

论文

冷冻对人精子氧化应激水平、核DNA损伤的影响

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摘要:

目的 研究冷冻储存对精子形态、氧化应激水平和核DNA损伤的影响。方法 根据WHO的标准(1999年), 随机选取正常精液样本、异常精液样本各30例。分别检测精子冷冻前后正常形态率、丙二醛(MDA)浓度和DNA损伤率。结果 两组精液精子冷冻前后变化: 冷冻后正常精液组中精子正常形态率降低明显, MDA值升高显著(P<0.05); DNA损伤率升高, 但差异无统计学意义。而冷冻后异常精液组中精子正常形态率明显降低, MDA值显著升高, DNA损伤率升高(P<0.05); ②两组精液之间冷冻损伤的比较: 冷冻对异常精液正常形态精子损伤、DNA损伤明显高于正常精液组(P<0.05); ③精子正常形态率与MDA浓度呈负相关(r=-0.525), MDA浓度与DNA损伤率呈正相关(r=0.692)。结论 冷冻可导致异常精液的正常形态率下降, 脂质过氧化损伤、DNA损伤率升高。而在正常精液中则导致精子正常形态率的下降, 脂质过氧化损伤的增加。

关键词: 精子冷冻; 活性氧; 氧化应激; DNA损伤

Effects of cryopreservation on oxidative stress and DNA integrity of human sperm

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Abstract:

Objective To explore the effects of cryopreservation on morphology, oxidative stress and DNA integrity of human sperm. Methods According to World Health Organization criteria (1999 year), we chose 30 normal semen samples and 30 abnormal semen samples. The sperm morphology, maleic dialdehyde (MDA) concentration and nuclear DNA integrity of the two groups were analyzed before and after freezing—thawing. Results In the normal group, the freezing—thawing process significantly influenced sperm morphology and MDA concentration (P<0.05), but there was no significant difference compared with that before freezing in DNA integrity, and the results showed significant differences in sperm morphology, DNA integrity and MDA concentration between the fresh and frozen samples in the abnormal group (P<0.05); ②Compared with the normal group, cryopreservation caused significant differences in sperm morphology and DNA integrity in the abnormal group (P<0.05); ③Sperm morphology was negatively correlated with MDA concentration, and MDA concentration was positively correlated with DNA integrity (P<0.05). Conclusion Cryopreservation affects sperm morphology, DNA integrity and MDA concentration in abnormal semen, while it only affected sperm morphology and MDA concentration in normal semen.

Keywords: Sperm cryopreservation; Reactive oxygen species; Oxidative stress; DNA integrity

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