

Drospirenone, a progestogen with antimineralocorticoid properties: a short review.

Oelkers W.

Department of Internal Medicine, Division of Endocrinology, Diabetes and Nutrition, Klinikum Benjamin Franklin, Freie Universitat Berlin, Hindenburgdamm 30, 12200 Berlin, Germany.

Progesterone (P) has high affinity to the mineralocorticoid receptor (MCR), and it is an MCR antagonist. Almost all synthetic progestogens are devoid of this antimineralocorticoid (anti-MC) effect. They are unable to antagonize the salt retaining effect of estrogens. This could be one cause of weight gain and an increase in blood pressure with the use of combined oral contraceptives (OC) and, in some susceptible women, with postmenopausal estrogen/(progestogen) treatment. The purpose of this presentation is to review results of clinical studies with drospirenone (DRSP), a new progestogen developed by Schering A.G., with anti-MCR activity. DRSP is a derivative of 17-alpha-spirolactone. In rats, rabbits and in man, it is a PR-agonist and an MCR- and androgen-R antagonist with no effect on the glucocorticoid-R and the estrogen-R. In normally menstruating women, 2-3mg DRSP per day, taken from day 5 to 25 of the cycle, inhibit ovulation, lead to a mild natriuresis, and a slight compensatory activation of the renin-aldosterone system. Compared with an OC containing 30microg ethinylestradiol (EE) and 150microg levonorgestrel, a combination of 3mg DRSP with 30microg EE given over 6 months led to a slight decrease in body weight and blood pressure. The reduction in mean body weight by a combination of DRSP with EE compared with a conventional OC could be confirmed in a study over 26 months in 900 young women. The OC containing DRSP has favorable effects in patients suffering from the premenstrual syndrome (PMS), and, partly due to the antiandrogenic effect of DRSP, in those with acne vulgaris. For postmenopausal women, a combination of DRSP with estradiol has been developed with the expectation that the slight blood pressure lowering and weight reducing effects will minimize cardiovascular morbidity in patients needing hormone treatment because of hot flushes and other climacteric symptoms. Conclusions: DRSP, by its anti-MCR effect and its potential to slightly decrease body weight and blood pressure, shares many pharmacodynamic properties with progesterone, and it is a candidate for reducing cardiovascular morbidity in women using OCs or postmenopausal hormone treatment.