Chapter 3

The ENS and surrounding nerves

Introduction
In this session, co-chaired by Gerald Gebhardt and Gervais Tougas, the interactions between the enteric nervous system (ENS) and surrounding sympathetic and vagal fibres are addressed. Steven Miller discusses the activity and role of the prevertebral ganglia, with particular reference to colonic motility. Two recently identified messenger molecules are described which may mediate afferent input to prevertebral ganglia and modulate sympathetic efferent output.

In Terry Powley's presentation, he challenges the view that the ENS operates as an autonomous “little brain”, largely independent of the brain and spinal cord. He presents evidence from recent tracer studies indicating that the enteric plexuses are innervated by a rich network of vagal connections extending from the brain and nodose ganglia and hypothesises that the ENS and central nervous system are closely linked and have profound influences on each other.

In the final presentation of this chapter, Ove Lundgren illustrates the anatomical distribution of adrenergic innervation in the gut and reviews evidence of the interplay between the sympathetic and enteric nervous systems in the control of blood vessels, epithelial transport, motility, and endocrine cells.