THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
APSN
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

Abstract Submission No.: A-0301

Renin-angiotensin System Inhibitors Reduce Mortality and Allograft Loss Among Renal Transplant Recipients

Yu-Hsiang Chou[1], Yi-Chih Lin[1], Chin-Wei Kung[2], Chi-Shin Tseng[3]
[1]Department of Internal Medicine-Nephrology, National Taiwan University, Taiwan
[2]Department of Emergency and Critical Care Medicine, Taipei University Hospital, Taiwan
[3]Department of Urology, National Taiwan University Hospital, Taiwan

Objectives : The blockade of the renin-angiotensin system (RAS) has a beneficial effect on reducing the levels of proteinuria and blood pressure in patients with chronic kidney disease (CKD) and reduces the risk of developing end-stage kidney disease (ESKD) in CKD patients. Nonetheless, a debate persists regarding the impact of RAS inhibitors on outcomes such as mortality and graft survival in renal transplant patients. To assess the effect of RAS inhibitors on graft recipients in the past decade, we conducted a systematic review and meta-analysis.
Methods : We systematically searched Embase, PubMed, and the Cochrane Central Register of Clinical Trials on the internet from January 1, 2012, to August 1, 2022. We included 14 articles, comprising 5 randomized controlled trials and 9 cohort studies, including 45,377 patients. These studies compared patient or graft survival between an RAS inhibitors treatment arm and a control arm.
Results : The meta-analysis revealed that RAS blockade was significantly associated with lower mortality (risk ratio [RR] = 0.68, 95% confidence interval [CI]: 0.58-0.81), reduced graft failure (RR = 0.63, 95% CI: 0.55-0.71), and significant changes in systolic blood pressure. Subgroup analysis of the groups of interest (interventions involving RAS blockade, follow-up period of ≥ 5 years) showed consistently reduced mortality (RR = 0.67, 95% CI: 0.56-0.81) and reduced graft loss (RR = 0.61, 95% CI: 0.54-0.70).
Conclusions : Our meta-analysis demonstrated that RAS blockade application among renal transplant recipients significantly showed benefits on patient and allograft survival, especially for those with a follow-up period of ≥ 5 years.

Figure 1.jpg

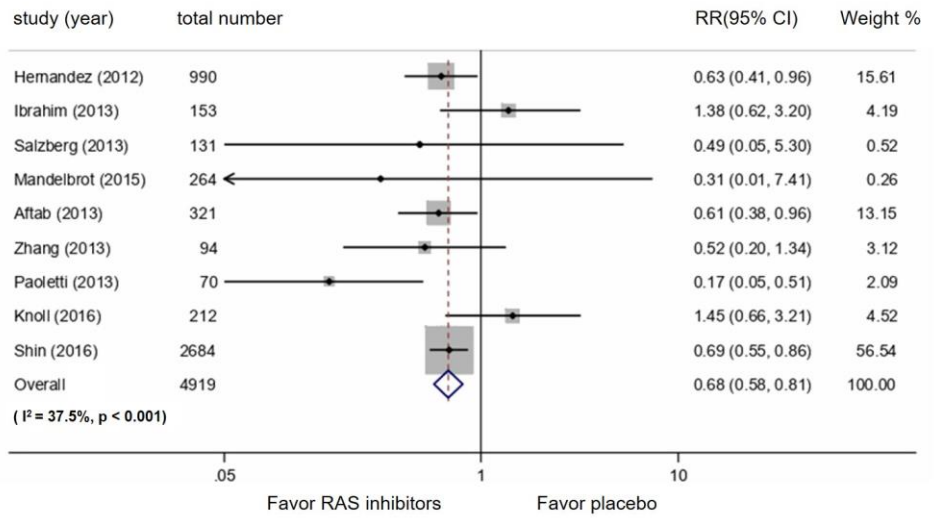
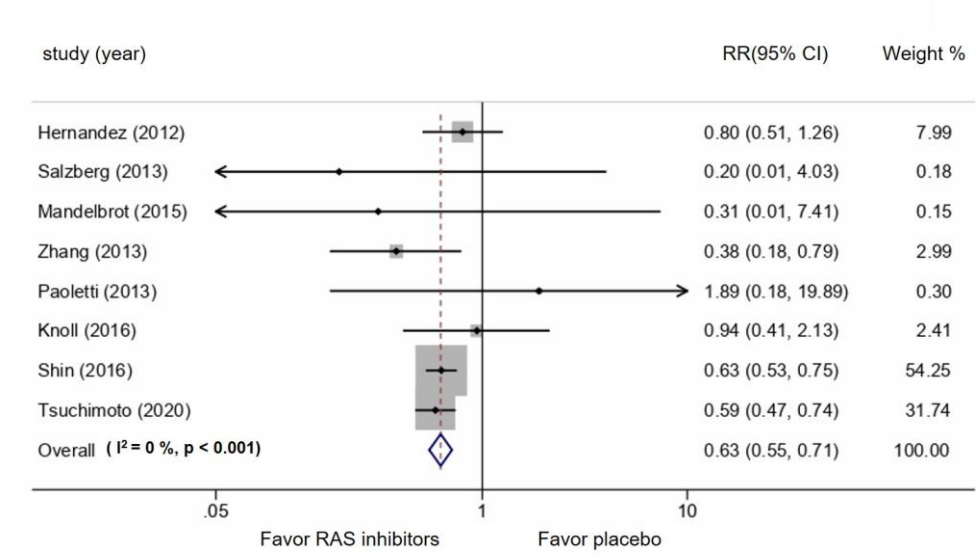

study (year)
total number
RR(95% CI)
Weight %
Hernandez (2012) 990 0.63 (0.41, 0.96) 15.61
Ibrahim (2013) 153 1.38 (0.62, 3.20) 4.19
Salzberg (2013) 131 0.49 (0.05, 5.30) 0.52
Mandelbrot (2015) 264 0.31 (0.01, 7.41) 0.26
Aftab (2013) 321 0.61 (0.38, 0.96) 13.15
Zhang (2013) 94 0.52 (0.20, 1.34) 3.12
Paoletti (2013) 70 0.17 (0.05, 0.51) 2.09
Knoll (2016) 212 1.45 (0.66, 3.21) 4.52
Shin (2016) 2684 0.69 (0.55, 0.86) 56.54
Overall 4919 0.68 (0.58, 0.81) 100.00
(I² = 37.5%, p < 0.001)
.05
1
10
Favor RAS inhibitors
Favor placebo

Figure 1.jpg


study (year)
RR(95% CI)
Weight %
Hernandez (2012) 0.80 (0.51, 1.26) 7.99
Salzberg (2013) 0.20 (0.01, 4.03) 0.18
Mandelbrot (2015) 0.31 (0.01, 7.41) 0.15
Zhang (2013) 0.38 (0.18, 0.79) 2.99
Paoletti (2013) 1.89 (0.18, 19.89) 0.30
Knoll (2016) 0.94 (0.41, 2.13) 2.41
Shin (2016) 0.63 (0.53, 0.75) 54.25
Tsuchimoto (2020) 0.59 (0.47, 0.74) 31.74
Overall (I² = 0 %, p < 0.001) 0.63 (0.55, 0.71) 100.00
.05
1
10
Favor RAS inhibitors
Favor placebo