



Environmental pollutants and the risk of neurological disorders

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Neurological disorders have attracted considerable attention in the last decades owing to their large burden on global health. Currently, about 100 million people worldwide are affected by neurological disorders and represent 20% of the global burden of disease. The most common devastating neurological disorders are Alzheimer's disease, and other dementias, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, multiple sclerosis, epilepsy, stroke, brain tumors, brain trauma, etc. These disorders represent prominent causes of morbidity and mortality but the etiology of these disorders is still ambiguous. However, recently, the impact of the environment as a prominent risk factor has gained importance to the onset of these disorders. Emerging evidence indicates that environmental exposures such as air pollution can lead to chronic oxidative stress that plays a crucial role in the pathogenesis of Alzheimer's disease—the most common form of dementia. Furthermore, neurotoxic metals, as well as exposure to some pesticides, may augment protein misfolding and aggregation that serves as a precursor for copious degenerative brain ailments. Therefore, analyzing the tie of environmental factors and neurological disarrays is likely to help in the development of therapeutic strategies that can restore typical brain function. This special issue explores the role of environmental pollutants as risk factors for neurological disorders and their mechanisms of action as well as preventing the effects of pollutants on brain health.

Rahman et al. (2020) discussed the possible correlation between environmental factors and Alzheimer's disease, based on the recent findings. The authors suggested that

further epidemiological investigations are essential to reduce the progress of neurodegeneration.

Niaz et al. (2020) highlighted the underlying mechanisms of ochratoxin A regarding genotoxicity and epigenetic modulations that lead to Alzheimer's disease. The authors recommended several phytochemicals, drugs, and trace elements to attenuate ochratoxin A-mediated effects; however, further studies are necessary to understand the exact mechanisms.

Salem et al. (2020) evaluated the neurobehavioral performance among secondhand tobacco smoke-exposed Egyptian basic school children (10–12 years) and its relationship with urinary cotinine levels. This study exposed that children had suggestively lower performance in attention and visuomotor speed tests than control subjects as well as neurobehavioral effects were correlated with urinary cotinine levels.

Abdel Hamid et al. (2020) assessed the association between δ -aminolevulinic acid dehydratase (δ -ALAD) gene polymorphism and blood lead levels in cases of cerebral palsy patients and their mothers. This study reported an association between the elevated blood lead levels in children and the development of cerebral palsy.

Sana et al. (2020) presented the effects of microplastics and nanoplastics on the marine environment and human health especially neurological toxicity. The authors stated that new technological approaches to detect the particles of nanoplastics in the environment and humans are essential.

Mir et al. (2020) reviewed the correlation between various environmental pollutants and Alzheimer's disease pathology. The authors stated that the prolonged exposure to several common environmental risk factors for example heavy metals, air pollutants, pesticides, nanoparticles containing metals, industrial chemicals are mainly accelerating the deterioration of Alzheimer's disease.

Praveena et al. (2020) conducted a systematic review to examine the association between urinary phthalate metabolite concentrations and attention-deficit hyperactivity disorder symptoms among children. This review also addressed the possible phthalate mechanisms linking neurodevelopment

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and attention-deficit hyperactivity disorder symptom development which remains unclear in most of the studies.

Compliance with Ethical Standards

Conflict of Interest The authors declare no conflict of interest.

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