Reports

Sex Chromatin Anomalies in Newborn Babies in India

Abstract. The sex chromatin pattern in two series of newborn babies comprising 2058 males and 1832 females was studied to find the incidence of sex chromatin anomalies. We did not detect a single case of sex chromatin discordance when compared with the phenotypical sex. In this respect our survey differed from similar surveys in Canada, the United Kingdom, and Switzerland.

The first survey to detect sex chromatin anomalies in newborn babies was undertaken by Moore (*1*). Five of the 1911 males (0.26 percent) in his series showed the female sex chromatin pattern. The recent studies of Bergeman from Switzerland and Maclean *et al.* from the United Kingdom also found a comparable incidence (0.21 to 0.30 percent) of the sex chromatin discrepancy in phenotypical males (*2, 3*). The purpose of this communication is to report our findings in a similar survey carried out in Bombay, which suggests a very low incidence of sex chromatin discordance in males of our population.

Oral smears were collected from 3890 babies (2058 male and 1832 female) born alive at the Nowrosjee Wadia Maternity Hospital, Bombay. These samples were not collected from the consecutive births as in the aforementioned surveys, but were taken from two series of newborn infants. The first series comprised 1256 (669 male and 587 female) babies that were born during a specified time of every week, namely, 8 A.M. Monday to 8 A.M. Tuesday. The second series consisted of 2634 (1389 male and 1245 female) babies, and oral smears were collected from randomly selected cases. This random selection was according to the tables laid down by Fisher and Yates (*4*).

The smears were prepared by scraping the oral mucosa with a clean glass spatula and smearing on a small area of a glass slide previously smeared with Mayer's albumin. They were immediately fixed in Davidson's modified solution. The slides were stained by modified Feulgen technique (*5*).

From each smear 200 suitable cells were studied to calculate the percentage of the sex-chromatin body. The anatomical sex of the baby was unknown till the sex-chromatin pattern was recorded by two independent observers. Whenever the first smear was not satisfactory or where discrepancy was suggestive more smears were studied before the sex-chromatin pattern was finally recorded. For each case, a record of details such as anatomical sex of the newborn, mother's age, illness, if any, during the present pregnancy, and treatment, if any, was kept.

No discrepancy between the sex-chromatin pattern and the anatomical sex of the babies was found in our two series of cases. The sex chromatin count ranged from 0 to 3 percent among the male babies, while in the female it varied from 20 to 77 percent. The sex chromatin body, whenever present, was of normal size and shape.

The survey studies from Canada, Switzerland, and the United Kingdom have revealed that the incidence of sex chromatin discordance in the male at birth ranged from 0.21 to 0.30 percent. Assuming that a comparable incidence existed in our population we would have encountered at least four to six males showing the female sex-chromatin pattern. But as said before, our representative group of newborn babies—2058 males and 1832 females—did not reveal a single case of sex chromatin discordance. This may mean that a significantly lower incidence of this phenomenon occurs in the Indian population than that reported in the West. An alternative explanation—that a normal buccal smear in a phenotypical male is known to exist with sex chromosome mosaic, for example, XY/XXY, and that therefore we may have missed such cases in our series—is also compatible with our finding (*3; 6*).

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References and Notes

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4. R. A. Fisher and F. Yates, *Statistical Tables for Biological, Agricultural and Medical Research* (Oliver & Boyd, London, 1943), p. 90.
5. R. D. Lillie, *Histopathologic Technic and Practical Histochemistry* (Blackiston, New York, 1954), p. 132.
6. Grateful acknowledgment is made to Dr. K. M. Masani, principal medical officer of the Nowrosjee Wadia Maternity Hospital, Bombay, for permitting us to carry out this survey. Our thanks are also due to Dr. Lalitha, Dr. Kolah, and Mr. Nair for technical assistance.

1 May 1962

Freezing and Lyophilizing Alters the Structure of Bentonite Gels

Abstract. During quick-freezing with liquid nitrogen all but two molecular layers of water moved from between the crystals of saturated bentonite gels. The water molecules appear to have migrated to ice crystals forming near the clay crystals. Lyophilizing removed the ice crystals and further reduced interlayer water. Both quick-freezing and lyophilizing altered the original gel structure.

Recently lyophilization has become a common method of drying aqueous suspensions and gels of clays, particularly montmorillonitic clays. These clays shrink and form hard flakes when the gels are air-dried or oven-dried. However, the clay gels that are quick-frozen and dried by sublimation shrink very little, are soft and easy to powder, and seem to have largely retained the arrangement of particles that is thought

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Limit the report proper to the equivalent of 1200 words. This space includes that occupied by illustrative material as well as by the references and notes.

Limit illustrative material to *one* 2-column figure (that is, a figure whose width equals two columns of text) or to *one* 2-column table or to *two* 1-column illustrations, which may consist of two figures or two tables or one of each.

For further details see "Suggestions to contributors" [*Science* **125**, 16 (1957)].