INTRODUCTION

Although paralysis resulting from traumatic injury to spinal cord has been considered essentially untreatable, therapeutic interventions have been initiated and can be divided into those aimed at modifying the acute process and those directed at altering the chronic process.

Over the years, a wide variety of treatments have been tried in many laboratories in an attempt to reverse the secondary injury process, but often without being able to be reproduced elsewhere. This is mainly due to the diversity of experimental models and species used to study the pathophysiological consequences of spinal injury and its therapeutic management. Additional variables are the site of injury (i.e. cervical vs thoracic vs lumbar), the time at which pharmacological interventions are begun and their duration, the sex of the animal, the outcome measures and the length of time the animals are followed. Despite considerable clinical and experimental research, the pharmacologic treatment of spinal cord trauma is still mediocre because of these numerous variables. This study examines enzyme changes in spinal cord injury and the effect of various therapeutic agents in ameliorating the biochemical, physical and pathological changes following spinal cord injury.
Acetyl cholinesterase (AChE) is a membrane-localized enzyme and its distribution in brain is not restricted to cholinergic systems alone. AChE appears to have actions other than the hydrolysis of acetylcholine. Na\(^+\), K\(^+-\)ATPase is also a membrane-bound enzyme and plays an important role in maintaining the neuronal transmembrane potential. The present study was undertaken to: (i) investigate the changes, if any in the activity of AChE and Na\(^+\), K\(^+-\)ATPase and the lysosomal enzymes, α-L-Fucosidase and β-D-hexosaminidase after spinal injury, ii) determine the levels of phospholipids in traumatized segments, iii) evaluate the effects of various pharmacologic agents such as, dexamethasone, calcium antagonists (verapamil and nifedipine), dimethyl sulfoxide, dipyridamole, and naloxone in reversing the neurological, pathological and enzyme changes in spinal cord trauma.