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### Monitoring the blood pressure in different phases of menstrual cycle

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#### ABSTRACT

The present study is performed to screen the daily blood pressure changes in the entire cycle of menstrual cycles. As we are aware that many hormones involved in regulating the menstrual cycle which has its influence on the blood pressure directly or indirectly. India is a highly populated country hence Government of India and State Government of Tamilnadu has taken various measures to control the population through various family planning programmes. Presently the effective family planning method is by using oral contraceptives which contain synthetically prepared hormones. These hormones although it controls conception , since it contains synthetic which show toxic signs by altering the physiology which may results in psychopharmacological by altering the metabolic functions. If these toxic signs are neglected for a long time leads to cancer. In this study 10 female subjects having normal menstrual cycle with the age group of 15 – 20 years were selected since the cycle will be very effective in these age group girls. In this study we observed a study increase in blood pressure in luteal phase when compared to other follicular or menstrual flow period. Regarding the other three phases of the cycle, they show fluctuating results which may be due to the living environment and hormones. During these three phases when we compare the blood pressure of morning and evening it shows high fluctuation which is not observed in the luteal phase where it shows a steep increase in the entire day. Similar studies will help us to identify the time of increase in the entire luteal period of the menstrual cycle.

**Keywords:** Menstrual, Luteal, Follicular, Psychosomatic and Contraceptives.

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## INTRODUCTION

Female reproductive cycle is very complicated with the involvement of many hormones. India is a highly populated country hence it insist public to follow all strict family planning methods different contraceptives. The CUE method accurately defines the fertile phase of the menstrual cycle, thus improving the predictability of ovulation for women who use natural methods of birth control [3]. The significant increase in cardiovascular disease risk with the loss of estrogen and progesterone at menopause has lead to increasing interest in the cardiovascular influences of female reproductive hormones. In addition to direct influences of estrogen to promote endothelium- dependent vasodilatation, recent evidence demonstrates important influences of both estrogen and progesterone on the neutral control of the peripheral circulation. These influences have been studied in two general contexts. First, the effects of these hormones on the sympathetic control of the cutaneous circulation have received substantial attention. The control of neurogenic vasodilatation in the skin in response to hyperthermia is shifted to higher and lower internal temperatures by progesterone and estrogen respectively. Reflex vasoconstrictor control of skin blood flow is shifted to higher internal temperatures when the hormones are elevated. Second, reproductive hormones have recently been shown to significantly alter sympathetic neural control of the skeletal muscle circulation. [5] A retrospective analysis of data from 207 non pregnant premenopausal women showed that the mean level of systolic blood pressure varied with the stage of the menstrual cycle, being higher on days 17-26, the part of the luteal phase during which the peak of progesterone levels develops, than during the luteal phase as a whole, and significantly higher than the mean for all other days of the cycle.

Basing on the aforesaid literature an attempt has been made to evaluate blood pressure in the age group of 15 (onset of puberty)-20(5 years after the onset literature).The purpose of the work is to screen the exact phase of the cycle when the blood pressure shoots up, further study can be extended to correlate the recording with the level of different hormones will give us idea of discovering new, safe contraceptive method.

## MATERIALS AND METHODS

### Selection of Subjects

Subjects were selected with the age group of 15 to 20, since they will have a normal effective cycle without any fluctuation. While selecting the subject, we took at most care that they are subject with balanced psychology. Subjects were asked to take their routine food and psychological behaviour was observed.

### Recording of Blood Pressure

The principle of measurement consists recording not the blood pressure directly in the artery but the arterial counter pressure by squeezing the artery on which the pressure is measured. Indeed, the doctor uses a cuff (or an arm-band), which will be gradually filled with

air to press the artery below. The doctor listens to, using his stethoscope, to the noise emitted by blood at the time of its passage in the artery. When the band is sufficiently inflated to compress the artery that is below, blood cannot pass any more and the doctor thus does not perceive any noise. Then, the cuff is gradually deflated and the noise now perceived defines the maximal blood pressure (systolic blood pressure). As the band carries on its deflation, the noise of the artery disappears again and the physician measures the pressure corresponding now to the minimal (Diastolic blood pressure).

**Sample Case Sheet**

Case number ...01...  
 Name of the subject .....,  
 Age .....  
 Approximate weight.....  
 Date of commencement of the cycle ... ..

Sl.NO	Systolic pressure	Diastolic pressure	Pulse pressure

**RESULTS**

Results were recorded in the case sheet with all the personal details of the subject. Results were quite interesting to note that there is no significant result observed in both menstrual and follicular phase whereas a significant increase observed in luteal phase. [Table 1]

.No	Phase	Systolic pressure (mm of Hg)	Diastolic pressure (mm of Hg)	Remarks
1	Menstrual	104 ± 1.9	67 ± 2.6	nil
2	Follicular	99 ± 2.9	67± 3.3	nil
3	Ovulation	105 ± 1.4	77 ± 1.8	nil
4	Luteal phase	110 +- 2.1	79 +- 2.8	nil

**DISCUSSION**

The earlier literature on the menstrual cycle, blood pressure may vary slightly are usually not significant [1]. Whereas the stress can be conceptualized as a state of disharmony or threatened homeostasis, with the patient’s adaptive response being specific to the stressor or being more generalized. The effects of stress influence adaptive behaviors results in the inhibition of biologically costly behaviors such as reproductive cycle [2] may be one of the causes for fluctuating readings in the other phases. Since the results are quite significant in luteal cycle the study can be further extended to screen the blood pressure at every six hours to locate the time when the blood pressure gets increase during the luteal phase. Further it can be

investigated to find out the difference hormonal level during the increased blood pressure of the day will help us to identify a safe very effective family planning method by avoiding the synthetically prepared hormonal pills.

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