Extended Abstract

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Joint Event on 19th Global Neuroscience and Neurology Conference and 13th Global Neurologists Meeting on Neurology and Neurosurgery November 07-08, 2019, Frankfurt, Germany - Sensory modulation in peripheral and central lesions of somoto sensory system

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VS Ramachandran and AV Srinivasan et al (1998) described allesthesia and extinction of referred sensations in brachial plus lesions. K. Sathian et al (2000) suggested that intermanual referral of sensations can occur after central lesions of the Somato sensory system. This communication considers eight patients with five central lesions and three peripheral lesions of the Somato sensory system.

Methodology & Theoretical Orientation: Ecological model of sensory modulations has external and internal dimensions. This refers both physiological and behavioural responses. Disfunction in sensory integration is that the ability, modulate, discriminate, co-ordinate or organise sensation adaptively. Eight patients aged between 19-51 with plexus brachialis lesion one, amputation 2 patients, hemiparesis with hemisensory deficit five patients were analysed. Patients vibration and kinesthesis were tested. Stimuli were applied manually. All patients had resonance Imaging of the Brain and ENMG studies.

Findings: Central lesions: All the five stroke patients showed intermanual referral of sensations between 3rd and 4th month after developing hemisensory deficit. Three had thalamic stroke and two patients has temparoparietal infarct. Intermanual referred sensations to the affected hand in these patients weren't mentioned the affected leg. Intermanual referred sensations were poorly localised and therefore the facial sensations were referred with increased intensity within the thalamic patients. When applied pressure on the traditional hand resulted within the extinction of pain sensation side and pain recurred within one minute of the pressure being relieved. Peripheral Lesions: Amputation of Limbs: Both the patients (below elbow and knee amputation) showed intermanual referral sensation within ten days. The referred sensation of touch and vibration lacked spatial organisation and poor localization with a comparatively high threshold. plexus brachialis Lesion: Patient had sensation intermanually referred during a topographically organised manner within the illusion. Intriguingly, simultaneous stimulation of the precise region (e.g. thumb) of the face and therefore the corresponding finger of the proper hand resulted during a mutual cancellation or extinction of the referred sensations within the illusion. Each subcortical somatosensory neuron responds to modality-specific stimuli applied to a selected region of the body or face.

For example, an axon within the medial lemniscus (i.e., the fiber tract) that responds to tactile stimulation of the proper index pad won't answer tactile stimulation of the other area within the hand, body or face. The stimulated area producing the response is named the neuron's receptive field. The neuron's receptive field also can be defined anatomically as that area of the sensory receptor (i.e., skin, muscles or joints) innervated directly or indirectly by the neuron. Consequently, a somatosensory neuron is often described to channel information about stimulus location - also as stimulus modality. Furthermore, the dimensions of a neuron's receptive field is said to the body area innervated/represented. The receptive fields of neurons innervating/representing the finger pads, lips, and tongue are the littlest, whereas those of neurons innervating/representing the shoulders, back and legs are the most important. For greater accuracy in locating the purpose of stimulus contact

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or movement, smaller cutaneous receptive fields are required. For fine control, as in playing the piano or speaking, small proprioceptive receptive fields are required.

Within each somatosensory structure, neurons are organized to supply a spatial representation of the body and face called the somatotopic map. Consequently, body and face (i.e., the receptive fields) are represented spatially (topographically) within nuclei and cortex such, neurons with contiguous receptive fields are located adjacent to at least one another within a given structure. for instance, adjoining areas of the body are represented in adjoining areas of the cortex. Because somatosensory neurons represent specific stimulus features and specific areas of the body or face, electrical stimulation of a restricted area of the central gyrus (e.g., the world representing the tongue) will produce a somatic (and not gustatory) sensation that's perceived as arising from the precise region of the body (i.e., the tongue). To realize this integration, the parallel streams converge at cortical levels, starting in SI. As a result of this convergence, receptive fields become larger, modality specificity diminishes, and therefore the cortical neural responses become more complex. Conclusions & Significance: 1.0 Intermanual referral of the sensations within the illusion occurred immediately in plexus brachialis lesion and amputation, whereas it occurred after a delay of three month is in hemiparesis with hemisensory deficit. this will be utilised for extinction of pain within the paretic side and within the illusion. 2.0 Sensations were referred intermanually during a topographically organized manner in plexus brachialis lesions, whereas in amputations and hemiparesis with hemisensory deficit, lacked spatial and poor localization. Disclosure: Dr. Venkatesan has nothing to disclose.

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