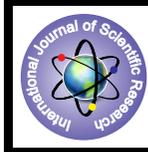


Ovarian Hormones Causing Chromosomal Aberrations Producing Behavioural Teratogenicity In Female Youngsters--Reason Of Prepubertal Age Girl Being Respected As Goddess.



Medical Science

KEYWORDS :Ovarian hormones, Chromosomal aberrations, Behavioural teratogenicity, Female youngsters.

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ABSTRACT

In order to know the reason of prepubertal age girl being respected as Goddess, chromosomal and behavioural study was performed in female youngsters belonging to prepubertal, pubertal and postpubertal age groups.

It was observed that chromosomal aberrations were 3.36% in prepubertal age group, 7.14% in pubertal age group and 10.84% in post pubertal age group. Truthfulness, honesty, wisdom, perineal hygiene, faithfulness, loyalty were +++ in prepubertal age group ++ in pubertal age group and + in postpubertal age group while courage for bad things cowardness, moneymindedness, doubtfulness, confidentiality, cunningness were + in prepubertal age group ++ in pubertal age group and +++ in postpubertal age group.

It was concluded that increase in chromosomal aberrations during pubertal and postpubertal age was caused by ovarian hormones which were absent in prepubertal age. Behavioural teratogenicity during pubertal and postpubertal age was produced due to increased chromosomal aberrations. Therefore reason of prepubertal age girl being respected as Goddess is absence of ovarian hormones, minimum chromosomal aberrations and minimum behavioural teratogenicity in her.

INTRODUCTION

Lubs and Samuelson (1967)¹ described chromosomal abnormalities in lymphocytes from normal human subjects. Littlefield LG and Goh, (1973)² performed cytogenetic studies on control men and women. All of them reported definite increase in chromosomal aberrations in women attributed to reproductive hormones. There were increased chromosomal aberrations when oral contraceptives were used. Vijayachander, et al. (1988)³ recorded chromosomal aberrations in lymphocyte cultures from normal human subjects with altered media constituents. Keshaw Kumar (1999)⁴ observed effect of female oral contraceptives on human chromosomes and its behavioural teratogenicity in offsprings. Keshaw Kumar (2013)⁵ carried out chromosomal and behavioural study in female youngsters of prepubertal, pubertal and postpubertal age groups. But none of the authors has correlated the chromosomal aberrations produced due to female sex hormones with the behavioural teratogenicity in female youngsters in whom their sex hormones (oestrogen and progesterone) appear in their blood due to presence of menstrual cycles in them at the age of puberty. Therefore before and after the age of puberty in females there must be differences in their behaviour as well as number of chromosomal aberrations.

Present study was conducted to observe chromosomal aberrations and behavioural differences in female youngsters belonging to prepubertal age group, pubertal age group and postpubertal age group.

MATERIAL AND METHODS

For this study 300 healthy female youngsters of the age group ranging between 11 to 19 years were selected from Varanasi district of Uttar Pradesh (INDIA) and divided into following three groups.

1. Prepubertal age group-

100 female youngsters of the age group ranging between 11 to 13 years.

2. Pubertal age group-

100 female youngsters of the age group ranging between 14 to 16 years.

3. Postpubertal age group-

100 female youngsters of the age group ranging between 17 to 19 years.

It was confirmed that none of them had any phenotypic abnormality or chronic disease and were not taking medication routinely including oral contraceptives.

Heparinized blood from every female youngster was sedimented in plastic syringes and ICC of serum with lymphocytes was added to 6CC media TC-199 containing phytohaemagglutinin. The cells were cultured for 62 to 72 hours in 2 oz Borckway prescription bottles at 37° C.

Calcemid was added 2 hours prior to hypotonic treatment at the concentration of 5x10⁻⁵ mg/cc. Cells were treated with hypotonic Hank's Solution (1/5 tonicity in respect of Sodium Chloride), fixed in methyl acetic acid and spread by blowing and gentle heating. Orcein stain was used throughout. All slides were coded and in every slide only one cell which could be easily karyotyped was scored and photographed to observe breaks, gaps and secondary constrictions in chromosomes. In this way 100 metaphases in each of the above three groups of female youngsters (Total 300 metaphases) were scored.

All the 300 female youngsters were interviewed and watched to know their ideas and to observe their, behaviour regarding truthfulness, honesty, wisdom, perineal hygiene, faithfulness, loyalty, courage for badthings, cowardness, moneymindedness, cunningness, doubtfulness and confidentiality.

For measuring the behavioural aspects all the female youngsters of prepubertal, pubertal and post pubertal age groups were graded for their behaviour as +, ++ and +++using the parameter of number of events of truthfulness, honesty, wisdom, perineal hygiene, faithfulness, loyalty courage for badthings, cowardness, moneymindedness cunningness, doubtfulness and confidentiality in which they were involved themselves during the period of four years with + representing minimum and +++ representing maximum involvement in the events. All the behavioural aspects were measured and recorded as visual and personal assessment by a single observer only.

OBSERVATIONS

In prepubertal age group as well as in pubertal and postpubertal age groups chromosomal abnormalities were present in the form of chromatid breaks, chromatid gaps, chromosomal breaks, chromosomal gaps and secondary constrictions. It was observed that there was negligible difference in the percentage of chromosomal aberrations between pubertal age group (7.14%) and postpubertal age group (10.84%) though there was a slight increase in chromosomal aberrations in postpubertal age group than pubertal age group. But there was a definite increase in percentage of chromosomal aberrations between prepubertal age group (3.36%) and post pubertal age group (10.84%). There was slightly more percentage of chromosomal aberrations in pubertal age group (7.14%) than prepubertal age group (3.36%). Percentage of different types of chromosomal aberrations in prepubertal age

group, pubertal age group and postpubertal age group of female youngsters are shown in table-I.

