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Causes and Classification of Peripheral Neuropathy

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Short Communication

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DESCRIPTION

A broad word for nerve injury or disease affecting the peripheral nervous system is neuropathy, which is frequently abbreviated to neuropathy. Depending on which nerves are damaged, nerve damage may impair sensation, movement, gland, or organ function; in other words, neuropathy affecting motor, sensory, or autonomic nerves causes varied symptoms. It is possible for multiple nerve types to be afflicted at once. Peripheral neuropathy can be acute (with quick onset and rapid progression) or chronic (with subtle beginning and sluggish progression), and it can be temporary or irreversible [1].

Any of the typical nerve activities may exhibit issues in people who have diseases or dysfunctions of their nerves. The different types of nerve fiber affected can cause different symptoms. Loss of function ("negative") symptoms, such as numbness, tremor, impairment of balance, and irregular gait, are frequently present in terms of sensory function. The sensations of tingling, discomfort, itching, crawling, and pins and needles are considered gain of function (positive) symptoms. Motor symptoms include gain of function ("positive") symptoms like cramping and muscle twitch (fasciculations), as well as loss of function ("negative") symptoms like weakness, exhaustion, muscle atrophy, and aberrant gait patterns [2,3].

Systemic illnesses (such diabetes or leprosy), hyperglycemia-induced glycation, and environmental factors are common causes. Vitamin deficiency, medication (such as chemotherapy or frequently prescribed antibiotics like metronidazole and the fluoroquinolone class of antibiotics (such as ciprofloxacin, levofloxacin, and moxifloxacin)), traumatic injury, ischemia, radiation therapy, excessive alcohol use, immune system disorders like celiac disease or non-celiac gluten sensitivity, or viral infection are some examples of these factors. Additionally, it may be idiopathic (without a recognized cause) or hereditary (existing from birth). The term "neuropathy" (neuro-, "nervous system" and -pathy, "disease of") without a modifier typically refers to peripheral neuropathy in conventional medical usage.

Painful fasciculations (fine muscular twitches), muscle loss, bone deterioration, and changes in the skin, hair, and nails can all be symptoms of neuropathy. Furthermore, sensory neuropathy may result in numbness to touch and vibration, reduced position sense impairing balance and coordination, reduced sensitivity to temperature change and pain, spontaneous tingling or burning pain, or allodynia (pain from typically nonpainful stimuli, such as light touch); and autonomic neuropathy may result in a variety of symptoms, depending on the aetiology [4].

The term "mononeuropathy" refers to neuropathy that only affects one nerve, and "symmetrical polyneuropathy" or "polyneuropathy" refers to neuropathy that affects nerves that are located in roughly the same regions on both sides of the body. It is known as "mononeuritis multiplex," "multifocal mononeuropathy," or "multiple mononeuropathy" when two or more (usually just a few, but occasionally many) distinct nerves in dissimilar parts of the body are affected [5].

Classification

Mononeuropathy : One nerve only experiences neuropathy known as mononeuropathy. In terms of diagnosis, it's crucial to differentiate it from polyneuropathy because a single damaged nerve is more likely to be the result of localized trauma or infection. Compression neuropathy, often known as physical nerve compression, is the most typical cause of mononeuropathy. Examples include axillary nerve palsy and carpal tunnel syndrome. Inflammation or direct injury to a nerve that results in ischemia are additional factors that might contribute to mononeuropathy.

Polyneuropathy : Many nerve cells in many places of the body are afflicted in polyneuropathy cases, regardless of the nerve they pass through; not all nerve cells are affected in every case. This has the consequence of causing symptoms in multiple body parts, frequently symmetrically on the left and right sides. As with any neuropathy, the main signs and symptoms are balance issues when standing or walking, motor symptoms like weakness or clumsiness in movement, and sensory symptoms like strange or unpleasant sensations like tingling or burning. The feet are frequently where these symptoms first appear and are the most severe in polyneuropathies [6].

Autonomic neuropathy : The non-voluntary, non-sensory nervous system, or autonomic nervous system, is a type of polyneuropathy that primarily affects internal organs such the bladder muscles, the cardiovascular system, the digestive tract, and the genital organs. These nerves work automatically and are not within a person's cognitive control. Large groups of autonomic nerve fibers can be found outside the spinal cord in the chest, belly, and pelvis. However, they are connected to the spinal cord and ultimately the brain. Most frequently, people with long-term type 1 or type 2 diabetes mellitus experience autonomic neuropathy. Autonomic neuropathy typically co-occurs with other types of neuropathy, such as sensory neuropathy, however this is not always the case.

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