



Effect of Rising Temperatures and Climate Change on Neurological Disorders

Terrier D*

Department of Psychiatry, Laveran Teaching Military Hospital, Marseille, France

Neurological Disorders

Brain disorders such as neurological, psychiatric, and developmental now have an effect on at the least 250 million people in the developing world, and this range is anticipated to rise as life expectancy will increase. Yet public and private health systems in developing countries have paid especially little interest to brain disorders. The negative attitudes, prejudice, and stigma that regularly surround lots of these disorders have contributed to this neglect [1].

Lacking proper analysis and treatment, hundreds of thousands of individual lives are lost to disability and death. Such conditions precise each personal and economic costs on families, communities and nations. The report describes the causes and threat factors associated with brain disorders. It focuses on six representative brain disorders which are typical in developing countries: developmental disabilities, epilepsy, schizophrenia, bipolar disorder, depression, and stroke.

The report makes detailed recommendations of methods to lessen the toll exacted by these six disorders. In broader strokes, the report also proposes six most important strategies toward lowering the overall burden of brain disorders in the developing world.

Climate change will unavoidably have dramatic effects on all factors of our lives starting from altered climate having an effect on flooding and drought, but also changes in air/ water/soil quality & pollution, changes in ecology, and altered food production. These collectively can have negative effects on our health including our brain health [2].

Heat exposure and the brain

Heat exposure can result in hyperthermia and heat stroke in extreme cases which may be fatal. As global temperatures continue to rise, the incidence of hyperthermia and heat stroke will even inevitably increase. Hyperthermia, in addition to climate change-associated atmospheric changes, is related to an extended occurrence of migraines, seizures, stroke, and a few kinds of dementia which includes Alzheimer's disorder [3].

Proposed mechanisms underlying heat and brain pathophysiology can be attributed to a number of aberrant cellular processes occurring in the brain. Firstly, heat exposure can induce oxidative stress as well as Tau pathology in mice – key components of neurodegeneration in dementia. Furthermore, neuronal cells exposed to higher temperatures decrease superoxide dismutase (SOD) expression leading to cell death.

Prolonged heat exposure in mice (e.g., 42C) can increase the levels of pro-inflammatory cytokines including tumor necrosis factor-alpha (TNF α), interleukin-1 (IL-1), NF-kB signaling and induce the expression of iNOS in the brain ensuing in gliosis and reduces synaptic density. This is in line with what's seen systemically in heatstroke and has important pathological hallmarks in the brain.

Seizures also can expand because of increased temperature leading to hyperthermia and heatstroke. Mechanisms in the back of seizure genesis can be partly attributed to the heat-induced activation of TRPV4 channels and NMDAR signaling. Hyperthermia can reason

epileptiform discharges to form in cortical neurons through interfering with GABA signaling.

Heat exposure, especially heat stroke/hyperthermia can lead to important brain metabolic, cellular, inflammatory, and microvascular changes which can result in an array of potentially devastating neurological effects from the onset of seizures to the onset of dementia (neurodegeneration). It is crucial to note that lots of those theoretical and scientifically verified observations are exceptionally complicated and proving direct cause and effect is difficult, though many preclinical researches propose the profound impact hyperthermia may have on neurological health [4].

Clinically these will also be related to different factors which include changes to our behavior, changes to our diet/water intake, and those other changes within our existence which could additionally negatively impact neurological health.

High ambient temperature

To apprehend the consequences of global warming on brain disorders, the team behind the present study reviewed preceding research examining the effect of ambient temperature will increase at the manifestation of signs of main neurological issues. The researchers additionally analysed studies assessing the association among ambient temperature and hospitalization and mortality rates because of those neurological issues.

The neurological issues that examined included Alzheimer's disease, different kinds of dementia, multiple sclerosis, Parkinson's sickness, migraine, epilepsy, and stroke. The researchers also checked out tick-borne encephalitis as an example of an infectious disease regarding the nervous system. The researchers reviewed research and discovered that better ambient temperatures had been related to worse outcomes for individuals with neurological issues. For instance, multiple researchers found that improved ambient temperatures had been related to extra adverse signs, such as irritability, anxiety, depression, and agitation, in individuals with Alzheimer's disease and non-Alzheimer's dementia. Similarly, an increase in ambient temperatures was associated with a decline in cognitive overall performance and motor characteristic in people with a couple of sclerosis [5].

The researchers additionally discovered a better occurrence of tick-borne encephalitis with an increase in annual temperatures.

*Corresponding author: Terrier D, Department of Psychiatry, Laveran Teaching Military Hospital, Marseille, France, E-mail: marcelotyebieng@657gmail.com

Received: 06-Jan-2022, Manuscript No. ECR-22-52573; Editor assigned: 08-Jan-2022, PreQC No. ECR-22-52573(PQ); Reviewed: 25-Jan-2022, QC No. ECR-22-52573; Revised: 31-Jan-2022, Manuscript No. ECR-22-52573(R); Published: 08-Feb-2022, DOI: 10.4172/2161-1165.1000418

Citation: Terrier D (2022) Effect of Rising Temperatures and Climate Change on Neurological Disorders. Epidemiol Sci, 12: 418.

Copyright: © 2022 Terrier D. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

They recognized some studies suggesting a negative effect of higher temperatures on individuals with Parkinson's disease, epilepsy, and migraine, however the proof was limited.

Effect of migration

Whether migration increased or decreased, the occurrence of neurological issues among migrants changed into influenced via way of means of cultural, economic, and social factors of their origin and destination countries.

References

1. Lawton, E. M., Pearce, H., & Gabb, G. M. (2019) Environmental Heatstroke and Long-Term Clinical Neurological Outcomes: A Literature Review of Case Reports and Case Series 2000–2016. *Emerg Med Australas* 31:163-173.
2. Ruskiewicz JA, Tinkov AA, Skalny AV, Siokas V, Dardiotis E, et al. (2019) Brain Diseases in Changing Climate. *Environ Res* 177:108637.
3. Qiu C, Kivipelto M, Von Strauss E (2009) Epidemiology of Alzheimer's Disease: Occurrence, Determinants, and Strategies Toward Intervention. *Dialogues Clin Neurosci* 11(2):111-128.
4. Van Den Heuvel AM, Haberley BJ, Hoyle DJ, Taylor NA, Croft RJ (2020) Hyperthermia, But not Dehydration, Alters the Electrical Activity of the Brain. *Eur J Appl Physiol* 120:2797-2811.
5. Eggenberger P, Bürgisser M, Rossi RM, Annaheim S (2021) Body Temperature is Associated with Cognitive Performance in Older Adults with and Without Mild Cognitive Impairment: A Cross-Sectional Analysis. *Front Aging Neurosci* 13:29.