Results

Control group:

By light microscopy, the histological structure of the renal cortex of the control group showed the normal structure of both glomeruli (renal corpuscles)and tubules. Each glomerulus appeared as dense rounded structure which was surrounded by narrow space called renal space(Bowman´s space). The glomerulus consisted of tuft of capillaries which was covered by the Bowman´s capsule. The Bowman´s capsule consisted of an inner or visceral layer covering the glomerulus and an outer or parietal layer and the renal space in between. The visceral layer consisted of epithelial cells called the podocytes. These cells had large deeply stained nuclei .The parietal layer was composed of simple squamous epithelium resting on a thin basal lamina(Figs.1,2).

The tubules which were seen in the sections consisted mainly of the proximal convoluted tubules and some distal convoluted tubules .The proximal convoluted tubules had a narrow lumen and were lined by a single layer of columnar cells with rounded ,basal ,vesicular nuclei . The distal convoluted tubules had a wide lumen and were lined by low cuboidal cells (Figs.1,2).

P.A.S. positive reaction was evident in the basement membranes of the parietal layer of the Bowman´scapsule and the tubules . Also, the brushing border of the tubules showed positive P.A.S. reaction (Fig.3).

By electron microscopy , the proximal convoluted tubules were lined by a columnar cells which had rounded heterochromatic nuclei with prominent nucleoli. Its cytoplasm contained columns of elongated mitochondria resting on the basement membrane. At high magnification, the wall of mitochondria had double membranes with translucent space in between .The lumen of the proximal convoluted tubules revealed profuse tall microvilli constituting the brush border seen by light microscopy (Figs 4,5).

The glomerular filter consisted of three components (inward to outward): 1-Fenestrated capillaries endothelium.2-Glomerular basement membrane . 3-secondary foot processes of the podocytes, separated by slit pores (Fig.6) .

Cisplatin group:

By light microscopy ,most of the proximal convoluted tubules showed necrosis of their epithelial lining which lead to dilations of their lumens . Some of these degenerated tubules contained esinophilic material which accumulated in their lumens . Some of these epithelial cells contained vacuoles and their brush borders were disrupted in some areas .Few tubules were still intact .The glomeruli appeared intact with intact basement membrane of its parietal layer .The interstitial space contained focal accumulation of connective tissue . In some sections there were focal accumulation of inflammatory cells in the interstitial space (Figs.7,8,9,10) .

By electron microscopy ,the convoluted tubules showed increasing in the numbers of lysosomes , vacuoles and vesicles .The contents of some lysosomes were homogenous ,while the others were heterogeneous. The cytoplasm of these cells contained few numbers of mitochondria Some

nuclei showed basal indentation .The lumens of these tubules contained few microvilli (Figs.11,12) .In the glomerular filter, there were absence of the fenestration in the capillary endothelium and obliteration of the slit pores between the secondary foot processes of the podocytes (Fig. 13) .

Cisplatin plus vitamins(C & E) group:

By light microscopy ,the glomeruli and some tubules were intact . other tubules had varying degrees of changes in the form of 1- Some tubules were dilated with intact epithelial lining .2-Other tubules were not dilated ,but some their cells had vacuolations .3-The lumen ofone tubule contained esinophilic material . 4-The epithelial lining of few tubules were completely degenerated ,but their basement membranes were intact (Figs. 14,16).Minimal connective tissue were seen in the sections of this group (Fig. 15) .

By electron microscopy , the elongated basal columns of mitochondria were seen in the cells lining the tubules. Their nuclei were heterochromatic with prominent nucleoli (Fig. 17). The components of the glomerular filter consisted of three layers as in control group: fenestrated glomerular endothelium ,glomerular basement membrane and foot processes of podocytes with slit pores in between (Fig.18).

The withdrawal group

By light microscopic observations, some convoluted tubules were degenerated while the other tubules are intact. The lining epithelial cells of the proximal convoluted tubules were highly return to the normal form with marked regression in the numbers of vacuoles. ***(Fig.19)***.

In PAS stain, there was normal appearance of the basement membranes of the glomerulus and the tubules . The brush border was intact **A**s regard the glomerulus, it was intact with normal renal space. ***(Fig.20)***.

In Masson's trichrome stain, there was marked regression of the interstitial fibrosis which was localized focally arround some tubules. ***(Fig.21)***.

By electron microscopic observations, the lining epithelial cells of the proximal convoluted tubules, showed great recovery when compared with the control group. The apical microvilli projecting into the lumen, were intact. Marked reduction in number of vacuoles and lysosomes, some basal mitochondria (M) were degenerated while others are intact ***(Fig. 22&23)***.

The glomerulus has normal podocytes with its primary and secondary foot processes (pedicles) and normal form of fenestrated endothelium. The pedicles are not fused with normal filtration slits in between. The glomerular basal lamina returns to its normal thickness when compared with the control group. ***(Fig.24)***.