

## Influence of Menstrual Cycle on the Pharmacokinetics of Antibiotics

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**Abstract :** For several reasons no two individuals can be considered identical and hence individualization of therapy is the current trend in treating the patients. Influence of menstrual cycle on the pharmacokinetics of Doxycycline. Twelve healthy female volunteers have been included in the study after obtaining written informed consent. The age ranged from 16 to 25 years. Experimental design: The volunteer selection and recruitment will be carried out after obtaining informed consent from each volunteer. The drug administration will be done to each volunteer at 7 a.m along with a glass of water after an overnight fasting on 3rd, 13th and 23rd day of menstrual cycle. These saliva samples will be stored under frozen conditions until HPLC analysis. Results: In the present study the changes in estrogen levels during ovulatory phase have not shown any influence on AUC<sub>0-t</sub> of Doxycycline. Only AUC<sub>0-t</sub> of doxycycline showed an increasing trend with increasing levels of estrogen in ovulatory phase, but not in other phases. Even though the FSH levels differed significantly among volunteers during different phases FSH does not seem to influence the overall pharmacokinetic behavior of Doxycycline during different phases. The present study indicated only the trend that the hormone levels may influence the pharmacokinetic behavior of the Doxycycline. Conclusion: In the present study the changes in hormones have shown an increasing C-max, increasing AUC<sub>0-t</sub> of Doxycycline pharmacokinetics significantly in follicular phase than ovulatory and luteal phases among volunteers during different phases. In other pharmacokinetic properties like clearance, biological half-life, volume of distribution, mean residence time the change was not significant.

**Keywords :** menstrual cycle, doxycycline, estrogen, FSH, ovulatory phase

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