

Advanced Maternal Grandmother Age is a Risk Factor in Causing Sex Chromosomal Aneuploidy

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ABSTRACT Majority of the chromosomal abnormalities are incompatible with embryonic or fetal survival but trisomy 21 and sex chromosomal trisomies have a much higher viability surviving to term. In India, increased numbers of children with sex chromosomal aneuploidy are born to young mothers. Therefore, detailed analysis of the families with sex chromosomal aneuploidy is needed to find out the possible causative factors for nondisjunction. Twenty five families of suspected sex chromosomal aneuploidy children were investigated for cytogenetic analysis and pedigrees were constructed for these families. As controls 100 randomly selected families belonging to different religions were used. Of the 25 sex chromosomal aneuploidy cases studied, 16 were Turners with 45, XO chromosomes and 9 were Klinefelters with 47, XXY chromosomes. The number of sex chromosomal aneuploidy births was greater for the young mothers than the advanced age mothers. The logistic regression of case-control study of sex chromosomal aneuploidy children revealed that the odds ratio for the age of maternal grandmother was significant when all the four variables were used once at a time. However, the effect of age of mother and father was smaller than the effect of age of maternal grandmother. For every year of advancement of age of the maternal grandmother, the risk (odds) of births of sex chromosomal aneuploidy children increases by 36%. Therefore, the age of the maternal grandmother at the time of birth of mother is a risk factor for the occurrence of sex chromosomal aneuploidy.