

**RESEARCH ARTICLE**

**Fluctuations in Serum magnesium and Systemic Arterial Blood Pressures during the Menstrual Cycle in young reproductive women**

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**ABSTRACT:**

**Introduction:** The menstrual cycle involves a sequence of structural, functional, and hormonal changes in the reproductive system. This is linked and controlled by cyclical fluctuations in the levels of FSH, LH, estrogen, and progesterone. Because of these cyclical fluctuations, there might also be associated cyclical changes of magnesium and systemic arterial blood pressures during the menstrual cycle. **Purpose:** To assess the changes in serum magnesium level and systemic arterial blood pressures during the menstrual cycle in young reproductive women. **Methodology:** the sample population is 40 apparently healthy young reproductive-aged 18- 25years female students from the University of Medicine, Magway participated in this study. Systemic arterial blood pressures were measured by indirect method. The serum magnesium level was measured by spectrophotometry. These measurements were done in the early follicular phase (EF), the peri-ovulatory phase (PO), and the mid-luteal phase (ML) of the menstrual cycle. The serum magnesium levels were significantly ( $p < 0.001$ ) lower, and the systolic blood pressures were significantly higher ( $p < 0.05$ ) in the PO than the EF and the ML. In the EF, there was a significant negative correlation between serum magnesium level and diastolic blood pressure ( $r = -0.374$ ,  $p < 0.05$ ) and mean arterial pressure ( $r = -0.354$ ,  $p < 0.05$ ) but no significant correlation with systolic blood pressure. In the PO, there was no significant correlation between serum magnesium level and systemic arterial blood pressures. In the ML, there was significant negative correlation between serum magnesium level and systolic blood pressure ( $r = -0.651$ ,  $p < 0.001$ ), diastolic blood pressure ( $r = -0.607$ ,  $p < 0.001$ ), and mean arterial pressure ( $r = -0.661$ ,  $p < 0.001$ ). **Conclusion:** The study concludes that serum magnesium level has a negative effect on blood pressure changes and the blood pressure-lowering effect of magnesium. These changes are related to the fluctuation of estrogen levels during the menstrual cycle.

**KEYWORDS:** Serum magnesium, systemic arterial blood pressures, menstrual cycle reproductive system.

**INTRODUCTION:**

The menstrual cycle is exclusive to females in humans and some of the primates, caused because of complex interplay amongst the hypothalamus, anterior pituitary gland, ovaries, and uterus, also undergo sequential structural, functional, and hormonal changes in the organs system and its parts which function in reproduction. This is connected and controlled by cyclical fluctuations in the levels of follicle-stimulating hormone (FSH), luteinizing hormone (LH) of the pituitary, and sex hormones such as estrogen and progesterone. Bayer & Decherney, 1993<sup>1</sup> has expressed that the hormonal changes during this cyclic process result in ovulation. The length of the cycle is