

论著

双色荧光原位杂交检测丙烯腈接触男工精子性染色体数目畸变

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摘要 本研究用荧光原位杂交技术(FISH)对9名丙烯腈接触男工和9名健康者精子性染色体数目畸变率进行了检测,结果显示,精子性染色体杂交点荧光信号强,背景清楚,在镜下容易观察;接触组和对照组杂交效率均大于99%。9名对照者X和Y精子分别为4911%和4916%,X、Y精子比例接近于1:1。对照人群精子性染色体数目畸变率与其它试验室检出结果基本一致。接触组和对照组分别共计数了91015和74679个精子细胞核,两组精子性染色体数目畸变率分别为0.70%和0.35%,有显著性差异;其中接触组XX、YY、XY分别为0.10%、0.23%、0.37%,明显高于对照组的0.05%、0.11%和0.12%,表明使用荧光原位杂交技术(FISH)能检出接触丙烯腈引起的精子性染色体数目畸变。

关键词 [丙烯腈](#) [精子](#) [性染色体](#) [非整倍体](#) [荧光原位杂交](#)

STUDY ON NUMERICAL CHROMOSOME ABERRATION IN HUMAN SPERM CELLS ON ACRYLONITRILE EXPOSED WORKERS USING TWO-COLOR FLUORESCENCE IN SITU HYBRIDIZATION

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Abstract In this study, Fluorescence in situ hybridization (FISH) was used to investigate rates of sex chromosome aneuploidy in spermatozoa among 9 acrylonitrile-exposed workers and 9 healthy sperm donors. 74679 sperm nuclei were counted among 9 healthy sperm donors, and 91015 sperm nuclei among 9 acrylonitrile-exposed workers. The average frequency of total chromosome numerical abnormalities was 0.70% in exposure group, and 0.35% in the control. XY-bearing sperm was the most common sex chromosome disomy, with an average rate of 0.37% in exposure group, and 0.20% in the control. XX- and YY-bearing sperm accounted for an additional 0.10% and 0.23% in exposure group, and 0.05% and 0.10% in the control. Significantly increased frequencies of total sex chromosome disomy, and XX-, YY- and XY-bearing sperm were observed among acrylonitrile-exposed workers, as compared with healthy sperm donors. This study demonstrated that sperm FISH was a useful biomarker to detect and compare numerical chromosome aberration in human sperm cells for heritable risk assessment of acrylonitrile.

Keywords [Aneuploidy](#) [Sex Chromosome](#) [Sperm](#) [Fluorescence In Situ Hybridization \(FISH\)](#) [Acrylonitrile](#)

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