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Research Paper

Chromosomal Aberrations Due To Female Oral Contraception Causing Behavioural Teratogenicity In Offsprings- --Reason of Declining Discipline And Moral Values.

Medical Science

KEYWORDS : Oral contraceptive, Chromo somes, Behaviour, Tera togenicity.

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ABSTRACT

In order to know the reason of declining discipline and moral values due to increasing events of unrest, indiscipline and violence in the society by younger generation, with the increasing use of female oral contraceptives by women for the purpose of family planning this study was needed to be conducted to observe the effect of female oral contraceptives on chromosomes in women of the age group ranging between 25 to 44 years and its behavioural teratogenicity in their children. There were increased chromosomal aberrations in women taking oral contraceptives (30.98% to 35.04%) in comparison to women not taking oral contraceptives (11.34% to 14.67%). Percentage of chromosomal aberrations was more in women of the age group ranging between 35 to 44 years than the women of the age group ranging between 25 to 34 years in control as well as experimental groups. In the children of women taking oral contraceptives behavioural teratogenicity was seen in the form of increased unrest, indiscipline, violence, decreased tolerance, loyalty and respect to others in comparison to the children of women not taking oral contraceptives.

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 prepurbertal, pubertal and postpubertal age groups. Keshaw Kumar (2016)[6] reported ovarian hormones causing chromosomal aberrations producing behavioural teratogenicity in female youngsters as the reason of prepubertal age girl being respected as Godders. Present study was conducted in order to explain the reason of decining discipline and moral values interrelating with chromosomal aberrations due to female oral contraception causing behavioural teratogenicity in offsprings.

MATERIAL AND METHODS

For this study 400 healthy women of the age group ranging between 25 to 44 years were selected from Varanasi District and divided into following four groups.

Group I : 100 women of the age group ranging between 25 to 34 years and not taking oral contraceptives.

Group II : 100 women of the age group ranging between 35 to 44 years and not taking oral contraceptives.

Group III :100 women of the age group ranging between 25 to 34 years and taking oral contraceptives.

Group IV :100 women of the age group ranging between 35 to 44 years and taking oral contraceptives.

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

Heparinized blood from every women 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 68 to 72 hours in 2 oz Borckway prescription bottles at 37^0 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 400 metaphases) were scored.

Children of all the 400 women were interviewed and watched to know their ideas and to observe their, behaviour regarding current problems of the society due to increasing unrest, indiscipline, violence and decreasing tolerance, loyalty, respect to others in younger generation.

For measuring the behavioural aspects all the children of the Groups I, II, III and IV of women were graded for their behaviour as +, ++, +++ using the parameter of number of events of unrest, indiscipline, violence, tolerance, loyalty and respect to others, in which they were involved themselves during the period of four years with + representing minimum and +++ representing the maximum involment in the events. All the behavioural aspects were measured as personal and visual assessment by a single observer.

OBSERVATIONS

In control as well as experimental 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 age group 25 to 34 years (11.34%) and 35 to 44 years (14.67%) of the women not taking oral contraceptives, though there was a slight increase in chromosomal aberrations in age group 35 to 44 years than in age group 25 to 34 years. But there was a definite increase in percentage of chromosomal aberrations between the age groups 25 to 34 years (30.98%) and 35 to 44 uears (35.04%) when oral contraceptives were used. Thus, there was slightly more percentage of chromosomal aberrations where oral contraceptives were continued to be used between the age group 35 to 44 years. Percentage of different types of chromosomal aberrations in Groups I, II, III and IV of women are shown in Table-1.

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Table- I
Human chromosomal aberrations due to female oral contraception

Aberrations	Group I	Group II	Group III	Group IV
Chromatid gap	0.83%	1.2%	2.98%	3.86%
Chromosome gap	0.28%	1.1%	2.97%	4.07%
Chromatid break	2.4%	3.57%	6.65%	7.15%
Chromosome break	0.56%	1.37%	2.75%	2.94%
Secondary Constriction	7.37%	7.43%	15.63%	17.02%
Total	11.34%	14.67%	30.98%	35.04%

Unrest, indiscipline and violence were observed more in the children of women taking oral contraceptives in comparison to the children of women not taking oral contraceptives. Tolerance, loyalty and respect to others were observed less in children of women not taking oral contraceptives. Personal assessment of behavioural aspects of children of Groups I, II, III and IV of women using the parameter of number of events of unrest, indiscipline, violence, tolerance, loyalty and respect to others in which they were involved themselves during the period of four years of observation in shown in Table II.

Table- II
Behavioural teratogenicity due to female oral contraction in offsprings

Behaviour	Group I	Group II	Group III	Group IV
Unrest	+	+	++	+++
Indiscipline	+	+	++	+++
Violence	+	+	++	+++
Tolerance	+++	+++	++	+
Loyalty	+++	+++	++	+
Respect to others	+++	+++	++	+

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 to 20% in various preperations. Vijayachander et.al. (1988)[3] noted chromosomal aberrations ranging between 11.25% to 31.9% in normal human subjects with altered media constituents.

In the present study chromosomal aberrations were recorded 11.34% to 14.67% in women not taking oral contraceptives and 30.98% to 35.04% in women taking oral contraceptives. Findings in the present study are supported by the observations made by Lubs and Samuelson (1967)[1] as well as Littlefield and Goh (1973)[2] who reported definite increase in chromosomal aberrations in women attributed to reproductive hormones (there were increased chromosomal aberrations when oral contraceptives were used).

Although attention of previous workers was not drawn towards the study of chromosomal aberrations in relation with behavioural teratogenicity produced in offsprings but present study clearly reveals the behavioural teratogenic effect in offsprings of the women in which chromosomal aberrations are produced due to regular intake of female oral contraceptives.

11.34% to 14.67% chromosomal aberrations in women not taking oral contraceptive may be either due to various stresses and strains of life e.g. hurry, worry, tension and anxiety or due to fear of pregnancy and also due to presence of reproductive hormones in their blood appearing after puberty as reported by Keshaw Kumar (2013,2016)[5,6] which produces behavioural teratogenicity to some extent in their children also. It shows that causative factor of behavioural teratogenicity in offsrpings is chromosomal aberration which may be produced due to any physical, chemical or biological agent. Keshaw Kumar (2013, 2016)[5,6] reported chromosomal aberrations 3.36% in prepubertal 7.14% in pubertal and 10.84% in post pubertal age group female youngsters of the age group ranging between 11 to 19 years in whom question of using oral contraceptives does not arise. However 11.34% to 14.67% chromosomal aberrations in control group of women at the age group ranging between 25 to 44 years in the present study are within the range of 1% to 20% chromosomal aberrations recorded by Lubs and Samuewlson (1967)[1]. It seems that use of oral contraceptives by women produced increase in the concentration of female sex hormones in their blood which causes chromosomal aberrations 30.98% to 35.04% as noted in the present study.

Increasing violence, unrest, indiscipline, decreasing tolerance, loyalty and respect to others in children of women taking oral contractives in comparison to the children of women not taking oral contraceptives seems to be the behavioural teratogenic effect of female oral contractives in the offsprings due to increased chromosomal alterations produced by increased concentration of female sex hormones in the blood of their mothers as a result of regular intake of female oral contractives containing female sex hormones. Therefore, much more training should be imparted to inculcate discipline, tolerance, nonviolence, peace, loyalty and respect to others in children of women using oral contraceptives regularly so that declination of discipline and moral values in the society could be prevented.

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