



Minamata Disease: Causes and Treatment

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INTRODUCTION

Minamata Disease, a devastating neurological disorder caused by mercury poisoning, remains a haunting reminder of the consequences of environmental negligence. Tragically, this resulted in widespread neurological and physical impairments, affecting 1000s of individuals, including unborn babies. The symptoms of Minamata Disease can vary in severity but often include sensory disturbances (such as numbness and tingling), muscle weakness, vision and hearing impairments, difficulty walking, and cognitive dysfunction. In severe cases, the disease can lead to paralysis, coma, and even death.

DESCRIPTION

Minamata Disease is primarily caused by the ingestion of methylmercury, a highly toxic form of mercury. The main sources of methylmercury exposure in the context of Minamata Disease are industrial waste and contaminated seafood. Mercury, a heavy metal, is released into the environment through industrial processes, such as chemical production, mining, and waste incineration. These pollutants find their way into water bodies, where they are converted by bacteria into methylmercury, a bioavailable form that can easily accumulate in aquatic organisms. In the case of Minamata, a local chemical factory released methylmercury-contaminated wastewater into the Minamata Bay over several decades. The methylmercury biomagnified in the food chain, with small fish accumulating the toxin, which was then consumed by larger fish. This bioaccumulation continued until the mercury concentration reached dangerous levels, and the local population, largely dependent on seafood, was exposed to the toxin. One of the most heart-wrenching aspects of the Minamata tragedy is the fact that it affected not only those who directly consumed contaminated seafood but also unborn children whose mothers were exposed during pregnancy. The disease

caused severe developmental issues, known as congenital Minamata Disease, leaving affected children with life-long disabilities. The treatment of Minamata disease focuses on alleviating symptoms and preventing further exposure to methylmercury. However, it's important to note that there is no cure for the disease, and the damage caused by methylmercury poisoning is often irreversible. Management of the disease primarily revolves around supportive care and therapies aimed at improving the quality of life for affected individuals. Physiotherapy and occupational therapy can help individuals regain some degree of independence by addressing motor and sensory impairments. Speech therapy and counselling are also beneficial for those experiencing communication difficulties and emotional distress. Medical professionals closely monitor patients to address complications and ensure their overall well-being. On a broader scale, preventing Minamata Disease involves stringent regulations on industrial waste disposal and pollution control. Governments and industries must collaborate to implement effective waste management practices, reducing the release of mercury and other toxic substances into the environment. Additionally, regular monitoring of water bodies and aquatic life is essential to identify potential sources of contamination and mitigate their effects.

CONCLUSION

Minamata Disease stands as a stark example of the far-reaching impacts of industrial pollution on human health and the environment. The disease's origins in environmental negligence and its devastating effects on communities emphasize the need for responsible waste management and sustainable industrial practices. As we learn from the tragic lessons of Minamata, it is crucial that governments, industries, and individuals work together to ensure that history does not repeat itself, and that our actions prioritize the health and well-being of both current and future generations.

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