



11. PARTICULARITIES OF THE ACTION OF THE INHIBITORS OF THE RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM IN MEN AND WOMEN

Author: Nicolenco Nicoleta

Scientific advisor: Bacinschi Nicolae, PhD, Professor, Head of Department of Pharmacology and Clinical Pharmacology, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. The renin-angiotensin-aldosterone system (RAAS) plays a significant role in cardiovascular pathology, including arterial hypertension (HTA). It has been demonstrated that endogenous sex hormones interact with RAAS. Testosterone causes a vasoconstrictor effect, possibly by increasing angiotensinogen ARN messenger and plasma renin activity, and estrogens antagonize RAAS by decreasing plasma renin activity, angiotensin-converting enzyme expression, and angiotensin 1 receptor expression.

Aim of study. The purpose of this review was to elucidate the action particularities of RAAS inhibitors according to the sex of patients.

Methods and materials. Data from the PubMed database on the efficacy and safety of RAAS inhibitors in men and women were analyzed.

Results. The benefits of angiotensin-converting enzyme (ACE) inhibitors in women were reported to be reduced during treatment, while angiotensin receptor blockers (ARBs) decreased blood pressure more in women than in men. These discoveries can be associated to sex differences in the intrarenal components of RAAS. ACEI has been shown to produce a significantly greater decrease in blood pressure in men compared to women. This result could be due to the inhibition of bradykinin degradation by ACEI and its cumulation causes a vasodilating effect. Bradykinin may help increase the effectiveness of ACEI in men by releasing nitric oxide with reduction of oxidative stress. It has been estimated that men have higher levels of oxidative stress than women in HTA. In women the cardiovascular advantages of ARB over ACEI are stronger than in men due to the higher expression of angiotensin 2 receptors, especially in afferent and efferent arterioles, as well as a less excitable and more easily repressed renal sympathetic system in women. It has been shown that women may experience adverse reactions to antihypertensives more frequently than men. Thus, women had a higher incidence of adverse reactions to ACEI, thiazides, potassium-sparing diuretics. Adverse reactions to aldosterone antagonists have been reported more frequently in men, the most reported being hyperkalemia.

Conclusion. The particularities of RAAS in women and men may be responsible for the efficacy and harmlessness of RAAS inhibitors. The elucidation of the sex-determined aspects of the action of ACEI, ARB, aldosterone antagonists, and renin inhibitors will contribute to the development of new strategies in the rational selection of RAAS inhibitors in women and men.