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CO-ORGANIZED EVENT

2nd International Conference on Spine and Spinal Disorders
&
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The problem of whiplash and possible treatments

Whiplash Associated Disease (WAD) is a disease that many people suffering from. More than 75% of the cases are caused by car accidents, in which the car driver, waiting in line in traffic, because of a red traffic light or a traffic block, is hit by another car from behind. In most cases, this accident is completely unexpected for the driver of the front car, which means that the neck muscles of this driver were relaxed during the accident. During the collision the body of the driver in the front car is pushed forward with the head staying behind, resulting in a sudden and strong stretching of the relaxed anterior neck muscles. Subsequently, when the front car stops, the body of the driver is pushed backward leaving the head in an anterior position resulting in very strong stretching of the posterior neck muscles. This strong flexion-extension movement often causes large damage of the neck muscles and of the facet joints, capsules and ligaments of the upper cervical vertebrae. These neck muscles and upper cervical facet joints and ligaments send a large amount of information to the spinal cord regarding the position of the head in space. In the upper cervical spinal cord, this information is relayed to higher brain levels of which the mesencephalic periaqueductal gray (PAG) and adjoining areas are the most important. Other information regarding the position of the head originates from the vestibular nuclei and from the visual system. Based on this information the mesencephalon determines the position of the head and the eyes. In WAD-patients the damaged neck muscles and upper cervical vertebrae deliver inappropriate proprioceptive information to the PAG, resulting in a mismatch between this information and the incoming information from the undamaged vestibular and visual systems. This mismatch causes balance disturbances, dizziness, headache, and central hypersensitivity to pain, the common symptoms in WAD patients. How to correct this mismatch will be discussed.

Biography

Gert Holstege is a Neuroscientist at University of Groningen in the Netherlands. He studied Medicines at Erasmus University Rotterdam from 1966 to 1971. He was Neuroscientist at Erasmus University Rotterdam from 1971 to 1987, after which he worked for four years for NASA in Mountain View, California. Since 1990, he has worked at University of Groningen, where he has been a Full Professor of Neuroanatomy since 1993 and Chairman of the Department of Anatomy and Embryology at Faculty of Medicine.

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