.2. Selection criteria

We include primary research articles and case series which analyzed the prevalence of comorbidities, or causal relationship between frailty and adverse health outcomes. All studies deal with the effects of frailty in patients with CKD, end-stage renal disease (ESRD), on dialysis, or have gone through kidney transplantation published before 17th February 2019 are eligible for the inclusion. We excluded articles if they were not available in English, Spanish, Portugese, or German languages. If over one article approached the same study population with various analyses, the articles that meet the aim of the systematic review were selected and presented in combination.

3. Data analysis

3.1. Data extraction

Abstracts were examined for relevance to the study criteria. In case of disagreement… (I am the only person…?) We recorded, when available, information about the demographics of the study population, adverse health effect, and data for severity of CKD, frailty assessment method, and risk differences of complications caused by frailty among patients with CKD.

3.2. Statistical analysis… (have no ability…)

4. Results

Our search produces 1223 (w/o GS and embase) (w/ GS and embase 1891) references. We removed 659 (w/o GS and embase) (w/ GS and embase 592) redundant articles, leaving 564 (w/o GS and embase) (w/ GS and embase 1299) reports for abstract examination. After the examination, 488 results were removed from further analysis for the following reasons: causes of frailty: ____; did not measure frailty in patients with CKD: ____; did not measure the effects of frailty in patients with CKD: ____; abstract inaccessible: ____. ____ reviews with references which measure the causes or effects of frailty in patients with CKD were collected manually. 76 full texts met the inclusion criteria and were selected for review, in which ____ studies (____%) were primary prospective analysis and ____ studies (____%) were secondary analysis.

4.1. Demographics of the study population

These studies examined adverse effects of frailty with CKD in a total population of ____. The study characteristics are shown in Table _.

4.2. Critical appraisal of quality

4.3. Method of frailty assessment

Frailty status is mostly assessed with the Fried frailty phenotypes (n = ____, ____ %), whereas interpretations of the five characteristics differ between studies and from the original definition of purposed by Fried et al. (Table _) [1].

4.4. Causes and risk factors of frailty

4.5. Biological complications

4.6. Psychological complications

4.7. Sociological complications

4.8. Quality of life and independence

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6. Discussion

7. Conclusion

Conflicts of interest

None.

References

1. FriedLP, TangenCM, WalstonJ, et al. Frailty in older adults: evidence for a phenotype. *Journals Gerontol Ser A Biol Sci Med Sci*. 2001;56(3):M146-M157.