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Research Article

Title:

NEGLECTED TOXIC EXPOSURE

How they not only devastate not just the environment, but the human body as well

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ABSTRACT

Increasingly, research has shown how destructive the human impact on nature can be and sometimes is. It is not only animals that feel the effects, but also the source that provides for our every need, our environment — not to mention us ourselves, homo sapiens. Many people fail to realise that our planet is slowly dying. So don't think of this talk as a wake-up call, consider this a genuine Genome DNA Alert. Even more so, as humans allow themselves to be poisoned and destroyed by their surroundings and the environment. This makes the fact that Aero Toxic Syndrome (ATS) is still not recognised by traditional science as an official occupational disease AND that - despite numerous publications over the past three decades - no scientific research has ever been conducted in this field all the more troubling. In other words, neurologically and metabolically, Aero Toxic Syndrome has never truly been studied. For this reason, but also in light of the sheer number of about 450 toxic isomers, extensive scientific research, in addition to being incredibly valuable, is also crucial and urgently needed.

As early as 2016, the medical professional was already seeing dozens of patients in the aviation industry battling unexplained physical symptoms – from pilots, flight attendants, and pursers to baggage handlers, technicians, and other maintenance staff. All passionate people who, as a result of their working conditions and repeated exposure to toxins, possibly from aircraft, have been reduced to living barely functioning lives. But they aren't alone: inland shipping workers, agricultural workers, employees at places like the Ministry of Defence and Sikkens AkzoNobel, and both workers at and residents around steel producer Tata Steel in IJmuiden, the Netherlands, have developed terrible chronic diseases and worsening quality of life from toxic exposure. They too have been subjected to a wide range of toxins, year after year, for years on end.

Keywords: Aero-Toxic Syndrome, Minamata disease, Karen Wetterhahn, Professor Dr. Bas Bloem, Chromium-6

INTRODUCTION

The infamous and heartbreaking story of a initially mysterious phenomenon that underscores the dangers of neglected toxic exposure. This phenomenon is known as 'Minamata disease'. It's a neurological disorder named for the Japanese fishing village of Minamata — located on Minamata Bay — caused by extreme mercury poisoning, with the compound dimethylmercury as the formidable culprit. Since the disease was first spotted in 1956, scores of people in the region have died from its effects, almost all after consuming Minamata Bay fish contaminated with mercury compounds. According to research conducted in July 1959 by scientists and pathologist Tadao Takeuchi of Kumamoto University in Japan's Kyushu region, the poisoning was caused by large quantities of industrial wastewater containing mercury that was discharged into Minamata Bay by the Chisso Corporation petrochemical plant. Despite numerous allegations, management at the electrochemical company refused to budge, and Dr. Hajime Hosokawa, hospital director at the Chisso Corporation plant, continued to deny any involvement, despite the many patients — even new-borns with severe deformities — who came to him with symptoms such as tremors in the arms and legs, difficulty walking and talking, convulsions and mood swings. Moreover, knowing all this, Chisso Corporation continued production unabated, initially of acetylene and nitrogen fertilisers and later other organic products and compounds, including acetaldehyde, which requires mercury(II) sulphate, without even changing their production methods. The chemical company contested every allegation, claiming their production wastewater could not be the cause, and refusing to share samples of that water. Even experiments with the wastewater in cats by Chisso Corporation's own hospital director, Dr. Hajime Hosokawa, where he used the autopsy of a cat and lab results to show the same symptoms of the disease presenting in the local human population, were not enough. Management officials at Chisso Corporation were unyielding. They immediately ordered 'their' doctor, Hajime Hosokawa, to discontinue his experiments and have the cats destroyed. As the mercury dumps continued, the fishermen of Minamata launched protests against Chisso Corporation, who in turn used legal documents — which included provisions against admitting liability — in an attempt to cut deals with people affected by mercury poisoning. The company eventually stopped poisoning Minamata Bay in

1968, but is still embroiled in numerous lawsuits on the issue, including one against the Japanese government's Ministry of Health and Welfare. The plaintiffs argue that the government failed to stop Chisso Corporation from polluting the environment or take regulatory action, while the chemical company was knowingly and intentionally violating pollution laws. More than five decades later, the District Court and Supreme Court of Japan made quick work directed at both Chisso Corporation and the Japanese government. Both were ordered to pay hefty damages for their negligence in this Japanese pollution and environmental disaster.

VARIOUS IMMEDIATE TOXIC EFFECTS

Many people still believe that the impact of toxic substances on human health is so minor that a range of conditions and common neurological symptoms such as chronic severe fatigue, dizziness, confusion, chronic headaches, impaired cognitive abilities, difficulty concentrating, and lethargy could never be caused by toxic substances. And yet our society severely underestimates the dangers of exposure to toxic substances, such as organophosphates, and the neurological symptoms they cause, like Aero Toxic Syndrome and Parkinson's Disease, long recognised as an occupational condition. Victims see their quality of life drop dramatically, even at a young age, and the effects significantly affect their ability to function, both at work and at home. But to this day it's still a mystery how organophosphates are released into a cell, where they can manipulate the cellular system and disrupt cell function - particularly in brain cells.

RESULTS AND DISCUSSION

And yet this isn't an isolated incident. In 1997, highly qualified and celebrated scientist and chemist Karen Wetterhahn of Dartmouth College in Hanover, New Hampshire in the US, died. She died at the young age of 48, just under six months after being exposed to a few drops of dimethylmercury on the back of one of her hands, even though they were properly protected with latex laboratory gloves. Dr. Bas Bloem, professor of neurology at Radboud University Nijmegen, Netherlands, and neurologist in the Department of Neurology at Radboud UMC, has also highlighted the dangers of toxins. He sees a clear link with convincing evidence of a causal relationship between the use of chemical environmental agents and Parkinson's disease. Yet there is little urgency from the government to address the problem, and that has major consequences. Patients never escape the suffering, and it's well known to be a deadly disease.

