

Journal of Andrology, Vol 16, Issue 2 118-126, Copyright © 1995 by The American Society of Andrology

JOURNAL ARTICLE

The effects of aging on basement membrane in the testis

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Age-related increases in basement membrane thickness have been noted in many tissues, including the testis. The current investigation examined the morphology of the basement membrane in the aged Brown Norway rat and sought to determine whether the accumulation of basement membrane was the result of an increase in the expression of the basement membrane genes. The aged testis was characterized by atrophy of the seminiferous tubules. Closer examination of the degenerated tubules revealed that the seminiferous epithelium was completely devoid of germ cells and that the basement membrane of these tubules was thickened and highly convoluted. In some animals, there was a measurable increase in basement membrane thickness in tubules of normal diameter together with an apparently normal epithelium, suggesting that the thickening is not solely due to a shrinkage of the tubules. To determine whether an increase in basement membrane synthesis was responsible for the thickening, the expression of the genes for laminin, collagen IV, heparan sulfate proteoglycan, and fibronectin was analyzed by Northern blot. There were no changes in the expression of the genes for the laminin B1 and B2 chains, heparan sulfate proteoglycan, or fibronectin that could be correlated with increasing age. Surprisingly, however, the levels of mRNA for the laminin A chain and collagen IV decreased with age. (ABSTRACT TRUNCATED AT 250 WORDS)

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