EFFECT OF ALDOSTERONE ANTAGONISTS ON CKD PROGRESSION: A META-ANALYSIS

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Introduction

Reducing proteinuria with ACEi or ARBs is the mainstay of treatment to retard CKD progression. Aldosterone antagonists (AAs) in addition to renin-angiotensin system (RAS) inhibition may provide additive benefits on proteinuria and further prevent progression of CKD. This updated systematic review and meta-analysis evaluates the benefits and harms of AAs alone or in combination with RAS inhibition in the setting of CKD

Methods

We searched the Cochrane Renal Group's specialized register of trials to 30 January 2013 to identify randomized controlled trials (RCTs) and quasi-RCTs comparing AAs alone or in combination with ACEi and/or ARBs against other anti-hypertensive strategies or placebo. Data were summarized using random effects meta-analysis and summary treatment estimates were calculated as mean difference (MD) for continuous outcomes and risk ratio (RR) for dichotomous outcomes together with their 95% confidence intervals (CI).

Results

Twenty-seven studies (comprising 1549 participants) were eligible for inclusion. Compared to ACEi and/or ARBs alone, non-selective AAs (spironolactone) combined with ACEi and/or ARB significantly reduced 24-hour protein excretion (11 studies, 596 patients; SMD -0.61 g/day, 95% CI -1.08 to -0.13; Fig.1). There was a significant reduction in both systolic and diastolic BP (Fig. 2 and 3) at the end of treatment with additional non-selective AA therapy (systolic BP: 10 studies, 556 patients; MD -3.44 mmHg, 95% CI -5.05 to -1.83; diastolic BP:9 studies, 520 patients; MD -1.73 mm Hg, 95% CI -2.83 to -0.62). However, AA treatment had inconclusive effects on the end of treatment GFR (9 studies, 528 patients; MD -2.55 mL/min/1.73 m², 95% CI -5.67 to 0.51; Fig.4), doubled the risk of hyperkalemia (11 studies, 632 patients; RR 2.00, 95% CI 1.25 to 3.20; Fig.5) and increased the risk of gynecomastia compared to ACEi and/or ARB alone (4 studies, 281 patients; RR 5.14, 95% CI 1.14 to 23.23).

