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ADMINISTRATIVE INFORMATION

Support - N/A.
Review Stage at time of this submission - Piloting of the study selection process.
Conflicts of interest - None declared.
INPLASY registration number: INPLASY2025100069

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 October 2025 and was last updated on 19 October 2025.

INTRODUCTION

Review question / Objective The aim of this scoping review is to shed light on the prevalence and aetiologies of pleural effusions in patients with CKD, which can hopefully illuminate gaps in the current literature and pave the way for future research in this area.

Background Pleural effusions are a significant cause of morbidity and mortality. While there is a considerable research dedicated towards certain aetiologies of pleural effusions – namely malignancy and infections , there is a lack of research surrounding pleural effusions in patients with chronic kidney disease (CKD).

Rationale A scoping method was chosen (as opposed to a systematic review) to highlight disparities in scientific literature rather than

aggregate outcomes from a very small number of trials.

METHODS

Strategy of data synthesis A search of published and unpublished studies will be performed on Ovid Medline, Web of Science, PubMed, ProQuest and Google Scholar.
Key words and MeSH (Medical Subject Headings) terms such as “epidemiology”, “aetiology”, “pleural effusion”, “chronic kidney disease” and “dialysis” will be utilised.

Alternative wording will also be included to expand the scope of the review, such as “prevalence”, “incidence”, “causality”, “pleural fluid”, “chronic renal insufficiency”, “end stage kidney disease” and “renal replacement therapy”.

Draft search strategies:

Google Scholar:

Epidemiology OR
 Aetiology OR Etiology OR Causation OR Causality
 AND
 Pleural Effusion OR Pleural Fluid
 AND
 Chronic Kidney Disease OR CKD OR End Stage
 Renal Disease OR ESRD OR Chronic Kidney
 Diseases of Uncertain Etiology OR Chronic Kidney
 Diseases of Unknown Etiology OR Dialysis OR
 Renal Replacement Therapy OR RRT OR Chronic
 Renal insufficiency
 AND
 Randomised Control Study OR RCT OR Case
 Control Study OR Cohort Study OR Case Series

OVID Medline:

1 Etiology.mp.
 2 Aetiology.mp.
 3 Causality.mp. or Causality/
 4 cause.mp.
 5 Causation.mp.
 6 the cause of a disease.mp.
 7 1 or 2 or 3 or 4 or 5 or 6
 8 Epidemiology/
 9 Prevalence/ or Prevalence.mp.
 10 Incidence.mp. or Incidence/
 11 8 or 9 or 10
 12 Pleural Effusion/
 13 water on the lungs.mp. [mp=title, book title,
 abstract, original title, name of substance word,
 subject heading word, floating sub-heading word,
 keyword heading word, organism supplementary
 concept word, protocol supplementary concept
 word, rare disease supplementary concept word,
 unique identifier, synonyms, population
 supplementary concept word, anatomy
 supplementary concept word]
 14 pleural fluid.mp.
 15 12 or 13 or 14
 16 Renal Insufficiency, Chronic.mp. or Renal
 Insufficiency, Chronic/
 17 Chronic Kidney Disease.mp.
 18 Kidney Failure, Chronic/ or Kidney Diseases/ or
 CKD.mp.
 19 end-stage kidney disease.mp.
 20 ESKD.mp.
 21 End Stage Renal Disease.mp.
 22 ESRD.mp.
 23 Dialysis Solutions/ or Dialysis/ or Renal Dialysis/
 or Dialysis.mp.
 24 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
 26 7 and 11 and 15 and 24

Web of Science:

Concept 1:

Etiology OR Aetiology OR Causality OR Cause OR
 Causation OR "the cause of a disease"

AND

Concept 2

Epidemiology OR Prevalence OR Incidence
 AND

Concept 3:

"Pleural Effusion" OR "water on the lungs" OR
 "pleural fluid"

AND

Concept 4:

"Chronic Renal Insufficiency" OR "Chronic Kidney
 Disease" OR CKD OR "end-stage kidney disease"
 OR ESKD OR End Stage Renal Disease OR ESRD

PubMed:

((("etiology" [Subheading] OR "Causality"[Mesh])
 AND ("Epidemiology"[Mesh] OR "epidemiology"
 [Subheading])) AND "Pleural Effusion"[Mesh]) AND
 "Renal Insufficiency, Chronic"[Mesh]

ProQuest:

(Etiology OR Aetiology OR Causality OR cause OR
 Causation OR "the cause of a disease") AND
 (Epidemiology OR Prevalence OR Incidence) AND
 ("Pleural Effusion" OR "water on the lungs" OR
 "pleural fluid") AND ("Chronic Renal Insufficiency"
 OR "Chronic Kidney Disease" OR CKD OR "end-
 stage kidney disease" OR ESKD OR End Stage
 Renal Disease OR ESRD).

Eligibility criteria

Population: Patients with pleural effusions

Concept: Epidemiology and aetiology

Context: Known history of chronic kidney disease
 including those on dialysis

Design: All primary forms of research (Randomised
 Controlled Trials, Non-Randomised Controlled
 Trials, Cohort Studies, Case Control Studies, Case
 Series [>5 cases])

Exclusion criteria: Non-English studies, paediatric
 (<18 year old) population, renal transplant
 recipients, studies where the full-text article is
 unavailable.

Source of evidence screening and selection

Two reviewers will independently screen and
 extract eligible studies identified from the search
 database using the online software Covidence.
 Discrepancies will be rectified with a third reviewer
 if a unanimous decision cannot be achieved.

Data management Once the screening process is
 complete, relevant data points will be collated in a
 table, such as the study title, the primary and
 secondary aims of the study, the study population
 and notable conclusions.

Reporting results / Analysis of the evidence

After synthesising the relevant data points, a narrative account will be constructed to identify commonalities and conflicts between studies. This will also serve to identify gaps in current literature and guide future research.

Presentation of the results After a narrative account of the studies is performed, the main data points will be collated in a table.

Language restriction English Studies Only.

Country(ies) involved Australia.

Other relevant information N/A.

Keywords Pleural effusion; CKD; chronic kidney disease; epidemiology; aetiology; dialysis.

Dissemination plans Three doctors at Sir Charles Gairdner Hospital have been enlisted and assigned roles for the scoping review. This will be performed under the guidance of three consultant physicians (Prof Gary Lee [Respiratory], Associate Prof Aron Chakera [Nephrology] and Associate Prof Wei Lim [Nephrology]).

Contributions of each author

Author 1 - Nicholas Pizzino - Author 1: Protocol, data collection, data analysis, final write-up.

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