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JOURNAL ARTICLE

Interleukin-6 enhances the fertilizing capacity of human sperm by increasing capacitation and acrosome reaction

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The effects of human recombinant interleukin-6 (IL-6) on human sperm penetration of zona-free hamster ova (SPA) and human sperm cell capacitation and acrosome reaction were investigated. IL-6 at higher concentrations (60-600 pg/100 microliters) significantly ($P < 0.001$) increased rather than decreased the human sperm penetration rates in SPA. The effects were specific because immunoadsorption with the specific neutralizing antibody completely abolished the enhancing effects of IL-6. At the same concentrations, IL-6 also significantly enhanced spontaneous as well as calcium ionophore-induced acrosome reaction and release of acrosin from the human sperm cells. There was no effect of IL-6 on percent sperm motility, although it significantly affected various motility characteristics such as velocity, linearity, amplitude of lateral head displacement (ALH), and beat frequency of sperm cells--the motility parameters involved in hyperactivation phenomenon of sperm cells. These results demonstrate for the first time that IL-6 provides a positive signal in enhancing fertilizing capacity of human sperm by increasing capacitation leading to acrosome reaction, and thus it may have clinical applications in the treatment of male infertility in humans.

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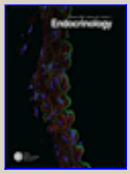

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