Pathophysiology of Ischemic Acute Renal Failure: Cytoskeletal Aspects

FIGURE 13-7 (Continued)

The cellular junctional complex that controls the TER is the tight junction. When the TER falls to zero, this suggests that tight junction structural integrity has been compromised. D and E, Staining of renal epithelial cells with antibodies that bind to a component of the tight junction, ZO-1 [37]. D, ZO-1 staining in untreated Mardin-Darby canine kidney (MDCK) cells. ZO-1 is located at the periphery of cells at cell contact sites, forming a continuous linear contour. E, In ATP-depleted cells the staining pattern is discontinuous. F and G, Ultrastructural analysis of the tight junction in MDCK cells. In untreated MDCK cells, electron micrographs of the tight junction shows a continuous ridge-like structure in freeze fracture preparations [38]. In ATP-depleted cells the strands are disrupted, forming aggregates (arrows). Note that the continuous strands are no longer present and large gaps are observable.

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References


