Poster 24
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Abs No 67

DIFFERENT AGING MECHANISMS FOR PERCEPTION OF PHASIC AND TONIC PAIN.

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AIM OF INVESTIGATION: This study compared age effects on the perception of two kinds of experimental pain, phasic and tonic pain, which differ in the degree of central summation involved. As another indicator of somatosensory aging thermoception was studied.

METHOD: 64 neurologically examined, healthy persons from 17 to 63 years (32 female, 32 male) were studied. Thermal stimuli were applied with a contact thermode. For assessment of phasic pain threshold subjects had to stop a temperature increase of 0.7 °C/s starting from 40 °C as soon as they felt pain. To measure tonic pain threshold a stimulus adjustment procedure was used (starting from 40 °C), and stimulation was continued on the adjusted level for 35 seconds; then a second adjustment followed. Thermoception was measured with warm and cold stimuli starting from 32 °C; subjects had to respond to temperature changes. Points of measurement were the thenar and the dorsum pedis.

RESULTS: Thresholds of all modalities studied increased significantly with age on the foot. Only tonic pain threshold showed an increase on the hand. A significant relative elevation of thresholds on the foot compared to that on the hand was found for phasic, but not for tonic pain with increasing age.

CONCLUSIONS: Length of afferent pathways influenced age changes in phasic pain perception as well as in thermoception. A reduction of intact nociceptive fibres with longer fibres earlier involved and consequently alterations of spatial summation may be the causes. In tonic pain perception topographic differences in age changes could not be observed. This and the greater influence of central summation processes on this kind of pain suggest a different aging mechanism, which suppresses nociception at a higher level.