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Commentary

Epidemiological Research and Causes of Autoimmune Disorders and Encephalopathy

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DESCRIPTION

Encephalitis is a disorder that causes brain inflammation, which can result in major neurological consequences and even death. Encephalitis can be caused by a variety of factors, the most frequent of which are viral infections and autoimmune illnesses [1,2].

A virus affects the brain or the membranes that surround it, causing viral encephalitis. The virus can reach the brain *via* the circulation, the respiratory tract, or a direct head injury. Herpes simplex virus (HSV) is one of the viruses that can cause encephalitis. Both HSV type 1 which causes cold sores and fever blisters around the mouth and HSV type 2 which causes genital herpes can cause encephalitis, particularly in newborns, the elderly, and persons with compromised immune systems [3,4].

Other herpes virus strains

The virus known as Epstein-Barr, which usually causes an infectious form of mononucleosis (mono), the varicella-zoster virus, which causes chickenpox and shingles, and the cytomegalovirus, which can afflict patients.

Enteroviruses

These are types of viruses that can infect the brain and cause encephalitis as well as cause mild respiratory illnesses such as the common cold. Poliovirus, coxsackievirus, and echovirus are among them [5].

Arboviruses

These are viruses spread by insects such as mosquitoes and ticks. West Nile virus, Japanese encephalitis virus, Eastern equine encephalitis virus, and tick-borne encephalitis virus are among them. Symptoms of viral encephalitis include fever, headache, disorientation, convulsions, weakness, paralysis, and coma. The severity of the symptoms is determined by the type and location of the virus, the person's age and health, and the speed with which the infection is diagnosed and treated. The presence of antibodies in the Cerebro Spinal Fluid (CSF), the fluid that surrounds the brain and spinal cord, can be used to diagnose viral encephalitis. Antiviral medicines, steroids, and supportive care, such as water, oxygen, and pain management, may be used in treatment [6,7].

Autoimmune encephalitis

Autoimmune encephalitis is caused by an immune system defect that causes it to target brain tissue. This can occur as a result of being exposed to certain bacteria or viruses, such as streptococcus or the herpes simplex virus, which cause a cross-reactive immune reaction against the brain. It can also occur as a result of an ovarian tumour that develops autoantibodies that target certain receptors or proteins on the surface of brain cells. Antibodies like these can disrupt normal functioning of the brain and produce signs of neurological disease. Memory loss, confusion, psychosis, hallucinations, seizures, mobility abnormalities, and personality and behavioral changes are all indications of autoimmune encephalitis. The symptoms can vary based on the type and location of the antibodies implicated.

Autoimmune neurological disorders

Some of the renowned autoimmune neurological disorders are caused by anti-NMDA receptors, anti-LGI1, anti-GABA B receptors.

Encephalitis caused by anti-NMDA receptors: This is produced by antibodies against N-Methyl-D-Aspartate (NMDA) receptors, which are crucial in learning and memory. It primarily affects young women with ovarian teratomas, but it can also affect males and children. It produces psychological symptoms such as agitation, paranoia, and delusions, as well as mental retardation, seizures, and strange gestures.

Encephalitis caused by anti-LGI1: Antibodies against the protein Leucine-Rich Glioma-Inactivated 1 (LGI1), which is involved in synaptic transmission, induce this. Memory loss, confusion, convulsions, and facial twitching are common symptoms among elderly males.

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Encephalitis caused by anti-GABA B receptors: Antibodies against Gamma-Amino Butyric Acid B (GABA B) receptors, which are involved in inhibitory neurotransmission, produce this. Memory loss, confusion, convulsions, and limb stiffness are common symptoms in middle-aged men with lung or testicular tumours [8-10].

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