ULTRASTRUCTURAL STUDY OF THE TESTICULAR MACROPHAGES IN YOUNG AND AGING MOUSE

R. RUFFOLI, M.A. GIAMBELLUCA, F. GIANNESSI
Dipartimento Morfologia Umana e Biologia Applicata, Facoltà di Medicina e Chirurgia dell'Università di Pisa.

INTRODUCTION — Evidences exist that testicular macrophages (TM) and Leydig cells (LC) are functionally coupled in young adult animals (1). Moreover, ultrastructural studies have highlighted the close structural association between TM and LC (2, 3). Nevertheless, the functions of the TM are incompletely known. In addition, functional and morphological studies concerning the TM have not been carried out in old animals. The purpose of the present work is to examine by means of TEM the structure of the TM and their morphological relationships with the LC in aging mice.
MATERIAL AND METHODS — Swiss mice 45 days and 18 months aged were anaesthetized and perfused with aldehydes. The testes were dissected out and cut in small pieces. The specimens were post-fixed in osmium tetroxide, dehydrated in alcohol and embedded in Epon 812.
RESULTS AND DISCUSSION — In young mice, numerous short cell processes protruded from the LC into invaginations of the TM. In these structures, the cytoplasmic membrane of the TM appeared coated on the inner surface with electron dense material. Frequently, the cytoplasmic membranes of the TM and of the LC were parallely arranged and connected with electron dense material. In aging mice, the structures above described were unmodified when compared to those of young animals. Otherwise, in most cases the cytoplasm of TM was filled with phagocytic material represented by lipofuscin granules (LG). LG are residuals deriving from enhanced lysosomal activity and autoxidation of unutilized lipids in condition of decreased steroidogenesis (4). It is possible that the progressive accumulation in the macrophages of undigested material, such as LG, leads to cytokine overproduction. Moreover, the majority of in vitro studies indicate that cytokines may inhibit the testosterone secretion (6). Thus, TM could have a significant role in the mechanism of aging in the LC.

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