With the past in mind, but particularly because of the alarming increase in the number of Parkinson's patients and the worrying and ever-increasing number of people in the aviation industry who are on leave with suspected Aero-Toxic Syndrome, it's imperative to sound the alarm, and ideally declare a state of emergency. The dangers and consequences of toxicity for the environment and the human body are enormous. So few of us are truly aware, but terrible things await mankind if we don't stop polluting the earth today. It's well past time for action, to save the environment and humans at the same time. International organisation Extinction Rebellion was founded in 2018 and is a regular, leading peaceful campaigner against environmentally destructive industrial

activity. For years they've recognised that the many forms of environmental pollution are a major threat to both marine and terrestrial life. And that includes human health and survival.

Multiple analyses have shown that the trouble started even before 1900 with toxic substances — including mycotoxins and organophosphates — that can impact cellular processes in the human body, metabolism, and organ functions at every stage of life. The more those harmful substances accumulate, the faster a disease or infection can develop, and the individual may even ultimately die from its effects. Toxins are especially dangerous for people with weakened immune systems, but they can still cause severe, even fatal illness in healthy people with fully functioning immune systems.

Toxins — from oil and petrol fumes from aircraft and ship engines and submarines, from discharges and emissions from chemical, petrochemical and wood-processing plants, from construction, refineries and oil platforms, but also from paint fumes, exhaust fumes, particulate matter, heavy metals, chemicals from synthetic pharmaceuticals and pesticides commonly used in the agricultural sector — can cause errors in the transfer of genetic material. In fact, those errors can be so severe that toxins can be pathogenic and carcinogenic, damaging blood cells, bone marrow and reproduction, and even damaging mitochondrial DNA (mtDNA), a double-stranded DNA molecule packed into a cell's mitochondria. Add in the fact that mtDNA also has multiple mitochondrial functions that impact the evolution of cellular and organ function in many diseases, including sepsis, skeletal muscle dysfunction, acute renal failure, acute lung injury and critical disease-related immune dysregulation. That genes play an important role in the body's response to nutrients, building blocks, and drugs is old news. But it is now also an established fact that genes can generate genetic variations of toxins that produce toxic compounds, inducing systemic toxicity and progressively, pathologically damaging multiple organs throughout the body.

There is increasing scientific proof that exposure to and handling of toxins is dangerous, harmful, and a major health risk. As recently as January 2023, in a case on chromium-6 exposure, the Rotterdam District Court in the Netherlands imposed a hefty criminal fine on the municipality of Tilburg and NedTrain, the company that maintains railway carriages for Dutch Railways. They abandoned their duty of care for more than 800 people who worked refurbishing railway carriages between 2004 and 2011 and neglected their responsibility as employers, even though NedTrain had been warned as far back as the 1970s that working with chromium-6 could pose a health hazard. Yet NedTrain, backed by the Dutch government, deliberately ignored those warnings. Like other heavy metals, PFAS, which is incredibly harmful to public health, agricultural pesticides, and toxic oil and gas fumes, chromium-6 can accumulate in the body and cause severe immune impairment. Additional research into the mechanism that triggers this faulty pathological cell transformation is desperately needed. This is long overdue. It is one minute to midnight.

CONCLUSION

And yet we never learn, we simply don't want to know what we're actually doing. The world should not just prepare for the consequences of ever-increasing environmental pollution and toxicity, but address the root cause, as well: stop polluting now, the sooner the better!

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REFERENCES

[¹] Science Direct. Minamata Disease. Available from:
<https://www.sciencedirect.com/topics/medicine-and-dentistry/minamata-disease>
[Last accessed on 1998]

[²] Chemical and Engineering News. 25 years after Karen Wetterhahn died of dimethylmercury poisoning, her influence persists. Available from:

<https://cen.acs.org/safety/lab-safety/25-years-Karen-Wetterhahn-died-dimethylmercury-poisoning/100/i21>

[Last accessed on 08 Jun 2022]

^[3] Radboud UMC. Seven million cases of Parkinson's disease. Available from:

<https://www.radboudumc.nl/en/news/2021/seven-million-cases-of-parkinsons-disease>

[Last accessed on 13 April 2021]

^[4] RIVM. Adverse health effects and diseases caused by chromium-6. Available from:

<https://www.rivm.nl/publicaties/nadelige-gezondheidseffecten-en-ziekten-veroorzaakt-door-chroom-6-tweede-actualisatie>

[Last accessed 02 Mar 2022]

^[5] Brabant Broadcasting [Omroep Brabant]. AzkoNobel alerted Defence to alternative for chromium-6 back in 2012. Available from:

<https://www.omroepbrabant.nl/nieuws/2879327/akzonobel-wees-defensie-in-2012-al-op-alternatief-voor-chroom-6>

[Last accessed on 06 Nov 2018]

^[6] NOS. Chromium-6 found in groundwater near Tata Steel. Available from:

<https://nos.nl/artikel/2436345-chroom-6-gevonden-in-grondwater-bij-tata-steel>

[Last accessed on 12 Jul 2022]

^[7] Caselaw [Rechtspraak]. Fine for Tilburg and NedTrain for exposing people to unacceptable health risk. Available from:

<https://www.rechtspraak.nl/Organisatie-en-contact/Organisatie/Rechtbanken/Rechtbank-Rotterdam/Nieuws/Paginas/Geldboete-voor-Tilburg-en-NedTrain-voor-blootstellen-mensen-aan-onaanvaardbaar-gezondheidsrisico.aspx>

[Last accessed on 01 Feb 2023]