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Titel des Beitrags:
Mast cell-sperm interaction: evidence for tryptase and proteinase-activated receptors in the regulation of sperm motility.

Abstract:
BACKGROUND: The detection of significant levels of tryptase in human seminal plasma and follicular fluid and of tryptase-positive mast cells (MCs) in the wall of human Fallopian tubes lead us to hypothesize that tryptase may exert regulatory actions on human spermatozoa. METHODS AND RESULTS: Immunoelectronmicroscopy revealed proteinase-activated receptor 2 (PAR-2) in the membranes of the acrosomal region and midpiece of human spermatozoa. These PAR-2 were functional, as exposure of spermatozoa from healthy men (n = 12) with regular standard semen parameters to human recombinant tryptase significantly decreased motility in a dose- and time-dependent fashion. Motile spermatozoa (WHO a + b) were significantly decreased within 10 min of incubation with 1.000 ng/ml tryptase (P = 0.045). After 30 and 60 min, significant reduction of motility was also observed in the presence of lower tryptase concentrations (100 ng/ml, P = 0.037; 10 ng/ml, P = 0.046). The inhibitory effects of tryptase progressed throughout an observation period of 180 min. Furthermore, tryptase effects were reversible after washing procedures and could be inhibited by pretreatment with anti-tryptase antibody or anti-PAR-2 antiserum. CONCLUSIONS: The observations presented raise the possibility that tryptase directly interacts with human
spermatozoa during their migration through the female genital tract. Genital tract MCs and their products may be as yet unrecognized factors involved in human fertility/sterility.