Supplementary material

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Table S1. Inclusion and exclusion criteria of XARENO

Inclusion criteria:

- Male and female patients, age ≥ 18 years
- CKD with eGFR 15–49 ml/min per 1.73 m^2

— Documented non-valvular atrial fibrillation (NVAF) with indication for anticoagulation therapy

— A treatment strategy for the \geq 3 previous months before enrolment with either:

- Rivaroxaban or
- VKA or
- Without anticoagulation
- Received (if applicable) at the earliest in January 2012
- Informed consent
- Availability for follow up
- Life expectancy of ≥ 6 months

Exclusion criteria:

— Exclusion criteria according to the local product information for the respective anticoagulation treatment^a

- Planned chronic treatment with other anticoagulants
- Expected renal-replacement therapy within the next 3 months

^aAlthough use of VKA, e.g. phenprocoumon in Germany, may according to local product information not be recommended in patients with established renal insufficiency, the use of VKA in NVAF patients with impaired renal function per inclusion criteria was not considered as exclusion because of the recommended use of VKA in guidelines [2].

eGFR will be estimated by the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation [11]. In addition, creatinine clearance will be analyzed and estimated with the Cockcroft–Gault formula [12].

Abbreviations: CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; VKA, vitamin K antagonists

Table S2. Primary efficacy and safety outcomes in XARENO

1. Progression of CKD:

• Decline in eGFR in ml/min per 1.73 m²

2. Other:

- Major bleeding
- All-cause mortality
- Transient ischaemic attack, stroke or systemic arterial embolism
- Other major cardiovascular events (MACE):
 - myocardial infarction
 - acute coronary syndrome/unstable angina
- Symptomatic venous thromboembolic events
- Net-clinical benefit (stroke and other thromboembolic events, major bleeding, and all-cause mortality)

Abbreviations: see Table S1

Table S3. Secondary outcomes in XARENO

- Initiation of chronic renal replacement therapy
- eGFR <15 ml/min per 1.73 m^2 (chronic kidney disease stage 5, dialysis or non-dialysis)
- eGFR decline of \geq 30%
- Doubling of serum creatinine concentration
- Acute kidney injury (AKI) events defined as acute kidney injury associated with either hospitalization or emergency department visit, where AKI event is the lead diagnosis
- Rates, causes and length of hospitalizations
- Persistence with oral anticoagulation therapy
- Reasons for oral anticoagulation therapy discontinuation

Abbreviations: see *Table S1*