

Quality Control of Disposable Objects in ART Laboratories Performing Human Sperm Motility Assays

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Abstract

Background: ART laboratories are quality controlled to make sure that disposable objects used for the culture of gametes and embryos are toxin-free. To maintain a high standard, all disposable objects in our ART laboratory were tested by human sperm motility assay (HuSMA). HuSMA was used as a measure for QC at the intended ART laboratory.

Methods: Eighteen objects that are commonly used in IVF laboratories were tested by HuSMA. The objects included gloves, syringes, culture dishes, pipettes, tips and semen collection dishes. HuSMA was conducted at 10 and 30 minutes and also at 1, 2, 4, and 24 hours of incubation at room temperature. Sperm motility index (SMI) was calculated by dividing the percentage of progressive motile sperms of the test by that of the control at the specified intervals. An SMI value < 0.85 was defined to indicate sperm toxicity. The tests were repeated for three times.

Results: QC by HuSMA confirmed the toxicity of three objects, including embryo transfer (ET) gloves A and B, and puncture gloves A. ET gloves A (SMI=0.0) and puncture gloves A (SMI=0.0) were toxic after 10 minutes, but ET gloves B (SMI=0.63) were shown to be toxic after 24 hours (46% progressive motile sperm compared with 68% in the control group). Moreover, two other objects including culture dish (SMI=0.42) and semen collection dish (SMI=0.67) had borderline values after 24 hours; different results in four repeats after 24 hours (twice toxic and twice nontoxic).

Conclusion: Some objects which are routinely used in ART laboratories may be toxic and their use should be discontinued as part of QC programs. To increase the efficiency of HuSMA, it seems necessary to do this test more than once for each object.

Keywords: ART, Human, Laboratory, Quality control, Sperm motility, Toxicity tests.

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