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Submission date: 26-May-2021 06:47AM (UTC-0700)
Submission ID: 1594583814
File name: Fatal_Familial_Insomnia.edited.docx (13.11K)
Word count: 509
Character count: 2887

Fatal Familial Insomnia

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Fatal Familial Insomnia

This type of disease is a rare and fatal neurodegenerative prion infection resulting from the mutation of the prion protein sequence. The disease manifests through antagonistically tolerant insomnia, consequent autonomic troubles like tachycardia, hypertension, hyperhidrosis, cerebral instabilities, memory deficits, stability issues, and endocrine dysfunction. Presently, the ailment is incurable and has an average period of eighteen months, leading to the death of an affected patient. According to Khan and Bollu (2021), the cause of the disease is the autosomal overriding metamorphosis of the codon 178 of the PRNP genetic material found in the small (p) appendage of chromosome 20 at point p13 to create prion protein PrPC.

Patients experiencing fatal familial insomnia are normally between 20-61 years, but eventually, the disease leads to death in seven to thirty-six months. Nevertheless, the average is eighteen months. Research suggests that the onset of the infection rests on the dangerous level of the metamorphosis of the codon 178 (Khan & Bollu, 2021). In addition to that, though the fatal familial insomnia disease is rare, it manifests in one individual per one million persons. Furthermore, the inherent form of the prion ailment makes up 10% of the total cases of the illness. Also, the disease is rare to the extent that it is found in close to fifty families globally (Khan & Bollu, 2021). SDA affects mainly the thalamus, but other parts of the brain, like the inferior olives in the medulla oblongata and the cerebral cortex, are also affected. Diagnosis is made by scrutinizing the blood count in the laboratory, the liver test, serum composition, and blood cultures for possible cases of bacterial infection. The reversible cause of cognitive limitations includes thyroid tests, testing for vitamin B-12, and folate amounts. However, treatment options focus on relieving the symptoms of the disease and palliative care.

Moreover, for laboratories to isolate fungal cultures from patient's samples, a growth media specialized for fungal growth is needed. One of the growth media used is the Sabouraud Dextrose Agar (SDA). The SDA is selectively used to isolate dermatophytes. Other groups of yeast, fungi, and bacterial like Nocardia also thrive in the SDA because of its PH level of 5.0 that allows fungi and yeast to grow while inhibiting the growth of bacteria (Parameswari Katay & Anke, n.d). Also, the SDA has different antibacterial components that can be beneficial in the media to enhance its antibacterial capabilities. Antibiotics like tetracycline and chloramphenicol are used as selective components to limit the growth of competing bacteria while allowing the successful isolation of yeasts and other fungi. Furthermore, the media can be modified to include streptomycin and penicillin against bacterial growth in the media.

References

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