PS. Single fiber action potential recorded in verified volume conduction circumstances. – B.A. Albers, J.H.M. Put, T.J. Van der Reijden-Dikstaal and W. Wallinga (Biomed. Eng. Div., Twente Univ., 7500 AE Enschede, and * Dept. of Cytol. and Histol., Univ. of Nijmegen, Nijmegen, The Netherlands)

An important aspect in the origin of the single fiber action potential (SFAP) is the structure of the volume conductor between the stimulated fiber and the recording position. A new method has been developed for the determination of the position of the stimulated fiber and the recording electrodes from cryosections of skeletal muscle (see abstract of Wallinga et al.). Other data obtained with this method concern the fiber type, fiber dimension and the actual structure of the volume conductor.

Experiments were done in vivo with the rat. A set of about 14 wire electrodes were inserted in the m. EDL in such a way that SFAPs would be recorded with some of the electrodes (electrodes transversely close together and also dispersed longitudinally). If SFAPs are recorded on two or more electrodes, the longitudinal conduction velocity of the AP is derived from these recordings and the position information from the cryosections. The SFAP time domain (amplitudes, duration of phases) and frequency domain parameters are analyzed taking into account and in relation with the aspects mentioned.

PS. Brachial motor neuropathy with onion-bulb formations. – R.N. Auer, R.B. Bell and M.A. Lee (Dept. of Pathology and Clinical Neurosciences, University of Calgary, Calgary, Alberta, Canada)

A 38-year-old man presented with a 6 year history of upper extremity wasting and weakness in the absence of sensory complaints. Electrophysiologic abnormalities were confined to motor nerve conduction and supported a demyelinating process involving the brachial plexus and major proximal upper extremity nerve trunks bilaterally. Biopsy of the proximal right ulnar nerve revealed onion-bulb neuropathy.

We report the first such case of onion-bulb neuropathy localized to the brachial plexus, with purely motor manifestations.

PS. Evaluation of local analgetics by pain related cortical responses. – P. Bjerring * and L. Arendt-Nielsen ** (* Dept. of Dermatology, Martselilborg Hospital, 8000 Aarhus and ** Aalborg University, 9000 Aalborg, Denmark)

Cortical evoked responses were elicited by noxious argon laser and strong mechanical stimuli applied to the dorsum of the hands. The stimuli were applied before and after injection of lidocaine on the one hand and application of an epicutaneous eutectic mixture of local anesthetics (EMLAs) on the other. Five minutes after lidocaine injection and 1 h after EMLA application the pain and tactile elicited responses were recorded. The mechanical related cortical response contained a tactile and a pain related complex. The tactile and laser elicited pain complexes were abolished by injected lidocaine.

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