

2. Title: Renal biopsy in Leptospirosis

Principal Investigators: Visith Sitprija, M.D.
Hilary Evans, MAJ, MC

Assistant Investigators: Suriyont Trapukdi

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OBJECTIVE

To examine the microscopic pathology and ultrastructure of the kidney in human leptospirosis and to correlate morphologic with physiologic abnormalities.

DESCRIPTION

Percutaneous renal biopsies and renal function studies are carried out in patients with serologically proven leptospirosis. The biopsies are examined by light and electron microscopy. The endogenous creatinine clearance is used to assess glomerular function. Tubular function is evaluated by determining the serum/urine osmolality ratio and the urine sodium.

PROGRESS

Biopsies have been obtained from 9 patients. Four of these have been examined by electron microscopy. Five patients had impairment of both glomerular and tubular function, two had slightly impaired glomerular function with normal tubular function, and two patients had no functional impairment. Swelling of the glomerular tuft, shown by the electron microscope to be mesangial proliferation and increase in mesangial matrix, was seen in seven patients, along with precipitation of protein in Bowman's space. Dilatation of the distal convoluted tubules and sloughing of tubular epithelial cells into the lumen occurred to some degree in every biopsy. Epithelial cell cytoplasmic damage, manifested by large basal vacuoles in proximal convoluted tubular cells, was found in those patients with more severe functional impairment. The three patients with the most severely decreased renal function had actual rupture of tubular basement membranes with leakage of tubular contents into the interstitial space. In every biopsy the interstitial space was edematous and contained an infiltrate of large mononuclear cells with a few lymphocytes, plasma cells, and eosinophils. The infiltrate frequently had a peri-glomerular and perivascular orientation. Thus, the physiologic and morphologic alterations varied over a wide range but showed good correlation with each other.

SUMMARY

The morphologic lesions of the kidney in leptospirosis have been found to correlate with renal functional impairment.

PUBLICATION

Sitprija, V.; and Evans, H.; Renal Pathophysiologic Correlation in Human Leptospirosis. Proceedings of the 4th International Congress of Nephrology, Stockholm, 22-27 June, 1969. (Abstract)