

Effects of *ABCB1* 3435C>T genotype on serum levels of cortisol and aldosterone in women with normal menstrual cycles

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ABSTRACT. *ABCB1*, also known as MDR1/P-glycoprotein, can transport cortisol and aldosterone. We examined the effects of *ABCB1* polymorphisms on serum levels of cortisol and aldosterone among different phases of the normal menstrual cycle in 51 non-pregnant healthy Japanese female volunteers (22 ± 1 years old). The menstrual cycle was divided into three phases: premenstrual phase (14 days preceding the onset of menstruation, N = 22; menstrual phase, N = 11, and postmenstrual phase, N = 18). *ABCB1* -129T>C, 1236C>T, 2677G>A/T, and 3435C>T genotypes were determined. Serum levels of cortisol, aldosterone, estradiol, progesterone, and testosterone were measured. The serum levels of estradiol in the pre- and post-

menstrual phases and of progesterone in the premenstrual phase were significantly increased when compared to their serum levels in the menstrual phase ($P < 0.005$). In the postmenstrual phase, the mean serum cortisol level in subjects with the 3435CT and 3435TT genotype was $7.6 \pm 3.4 \mu\text{g/dL}$ (mean \pm SD, $N = 7$), which was significantly lower than in women with the 3435CC genotype ($9.9 \pm 1.8 \mu\text{g/dL}$, $N = 11$) ($P = 0.037$). The opposite effect was observed in the serum aldosterone level during the postmenstrual phase (97.2 ± 23.4 and $141.2 \pm 48.5 \text{ pg/mL}$ for 3435CC and 3435CT + 3435TT, respectively; $P = 0.041$). These findings suggest that *ABCB1* 3435C>T genotype can influence serum levels of cortisol and aldosterone during the postmenstrual phase of the normal menstrual cycle.

Key words: MDR1; P-glycoprotein; Genetic polymorphism; Cortisol; Aldosterone; Menstrual cycle