Table- I
Chromosomal aberrations in female youngsters of the different age groups ranging from 11 to 19 years.

Chromosomal Aberrations	Prepubertal age group (11-13 years)	Pubertal age group (14-16 years)	Post pubertal age group (17-19 years)
Chromatid gap	0.18%	0.46%	0.73%
Chromosomal gap	0.03%	0.08%	0.18%
Chromatid break	0.70%	1.50%	2.30%
Chromosome break	0.09%	0.28%	0.46%
Secondary Constrictions	2.36%	4.28%	7.27%
Total	3.36%	7.14%	10.84%

Truthfulness, honesty, wisdom, perineal hygiene faithfulness and loyalty were +++ in prepubertal age group, ++ in pubertal age group and + in postpubertal age group while courage for badthings, cowardness, moneymindedness, cunningness, doubtfulness, confidentiality were + in prepubertal age group ++ in pubertal age group +++ in postpubertal age group female youngsters.

Personal assessment regarding behavioural aspects of female youngsters belonging to prepubertal age group, pubertal age group and postpubertal age group using parameter of number of events of truthfulness, honesty, wisdom, perineal hygiene, faithfulness, loyalty, courage for badthings, cowardness, moneymindedness, cunningness, doubtfulness and confidentiality in which they were involved themselves during the period of four years observation is shown in table II.

Table- II
Behavioural differences in female youngsters of different age groups ranging from 11 to 19 years.

Behaviour	Prepubertal age group (11-13 years)	Pubertal age group (14-16 years)	Postpubertal age group (17-19 years)
Truthfulness	+++	++	+
Honesty	+++	++	+
Wisdom	+++	++	+
Perineal Hygiene	+++	++	+
Faithfulness	+++	++	+
Loyalty	+++	++	+
Courage for badthings	+	++	+++
Cowardness	+	++	+++
Money Mindedness	+	++	+++
Cunningness	+	++	+++
Doubtfulness	+	++	+++
Confidentiality	+	++	+++

DISCUSSION

Littlefield and Goh (1973)² reported chromosomal aberrations between 4% to 7% whereas Lubs and Samuelson (1967)¹ noted considerable variability in aberration frequency from 1-20% in various preparations. Vijayachander et.al. (1988)³ found aberrations ranging between 11.25% to 31.9% in normal human subjects with altered media constituents. Keshaw Kumar (1999)⁴ observed chromosomal aberrations 11.34% to 14.67% in adult female not using oral contraceptives and 30.98% to 35.04% in

adult female using oral contraceptives.

In the present study chromosomal aberrations are noticed 3.36% in prepubertal age group, 7.14% in pubertal age group and 10.84% in post pubertal age group female youngsters ranging from 11 to 19 years. Findings of present study regarding post pubertal age group female youngsters resemble with the findings of previous workers who recorded chromosomal aberrations in adult females only.

In pubertal age group female youngsters increase in chromosomal aberrations (7.14%) is due to appearance of female sex hormones in their blood and this increase in chromosomal aberrations reaches upto 10.84% in post pubertal age group female youngsters. In prepubertal age due to absence of female sex hormones in blood chromosomal aberrations are only 3.36% which reach 7.14% at the on set of puberty in female youngsters.

Truthfulness, wisdom, perineal hygiene. Loyalty, faithfulness and honesty which are +++ in prepurbetal age group are reduced to + in post pubertal age group female youngsters due to increased chromosomal aberrations while courage for badthings, cowardness, moneymindedness, cunningness, doubtfulness and confidentiality which are + in prepubertal age group are increased to +++ in post pubertal age group female youngsters due to increase in chromosomal aberrations. Although at the pubertal age group (14-16 years) all these behavioural aspects are ++. Therefore chromosomal aberrations are directly proportional to courage for bad things, cowardness moneymindedness, cunningness, doubtfulness and confidentiality but inversely proportional to truthfulness, honesty, perineal hygiene, wisdom, faithfulness and loyalty in female youngsters of age group ranging from 11-19 years. At the age of puberty (14-16 years) all these behavioural aspects become equal to one another (++) when percentage of chromosomal aberrations is reached 7.14%.

Behavioural difference in female youngsters found in the present study are nothing but behavioural teratogenicity caused by increase in chromosomal aberrations produced due to increasing concentration of female sex hormones (oesdtrogen and progesterone) from the age group 14/16 years (Pubertal age group) to 17/19 years (Postpubertal age group). In the female youngsters belonging to 11/13 years (Prepubertal age group) inspite of absence of female sex hormones 3.36% chromosomal aberrations are present probably due to physical agents i.e. hurry worry, tension and anxiety.

Due to absence of ovarian cycle, uterine cycle and vaginal cycle sexual desire is not existing in prepubertal age group female youngsters and perineal hygiene is maximum. Therefore these are considered more pious in comparison of postpubertal age group female youngsters in whom sexual desire is existing perineal hygiene is minimum due to presence of ovarian cycle, uterine cycle and vaginal cycle. Characters concerning to human moral values are also maximum in prepubertal age group female youngsters while characters concerning to human moral values are minimum in postpubertal age group female youngsters, therefore, prepubertal age group female youngster is respected in society as Goddess while it is not so in case of postpubertal age group female youngster.

Findings regarding postpubertal age group female youngsters in the present study resemble with findings of Keshaw Kumar (2013)⁵ and are supported by the following lines of great poet "Tulsi Das" written by him in his famous book "Ram Charit Manas"

"NARI SVABHAU SATYA KAVI KAHAAHEEN
AVAGUN AATH SADA UR RAHAHEEN
SAHAS ANARAT CHAPALATA MAAYAA
BHAYA AVIVEK ASHAUCH ADAAYAA"

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