A Study on Neuropathy of Uremia

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The study comprised of clinicopathological investigation of neuropathy observed in the course of uremia due mainly to chronic glomerulonephritis in an attempt to elucidate its etiology.

Result:
(1) Of 137 cases of uremia, 56 cases (41%) exhibited clinical signs of neuropathy. The pertinent features of uremic neuropathy were the sensory disturbance in lower extremities. They consisted of 14 cases of sensory and 42 cases of sensorimotor neuropathy.

(2) Slowed or non-evoked MCV in tibial nerve and the neurogenic patterns of EMG were observed in more than half of the cases with signs of clinical neuropathy. Clinical neuropathy and electrophysiological abnormalities were not necessarily well correlated, suggesting presence of subclinical neuropathy.

(3) The lightmicroscopic and electronmicroscopic examination with sural nerve biopsies disclosed demyelination and degeneration of axon, particularly of degeneration of myelin sheath. In mild cases the axon was relatively well preserved. In spinal cord of autopsy materials in whom neuropathy was previously found, demyelination and degeneration of axon in bilateral fasciculus of Goll and posterior root were noted.

(4) As to the etiology of neuropathy, no correlation was found with serum electrolytes, acid-base balance, glucose metabolism, BUN and serum creatinine. It disclosed, however, that 53% of those on the program of inadequate maintenance dialysis developed neuropathy in contrast to only 14% of neuropathy in those on that of intensive maintenance dialysis, and that the majority of neuropathy would improve by the continuance of intermittent dialysis.

As shown above, neuropathy in uremia is compatible to vitamin deficiency neuropathy in respect to clinical features and, though degeneration of axon and demyelination of peripheral nerve are pathologically found, the primary site of lesion is considered the myelin sheath. In regard to etiology certain dializable substance such as the uremic toxins may be postulated to play an important role since the neuropathy would obviously improve by the adequate dialysis therapy.