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| **Supplementary Material 2. Study results of HF in Subjects with CKD Treated With ACE Inhibitors** |
| **Study** | **Subjects** | **Study Protocol** | **Primary endpoint** | **Population** | **Clinical Outcomes** | **SAE due to treatment** |
| SOLVD trials (7) | 6377 | RCT of enalapril vs placebo | Early WRF and mortality due to ACE inhibitor  | HFrEF, EF≤35%, | No adverse prognostic significance associated with ACE inhibitor use  | NS SAE due to treatment  |
| Berger et al (8) | 4573 | Retrospective study ACE inhibitor or ARB vs no ACE inhibitor or ARB | 30-day and 1-year mortality | CHF with CKD | ACE-I or ARB was associated with significantly reduced 30-day mortality and 1-year mortality  | SAE due to treatment not reported |
| Ahmed et al (11) | 1340 | Retrospective ACE inhibitor/ARB vs no ACE inhibitor/ARB | all-cause mortality over 8 years of follow-up | HFpEF with CKD stage 3  | All-cause mortality was reduced in CKD 2,3,4 patients  | NA |
| Edner et al (9) | 2410 | Prospective study ACE inhibitor/ARB/both vs no ACE inhibitor/ARB | Mortality of any cause  | HFrEF, EF≤39% with CKD stage 4 | Significant decrease in lower all-cause mortality in CKD 4,5 and older ages | NA |
| Gurwitz et al (10) | 2414 | HFrEF and HFpEF in chronic lung disease and CKD | death from any cause, hospitalization for HF, and hospitalization from any cause. | GFR <60 mL/min per 1.73 m2 | ACE-I protective for all three outcomes of interest for patients with HFrEF including death from any cause, hospitalization for HF, and hospitalization from any cause  | NA |

SOLVD, Studies of Left Ventricular Dysfunction; ACE, angiotensin-converting-enzyme; ARB, angiotensin receptor blocker; CHF, Chronic heart failure; CKD, chronic kidney disease; HFrEF, Heart failure with reduced ejection factor; RCT, randomized control trial; HF, heart failure; NS, not significant; SAE, serious adverse event; SCr, serum creatinine;

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