Letters to the Editor

Mineralocorticoid receptor antagonists in adults with resistant hypertension and obstructive sleep apnoea

I thank Hynes and Mansfield for their review article addressing the diagnosis and management of obstructive sleep apnoea (OSA) in adults.[1]

OSA is associated with increased risk of resistant hypertension (odds ratio 3.34) and adverse cardiovascular outcomes.[2] Higher urine and plasma aldosterone concentrations are associated with increased apnoea-hypopnoea index.[3] In a recent study, 27% of individuals with OSA and resistant hypertension were shown to have primary aldosteronism.[4] Treatment with continuous positive airway pressure alone is associated with modest reductions in 24-hour systolic (−5.92 mmHg) and diastolic (−4.44 mmHg) blood pressure in individuals with resistant hypertension and OSA.[5]

Studies of mineralocorticoid receptor antagonists have demonstrated significant effects on blood pressure and sleep apnoea symptoms in people with OSA associated with resistant hypertension.[6,7]

A 3-month randomised open-label study (n=30 participants) evaluated spironolactone 20 to 40 mg daily in addition to existing antihypertensive therapy, compared with usual care, in patients with OSA and resistant hypertension.[6] Significant reductions were demonstrated in the apnoea-hypopnoea index (−21.8 versus −1.8), hypopnoea index (−9.8 versus +2.7), oxygenation desaturation index (−20.8 versus −0.3) and plasma aldosterone concentration (−9.8 versus −2.9 ng/dL) in the spironolactone group compared with the control group. There was also a significant reduction in clinic blood pressure (−19.9/−5.7 mmHg versus −10.9/−2.4 mmHg) and 24-hour ambulatory blood pressure (−16.3/−14.9 mmHg versus −5.3/−2.9 mmHg) in the spironolactone group compared with the control group.[6]

A 3-month uncontrolled prospective observational trial of eplerenone 50 mg daily in 31 individuals with OSA and resistant hypertension (average 3.93 antihypertensive medications) demonstrated significant reduction in apnoea-hypopnoea index, blood pressure and arterial stiffness at 12 weeks.[7]

There are no published data regarding the use of finerenone in OSA and resistant hypertension to date. Mineralocorticoid receptor antagonists may have specific benefits in the management of resistant hypertension and OSA. Monitoring of serum potassium is important in the setting of co-therapy with angiotensin converting enzyme inhibitors and angiotensin II receptor blockers because of the increased risk of hyperkalaemia.

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Conflicts of interest: none declared

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Daniel Hynes and Darren Mansfield, the authors of the article, comment:

We thank Morton for their comments on our review. The bidirectional association between obstructive sleep apnoea (OSA) and hypertension is well described. Intermittent hypoxaemia from upper airway occlusion induces overactivation of the renin–angiotensin–aldosterone system. In turn, fluid and salt retention can increase rostral fluid shifts that may worsen underlying OSA severity.[1] Treatment of OSA has generally been shown to reduce aldosterone levels,[2]

Keywords
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with blood pressure improvements as Morton highlighted. These links between resistant hypertension, aldosteronism and OSA highlight the importance of OSA screening in people with resistant hypertension.

Data supporting both a reduction of the apnoea-hypopnoea index and improved oxygen saturation using mineralocorticoid receptor antagonists in people with OSA and resistant hypertension are promising; however, this research remains limited to relatively small sample sizes. Yang's study of spironolactone included 30 participants,[3] and 31 were recruited in Krasińska's study of eplerenone.[4] Improvement in OSA symptoms has not been a commonly measured outcome in studies of mineralocorticoid receptor antagonists in people with OSA and resistant hypertension.

Alternative treatment options for OSA remain desirable, considering that long-term adherence with positive airway pressure is challenging for some individuals.[5] We will await further research into the role of mineralocorticoid receptor antagonists, in the hope that these findings may be incorporated into future clinical practice.

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