We read with very interest the letter of Prof. Würfel, in which they reported the data of their pilot study in the use of G-CSF in ART patients with repetitive implantation failure and lacking killer-cell immunoglobulin-like receptors (KIR). They reported a high pregnancy rate and concluded that G-CSF is an extremely promising additional method of treatment in cases where defects in materno-embryonic implantation communication can be shown.

This study is different from ours, since we treated women with recurrent abortion and no patients with repetitive implantation failure. Our study evidenced that the G-CSF is a promising treatment in women with unexplained recurrent miscarriage: furthermore, our study showed that this substance may increase the trophoblast growth and metabolism since the elevated levels of beta-hCG observed in these women during treatment. It is really interesting to hear that also in ART patients the G-CSF may have a positive role in increasing implantation rate and embryo growth. We have a limited experience in the treatment of women with repetitive implantation failure, and no experience at all for patients with lacking KIR.

The downstream effects of vitamin D in spermatozoa needs further study

Sir, We are interested the article by Blomberg Jensen et al. (2010), where the expression of vitamin D metabolic enzymes in reproductive system of the male is described. In the discussion, the authors speculate that vitamin D regulates calcium ion concentration of spermatozoa. However, the following references do not support this speculation. The concentration of calcium ion in semen plasma or spermatozoa cytoplasm was not reported by Menegaz et al. (2009) or Uhland et al. (1992). To our knowledge, the vitamin D regulation of spermatozoa calcium ion channels or ionophores has not been reported, and the prolonged survival of spermatozoa in low concentration of vitamin D (Aquila et al., 2008) may not be mediated by calcium ions. Although a positive effect of calcium ions on spermatozoa viability, but calcium inflow triggers the capacitation of spermatozoa (Hong et al., 1984). The relative low concentration of calcium ions is maintained by calcium ATPase on sperm membrane. Vitamin D functions through several second messages (PKC, G-protein, cAMP) in different cells; however, the downstream of vitamin D in spermatozoa needs further study.

References


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Reply: The downstream effects of vitamin D in spermatozoa needs further study

Sir,

Thank you for your interest in our study ‘Vitamin D receptor and vitamin D metabolizing enzymes are expressed in the human male reproductive tract’ (Blomberg Jensen et al., 2010). We agree with Dr Yang and colleagues that at the time of submission of our manuscript the effect of vitamin D on intracellular calcium in human spermatozoa had not been reported. Vitamin D has several non-genomic actions, including a rapid increase in intracellular calcium in various cell types. Since spermatozoa are transcriptionally silent, and are affected by both calcium channel blockers and calcium, we speculated (supported by seven references) that vitamin D increases intracellular calcium in mature spermatozoa. Our suggestion has now been further supported by a recent study published by Aquila et al. (2009). Thus, it seems appropriate to speculate that vitamin D affects the calcium levels in spermatozoa.

References


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