Göttingen minipig

The Göttingen minipig is being used increasingly in biomedical research. The anatomical structure of the porcine peripheral nervous system has been extensively characterized, but no equivalent to the dermatome map, which is so valuable in human neurophysiological research, has been created. We characterized the medullar segmental skin and muscle innervations of the minipig hind body, using neurophysiological methodology. Six adult minipigs underwent unilateral laminectomy from L2 to S3, exposing the nerve roots. The skin of the hind part of the body was divided into 36 predefined fields, based on anatomical landmarks for consistent reproducibility. We recorded the evoked potential in each exposed nerve root L2-S3 for cutaneous stimulation of each skin field, mapping the sensory innervation of the entire hind body. We subsequently recorded the motor response in seven predefined muscles during sequential stimulation of the L2-S3 nerve roots. We obtained a clear sensory evoked potential in the nerve roots during stimulation of the skin fields, allowing us to map the sensory innervation of the minipig hind body. Neurophysiological data from skin stimulation and muscle recordings enabled us to map the sensory innervation of the Göttingen minipig hind body and provide information about muscular innervation. The skin fields were sensory innervated by more than one root. The muscles each had one dominant root with minor contribution from neighboring roots. This is consistent with experimental data from human studies [1)].

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