# INPLASY PROTOCOL

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**Support:** None.

**Review Stage at time of this submission:** Preliminary searches.

**Conflicts of interest:** None declared.

## Pentraxin-3 is a Better Predictor of Adverse Clinical Events than C-reactive Protein in Chronic Kidney Disease: A Systematic Review and Meta-Analysis

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**Review question / Objective:** Inflammation is a significant element of chronic kidney disease (CKD) pathogenesis and progression, as well as a leading cause of death. C-reactive protein (CRP) belongs to the superfamily of pentraxins, and it is a classic short pentraxin and increase rapidly in circulating blood upon inflammatory stimulation. Pentraxin-3 (PTX-3), another important member of the pentraxin family, has recently attracted growing attention as a new biomarker of inflammation; however, in contrast to the short pentraxin CRP, PTX-3 is a long pentraxin protein. In this study, we aimed to conduct a meta-analysis to comprehensively evaluate the value of PTX-3 as a predictor of adverse clinical events in CKD patients. In parallel, we also performed a meta-analysis of the association between CRP and CKD prognosis in the included studies focusing on PTX-3, with a view to comparing their prognostic value among identical patient population.

### INTRODUCTION

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**Condition being studied:** Recent research has also suggested that PTX-3 has a great diagnostic and prognostic value in a variety of inflammatory and autoimmune diseases. It has even been suggested that PTX-3 may be a better prognostic biomarker to predict adverse clinical events than CPR in specific disorders. In the last dozen years, several studies have also examined the association between circulating PTX-3 levels and prognosis of patients with CKD, and these findings provided valuable information, although they were not entirely consistent.

## METHODS

**Participant or population:** We will include CKD patients who had a minimum follow-up time of 1 year.

**Intervention:** Circulating PTX-3 levels will be main Exposure/Interventions.

**Comparator:** Comparing the highest versus lowest, or per unit change in PTX-3 at baseline.

**Study designs to be included:** Prospective cohort studies, or retrospective cohort studies.

**Eligibility criteria:** Studies were deemed eligible if they: (1) were prospective cohort studies, or retrospective cohort studies (post hoc analysis); (2) included CKD patients (haemodialysis, peritoneal dialysis and non-dialysis CKD) as subjects; (3) evaluated the relationship between PTX-3 and major adverse clinical events, including fatal and nonfatal cardiovascular events and/or mortality; (4) reported multivariable-adjusted risk estimates such as hazard ratio (HR), odds ratio (OR) or relative risk (RR), and their corresponding 95% confidence interval (CI); (5) had a mean follow-up time of 1 year or longer; (6) were research articles written in English.

**Information sources:** The electronic databases including Pubmed, EMBASE, and Web of Science will be searched for the information sources.

**Main outcome(s):** The multivariable adjusted hazard ratio (HR) and the corresponding 95% confidence interval (CI) will be pooled to estimate the association between PTX-3 and adverse clinical events.

**Quality assessment / Risk of bias analysis:** Study quality of the included studies will be assessed using the Newcastle-Ottawa Scale (NOS).

**Strategy of data synthesis:** The effect estimates will be pooled using random-effects models or fixed-effects models depending on heterogeneity among studies.

**Subgroup analysis:** Subgroup analysis will be conducted based on study sites, design, patient types, age, sample size, mean follow-up duration, and whether adjustment for hypertension or diabetes.

**Sensitivity analysis:** Sensitivity analyses will be conducted by omitting one study at a time to evaluate the stability of the pooled effect estimates.

**Country(ies) involved:** China.

**Keywords:** Chronic kidney disease; Pentraxin-3; all-cause mortality; cardiovascular mortality; cardiovascular events; meta-analysis.

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