

Original article

Long-term prognosis of chronic kidney disease in non-ST elevation acute coronary syndrome treated with invasive strategy[☆]

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ARTICLE INFO

Article history:

Received 15 September 2016
Accepted 17 November 2016
Available online 27 June 2017

Keywords:

Chronic kidney disease
Acute coronary syndrome
Prognosis
Invasive management

ABSTRACT

Background and aim: Patients with chronic kidney disease (CKD) have an increased risk of adverse cardiovascular outcomes after non-ST elevation acute coronary syndrome (NSTEMI-ACS). However, the information available on this specific population is scarce. We evaluate the impact of CKD on long-term prognosis in patients with NSTEMI-ACS managed with invasive strategy.

Methods: We conduct a prospective registry of patients with NSTEMI-ACS and coronary angiography. CKD was defined as a glomerular filtration rate <60 ml/min/1.73 m². The composite primary end-point was cardiac death and non-fatal cardiovascular readmission. We estimated the cumulative probability and hazard rate (HR) of combined primary end-point at 3 years according to the presence or absence of CKD.

Results: We included 248 patients with mean age of 66.9 years, 25% women. CKD was present at baseline in 67 patients (27%). Patients with CKD were older (74.9 vs. 63.9 years; $p < 0.0001$) with more prevalence of hypertension (89.6 vs. 66.3%; $p < 0.0001$), diabetes (53.7 vs. 35.9%; $p = 0.011$), history of heart failure (13.4 vs. 3.9%; $p = 0.006$) and anemia (47.8 vs. 16%; $p < 0.0001$). No differences in the extent of coronary artery disease. CKD was associated with higher cumulative probability (49.3 vs. 28.2%; log-rank $p = 0.001$) and HR of the primary combined end-point (HR: 1.94; 95% CI: 1.12–3.27; $p = 0.012$). CKD was an independent predictor of adverse cardiovascular outcomes at 3 years (HR: 1.66; 95% CI: 1.05–2.61; $p = 0.03$).

Conclusions: In NSTEMI-ACS patients treated with invasive strategy, CKD is associated independently with an increased risk of adverse cardiovascular outcomes at 3 years.

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[☆] Please cite this article as: Roldán Torres I, Salvador Mercader I, Cabadés Rumbau C, Díez Gil JL, Ferrando Cervelló J, Monteagudo Viana M, et al. Pronóstico a largo plazo de la enfermedad renal crónica en el síndrome coronario agudo sin elevación del segmento ST tratado con estrategia invasiva. *Nefrología*. 2017;37:276–284.

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Pronóstico a largo plazo de la enfermedad renal crónica en el síndrome coronario agudo sin elevación del segmento ST tratado con estrategia invasiva

R E S U M E N

Palabras clave:

Enfermedad renal crónica
Síndrome coronario agudo
Pronóstico
Estrategia invasiva

Introducción y objetivo: Los pacientes con enfermedad renal crónica (ERC) presentan mayor riesgo de eventos adversos cardiovasculares tras un síndrome coronario agudo sin elevación del segmento ST (SCASEST). Sin embargo, la información disponible en esta población específica es escasa. Evaluamos el efecto de la ERC en el pronóstico a largo plazo de pacientes con SCASEST tratados con estrategia invasiva.

Métodos: Registro prospectivo de pacientes con SCASEST y coronariografía. Definimos ERC como una tasa de filtrado glomerular $< 60 \text{ ml/min/1,73m}^2$. La variable de valoración final fue el combinado de muerte y reingreso cardiovasculares (nuevo síndrome coronario agudo, insuficiencia cardíaca e ictus no fatales). Estimamos la probabilidad acumulada, estratificada por ERC, y la relación entre esta y la tasa de riesgo del evento combinado a 3 años.

Resultados: Incluimos a 248 pacientes, con media de edad de 66,9 años; el 25% eran mujeres. Los 67 casos (27%) con ERC fueron mayores (74,9 vs. 63,9 años; $p < 0,0001$) y con más prevalencia de hipertensión (89,6 vs. 66,3%; $p < 0,0001$), diabetes (53,7 vs. 35,9%; $p = 0,01$), historia de insuficiencia cardíaca (13,4 vs. 3,9%; $p = 0,006$) y anemia (47,8 vs. 16%; $p < 0,0001$). Sin diferencias en la extensión de la enfermedad coronaria. La ERC se asoció a mayor probabilidad (49,3 vs. 28,2%; log-rank $p = 0,001$) y tasa de riesgo del evento combinado (HR ajustada: 1,94; IC 95%: 1,12-3,27; $p = 0,012$). La ERC fue predictor independiente de eventos (HR: 1,66; IC 95%: 1,05-2,61; $p = 0,03$).

Conclusiones: En pacientes con SCASEST tratados con estrategia invasiva, la ERC se asocia de manera independiente a mayor riesgo de eventos cardiovasculares a 3 años.

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Introduction

Chronic kidney disease (CKD) includes a heterogeneous group of disorders that affect the structure and function of the kidney.¹ Its prevalence continues to increase, reaching between 2.5% and 11.2% of the adult population in developed countries.^{2,3} In large registries of patients with acute coronary syndrome without ST segment elevation (NSTEMI-ACS) CKD is present in up to 40% of patients⁴; this is related to an increased risk of adverse cardiovascular events (ACVE), usually attributed to the higher frequency of traditional risk factors.^{2,5}

In high-risk NSTEMI-ACS, results from randomized clinical trial suggest to perform an invasive strategy, with angiography and revascularization rather than being conservative (invasive procedures should be used if ischemia is demonstrated).⁶⁻⁹ The current guidelines recommend that the care offered to patients with CKD should not be affected by renal dysfunction unless drug dose adjustment is required.⁹ However, data from recent observational studies and registries show that in CKD cases with NSTEMI-ACS the diagnostic procedures that could benefit the patient are not always used.⁴ It would be debatable if differences in patient management could explain less favorable outcomes in CKD. The changes in prognosis as a consequence of applying an invasive strategy in patients with CKD are not uniform for all CKD stages.^{10,11} In addition, there are other metabolic factors that may favor endothelial dysfunction which directly contribute to poor prognosis.^{1,12}

Many of the studies that evaluate patients with CKD in a NSTEMI-ACS are secondary analysis of clinical trials in which patients with moderate and advanced degrees of renal failure are excluded and these are patients usually seen in daily clinical practice not well represented in such studies.^{6,7,13} Others studies analyze the full spectrum of acute coronary syndrome, including or fully dedicated to dialysis patients, or only assess events during hospitalization or after short-term follow-up.¹⁴⁻¹⁷ All this implies that, in general the results of the published studies are of limited utility in populations of non-selected patients. The increase in the number of cases with NSTEMI-ACS that show CKD at admission and the scarce information in this population makes this subject particularly interesting.¹⁸

The present study evaluates the long-term effect of baseline renal function on the risk of presenting ACVE (adverse cardiovascular events) in a cohort of patients with NSTEMI-ACS using invasive therapeutic strategy. We focus on these patients, a homogenous population, to assess the specific influence of CKD on the results.

Methods

Study population

Data were collected from an observational clinical registry obtained under conditions of usual clinical practice

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