

STRUCTURAL AND BIOMOLECULAR ASPECTS OF MAMMARY GLAND DURING EARLY LACTATION

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The mammary gland of the heifers during early lactation has been studied with morphological and biomolecular techniques focusing on the structural changes during the secretive and proliferative process, apoptotic phenomena and different expression of apoptosis related proteins as that of the bcl-2 family. Mammary cell loss has been observed during tissue involution as in laboratory animals and in ruminants (Strange, *Develop.* 115, 1992; Wilde, *Exper. Physiol.* 82, 1997; Colitti, *Anat. Histol. Embryol.* 28, 1999), but programmed cell death also occurs during late lactation (Quarrie, *Cell Tissue Res.* 281, 1995). In contrast to the characterization of pro- and anti-apoptotic gene expression in rodent mammary tissue, there is as yet no comparable information on the role of such genes in the ruminant mammary gland. Biopsies of mammary tissue were collected at 45, 53 and 60 days after calving and few but different structural aspects was observed in the lobular architecture of the gland. The presence of bcl-2 and bax was observed by immunostaining and the expression of mRNA was detected by RT-PCR analysis. Apoptotic and proliferative processes appeared not to be functionally coupled in lactating mammary gland since was observed that single epithelial cells are replaced and not high proliferation was detected in actively secreted lobules. The mRNA expression for the bcl-2 and bax confirmed that the time sequence of signals triggering to apoptosis was not well definite as in the mammary gland during involution.