

Effect of apoptosis on fertilizing capacity of boar spermatozoa

Summary

The aim of the study reported in this article was to determine the relationship between apoptosis in boar spermatozoa and apoptosis in embryos. The evaluation of apoptosis in embryos obtained from gilts inseminated with semen showing different degrees of apoptotic changes was an additional criterion for assessing the fertilizing capacity of spermatozoa. YO-PRO-1 fluorochrome and staining with annexin V conjugated with fluorescein were used to evaluate apoptosis in the spermatozoa, while apoptotic changes in the embryos were evaluated based on caspase-3 activity. The present study showed statistically significant ($P < 0.001$) differences in the percentage of different sperm subpopulations (except the percentage of necrotic sperm evaluated using FITC annexin V staining) between fresh semen and stored semen used for the insemination. At the same time, percentage of apoptotic and early apoptotic spermatozoa in fresh semen and semen stored until the day on which sperm motility reached 30% showed no significant correlations with the number of embryos obtained from sows inseminated with the analysed semen and caspase-3 activity in the analysed embryos

KEY WORDS: boars, semen quality, apoptosis