Choice of ART programme for serodiscordant couples with an HIV infected male partner

Sir,

Mencaglia et al. (2005) report in a recent issue of Human Reproduction the results of an ICSI programme in serodiscordant couples where the male partner is infected with human immunodeficiency virus (HIV) and/or hepatitis C virus. In their conclusions, they affirm that ICSI is the method of choice to reduce the risk of viral transmission to the partner, whatever the fertility status of the couple.

The debate on HIV presence on spermatozoa is probably not definitively closed. However, while the presence of galactosyl-alkyl-acylglycerol (Brogi et al., 1995), a molecule structurally related to galactosylceramide which is an alternative receptor for HIV, has been reported on sperm membranes, this receptor requires an HIV co-receptor in order to penetrate and infect the cell. There have been several publications on the lack of HIV receptor expression on spermatozoa (Kim et al., 1999) and on the absence of HIV particles or genomes in spermatozoa fractions obtained after two techniques of sperm washing (Quayle et al., 1998; Kim et al., 1999; Pasquier et al., 2000; Bujan et al., 2002, 2004a).

Although two studies have shown the presence of HIV nucleic acid after sperm preparation (Marina et al., 1998; Meseguer et al., 2002), we have demonstrated that the use of two successive preparation methods (i.e. sperm density gradient and swim-up methods) effectively yielded spermatozoa fractions with systematically undetectable HIV DNA and RNA (Pasquier et al., 2000; Bujan et al., 2004a) in more than 800 semen preparations to date, whatever the seminal viral load (Bujan et al., 2002). Moreover, although this was not mentioned by Mencaglia et al., several publications on intrauterine insemination (IUI) programmes in serodiscordant couples with an HIV-infected male partner have reported no case of female contamination (Semprini et al., 1992; Marina et al., 1998; Semprini et al., 1998; Gilling-Smith, 2000; Ohl et al., 2003; Bujan et al., 2004b). There is no clear evidence that ICSI is safer than IUI where HIV transmission risk is concerned. Furthermore, we have reported the results of 213 IUI cycles in such couples. The pregnancy rate per couple was 66%, and the percentage of couples with a child was 50% (Bujan et al., 2004b). These rates are comparable to the results of ICSI reported by Mencaglia et al.

In our opinion, there is no justification for systematic use of ICSI methods in these couples who are naturally fertile. In serodiscordant couples with HIV-positive men, compulsory condom use in order to avoid female contamination induces artificial sterility. The physician is then asked to help these couples to have a child, without contamination of the partner. Insemination, using spermatozoa prepared with both successive methods, is a very efficient assisted reproduction technique (ART) to help these fertile patients. ICSI does not increase the pregnancy rate per couple in fertile couples, and in addition, it exposes them to the side effects of this method: physical (treatment, ovarian puncture, anaesthesia, etc.) and emotional stress. Moreover, the cost of ICSI should be taken into account, particularly in countries with an inadequate

References


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health care insurance system. This point is particularly important because when a couple has no access to an ART programme, they may try to conceive naturally with exposure to HIV-transmission risk (Mandelbrot et al., 1997). We believe, in the light of present scientific knowledge, that patients should be informed about all available possibilities of reducing the risk of HIV transmission and that the choice of ART method should be related only to the fertility status of both partners.

References


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Semprini AE, Levi-Setti P, Ravizza M, Pardi G (1998) Assisted conception to test the absence of cases of viral transmission, not on certainty about the absence of viral infection in couples wishing to achieve pregnancy, and ICSI clearly reduces near to zero the risk of horizontal and vertical transmission.

Nevertheless, results from Bujan’s group are impressive in their efficacy in quite a large sample [213 intrauterine insemination (IUI) cycles], their high pregnancy rate (66%) and the absence of cases of HIV transmission. In their opinion, IUI based on high-quality procedures of sperm preparation before insemination (sperm-density gradient + swim-up methods) is the optimal choice for serodiscordant couples with HIV-infected men. However, it is known from different reports that sperm washing does not ensure absolute absence of viral genome in semen because of viral presence inside sperm cells (Dussaix et al., 1993; Baccetti et al., 1994). This could be why even the most sensitive diagnostic methods have been unable to definitively exclude viral presence in sperm cells after meticulous washing procedures (Pena et al., 2003). The risk of HIV transmission therefore exists, as reported in various studies (Araneta et al., 1995; Matz et al., 1998; Englert et al., 2001, 2004). Thus, their confidence in the safety and reliability of IUI is based on their experience and on the absence of recorded cases of viral transmission, not on certainty about the absence of HIV in semen. It is important to stress that approximately 5–10% of the samples still had HIV load after washing. Furthermore, standardized sperm washing for infected male patients severely decreases the number of cells recovered, and even if the patient was normospermic (this is not very usual in HIV-infected males), at the end of treatment, the number of recovered sperm could be insufficient to perform IUI.

Our experience with ICSI confirms its safety, which is due to the fact that:

(i) fertilization of the oocyte occurs outside the body of the seronegative woman, without exposing her to many sperm;

(ii) the oocyte is fertilized by only one sperm (i.e. the oocyte does not come into contact with many sperm, some of which could contain viruses), so even with a false-negative semen test, ICSI quantitatively decreases the chances of HIV transmission, which makes it more reliable.

Letters to the Editor

Reply: Choice of ART programme for serodiscordant couples with an HIV-infected male partner

Sir,

We thank Prof Bujan, Dr Daudin and Prof Pasquier for their interest in the study published by our group in Human Reproduction (Mencaglia et al., 2005). Their main criticism concerns our choice of ICSI as the optimal method to avoid viral transmission in serodiscordant couples with human immunodeficiency virus (HIV)- and hepatitis C virus (HCV)-infected males without severe fertility impairment.

The principal aim of our procedure was to minimize the risk of viral infection in couples wishing to achieve pregnancy, and ICSI clearly reduces near to zero the risk of horizontal and vertical transmission.

Nevertheless, results from Bujan’s group are impressive in their efficacy in quite a large sample [213 intrauterine insemination (IUI) cycles], their high pregnancy rate (66%) and the absence of cases of HIV transmission. In their opinion, IUI based on high-quality procedures of sperm preparation before insemination (sperm-density gradient + swim-up methods) is the optimal choice for serodiscordant couples with HIV-infected men. However, it is known from different reports that sperm washing does not ensure absolute absence of viral genome in semen because of viral presence inside sperm cells (Dussaix et al., 1993; Baccetti et al., 1994). This could be why even the most sensitive diagnostic methods have been unable to definitively exclude viral presence in sperm cells after meticulous washing procedures (Pena et al., 2003). The risk of HIV transmission therefore exists, as reported in various studies (Araneta et al., 1995; Matz et al., 1998; Englert et al., 2001, 2004). Thus, their confidence in the safety and reliability of IUI is based on their experience and on the absence of recorded cases of viral transmission, not on certainty about the absence of HIV in semen. It is important to stress that approximately 5–10% of the samples still had HIV load after washing. Furthermore, standardized sperm washing for infected male patients severely decreases the number of cells recovered, and even if the patient was normospermic (this is not very usual in HIV-infected males), at the end of treatment, the number of recovered sperm could be insufficient to perform IUI.

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