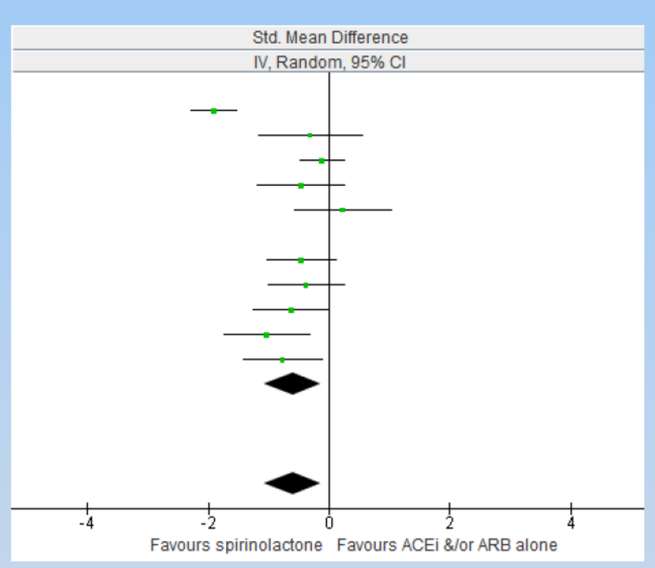

Figure 1: Proteinuria

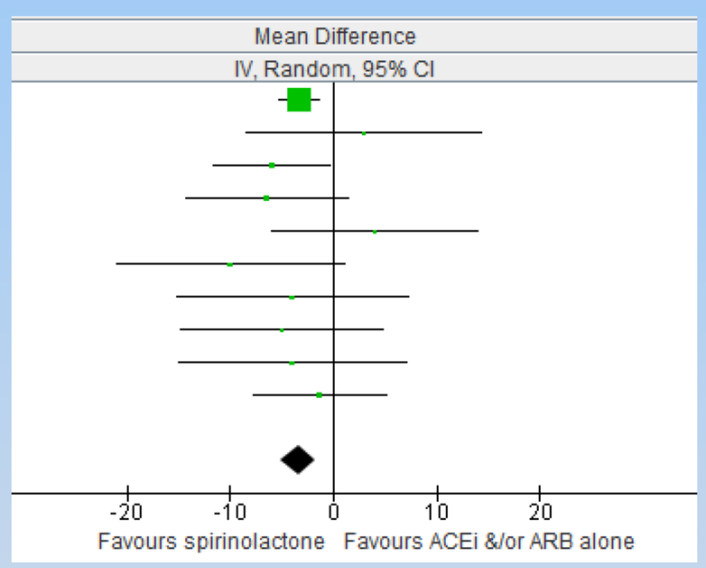

Figure 2: Systolic BP

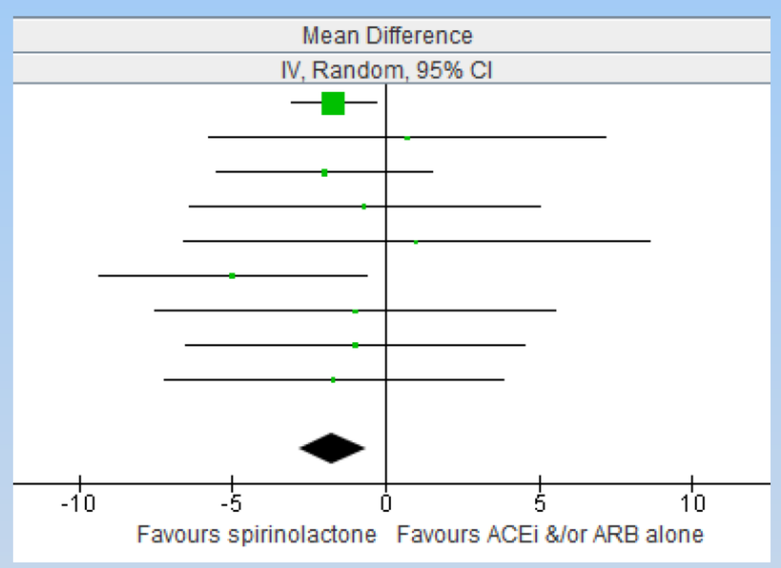

Figure 3: Diastolic BP

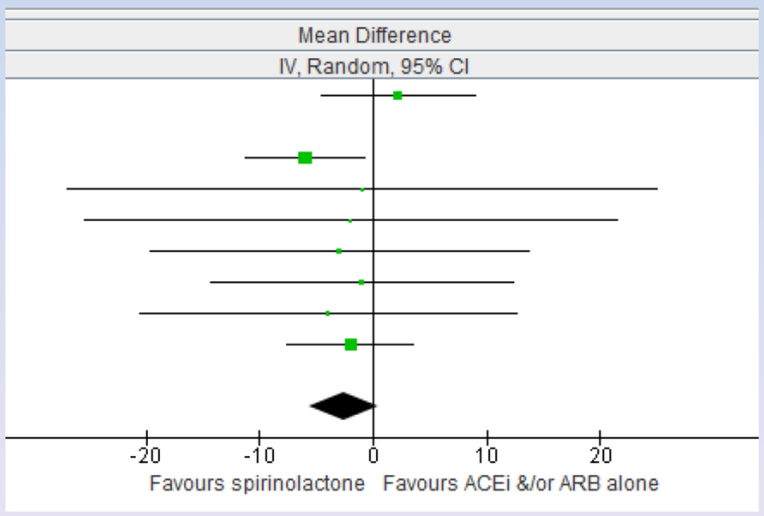

Figure 4: GFR

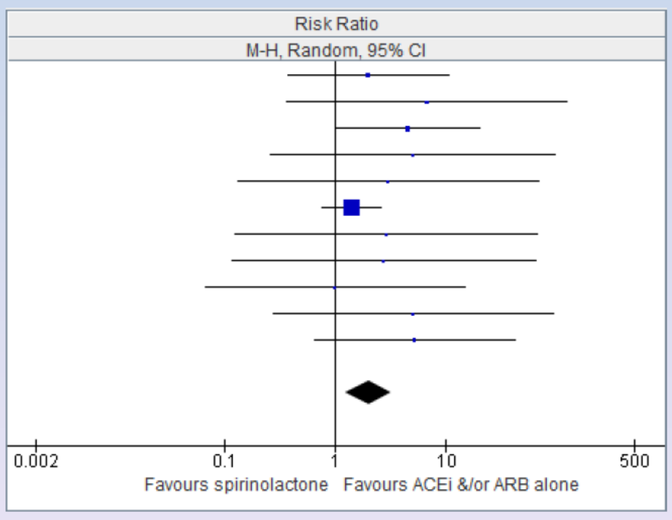

Figure 5: Risk of Hyperkalemia

Conclusions

AAs reduce proteinuria and blood pressure but treatment effects on patient-relevant outcomes including progression to ESKD and major cardiovascular events are unknown and treatment hazards include hyperkalemia and gynecomastia. Further trials adequately powered to evaluate survival, cardiovascular events and progression of CKD are needed before widespread clinical use of AAs can be justified

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