Journal of Andrology, Vol 20, Issue 1 72-79, Copyright © 1999 by The American Society of Andrology

JOURNAL ARTICLE

Effect of acute androgen withdrawal by GnRH antagonist on epididymal sperm motility and morphology in the cynomolgus monkey

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Hormonal male contraception requires an induction phase before azoospermia and contraceptive safety are achieved. The nature of spermatozoa that may be ejaculated during this induction phase was studied in a nonhuman primate. The GnRH antagonist Cetrorelix was administered daily to five cynomolgus monkeys to induce testicular regression, and the vehicle was given to five control animals. Within 16 days, the antagonist reduced androgens by 80% in the serum and by 50% in the epididymis. Sperm were obtained by mincing different epididymal regions and were examined for morphology (subjectively) and motility (objectively) after removal of the organs 16 and 25 days after continuous treatment. Spermatozoa entering the epididymis of monkeys undergoing regression differed from those of vehicle-treated controls in their greater susceptibility to disruption during preparation for morphological staining. The acquisition of motility by sperm in the epididymides attached to regressing testes occurred in the same epididymal region as controls but did not achieve the median velocities attained by sperm in controls during epididymal passage. Values for most sperm motion parameters developed as in the controls, and, during epididymal passage, sperm developed resistance to stresses encountered during preparation for morphological analysis. These observations suggest that spermatozoa ejaculated before spermatogenesis ceases may be potentially fertilizing because epididymal maturation continues in an androgen-deprived organ. From these preclinical studies, it can be concluded that in men, applying hormonal contraception precautions against pregnancy must be recommended before azoospermia is induced, since the epididymis can partially compensate for poor-quality sperm produced by a regressing testis even when levels of circulating androgens and tissue androgens are low.

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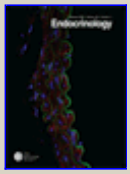

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