# TRENTAL (PENTOXIFYLLINE) IN THE TREATMENT OF CEREBROVASCULAR INSUFFICIENCY

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The past decade has seen the emergency of several drugs purporting to improve and augment cerebrovascular perfusion in both physiological and pathological states. This development stems from a need for these drugs in the treatment of patients afflicted with incapacitating strokes. Needless to say, advances in this form of medical therapy have often offset the need for surgical intervention although in recent years, there has been a concomitant augmentation of medical therapy with extracranial-intracranial vascular anastomosis by microvascular methods.

Until a few years ago, the practising physicians and neurologists had little help from the phamaceutical research workers for the medical treatment of acute cerebrovascular episodes and transient ischemic attacks. With the better understanding of the pathophysiology of strokes and the emergence of better and safer diuretics, nicotinic acid was an apologetic forerunner of the development of vasodilator drugs. Papaverine was used in some instances with questionable results. This was followed by the development of other drugs like Hydergine, Sturgeron and in more recent years Hydrosarpan 711, Nootropil, Encephabol and Trental, all purporting to improve cerebral circulatory insufficiency, whatever its stage, and to have some effects in the amelioration of temporary neurological disorders, sequelae of hemiplegia, senescence and in the rehabilitative process of stroke patients. Further, certain cerebral risk factors were also improved with the introduction of these drugs. e.g., chances of haemorrhage. These same drugs have also found varied applications in the treatment of vertigo, tinnitus, perceptive deafness and even in ophthalmology in macular degenerations and in peripheral circulatory disorders and arteritis, to say nothing of vasomotor disorders of extremities and other forms of venous diseases.

The main problem in the assessment of these drugs seems to arise from the paradox that some of these patients get better without any form of treatment. Be as it may, from our clinical experience in the management of these patients with cerebral circulatory disorders and cerebral infarctions, we are convinced that use of intravenous pentoxifylline for a variable period of a week to two weeks followed by oral medication has resulted in general improvement of the patients' condition besides setting the stage for an earlier recovery from the vascular infarct.

Relevant case histories and neurological findings with angiographic and CAT Scan correlation will be presented to show the efficacy of this IV preparation in the production of neurological recovery following such infarctions.

It has been concluded by Sen and Chakravarty (1977) that increased circulation through patent vessels was achieved with the use of pentoxifylline and further the drug promoted the formation of more collaterals to the infarcted area. Trental 100 mg. in 5 ml. ampoules was infused 6 hourly, and in one instance, 8 hourly, with either normal saline or 5% dextrose in water. In our cases, we noted some evidence of improvement within 48 hours of the infusion and in some instances, even within 24 hours. Improvement continued until a plateau was reached when further infusion did not produce demonstrable benefit. Oral therapy was then commenced in 100 mg. dragees t.i.d. It was our observation that a general improvement in affect was consistently produced in our patients who became more motivated and co-operative. They were able also to participate in active rehabilitation and their attitudes went a long way into assisting them to get better faster. Although the responses in our patients were uniformly good, the role played by the concomitant use of steroids, dehydrating agents like mannitol and Lasix, to say nothing of the natural history of transient ischemic attacks, makes assessment of the efficacy of a particular preparation of this type quite difficult. However, we have had instances of so-called completed strokes as many of our patients were sent in well after the onset of their initial cerebrovascular episode and the paralysis was dense.

I feel the following come to light from clinical impressions alone, although they should be tested with better study:—

1. The period of hospitalization was considerably decreased.
2. There was early onset of recovery, often dramatic, in 48-72 hours, reaching a peak within 5-7 days followed by a plateau and gradual improvement to, at least in three instances, to normalcy.
3. No further strokes or transient ischemic episodes have been encountered in these patients to the present time.
4. There has been a general improvement in motivation and affect and in other cognitive functions in our stroke patients.

There are excellent examples in publications on technitium 99m brain scans showing the patterns of positivity with stroke patients. It has been shown that initially or the first 24 hours following a stroke, scans are usually normal. Few days later, an increased inactivity which gradually builds up over 5-7 days is noted. Disappearance of activity occurs over 4-6 weeks with return of the scan to normal. These were in patients treated with steroids, diuretics and in some instances with nicotinic acid. In one of our patients treated with i.v. pentoxifylline where serial computer axial tomograms were obtained, it would appear that the return to normal pattern was somewhat faster in that normal appearances with scanning and contrast enhancement were documented within 3 weeks of the onset of the patient's illness. It cannot, however, be over

emphasized that controlled trials and double blind studies would be necessary prior to firm conclusions being drawn. These studies should include pre-and post-treatment angiography and serial computer axial tomograms. With CAT Scan we now have a better parameter of assessment of 'that recovery' which we were only able to surmise in the past.

## REFERENCE

1. Sen S and Chakravarty A. Clinical experience with pentoxifylline in occlusive cerebrovascular disorders. Angiology 28, 340, 1977.