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Repercussion of Conflicts Caused through Chemical Defilement and Eradication in Contemporary Existence

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Abstract

Conflicts can occur as a result of any natural phenomena or any man made activity that causes anguish in human brains; comprehending chemical contamination and elimination is the goal for global security. Many worldwide conferences attempt to balance and regulate such incidents; yet, prolonging any such event is a monumental task; however and therefore learning and preventing for knowledge of any repercussions is a debate. It is difficult to summarize chemical conflicts, hazards, toxic gases, weapons, warfare, chemical mixtures/compositions contamination, conversions and so on. We have covered briefly their literature, repercussions, risks and preventions for any confrontations resulting in chemical outbursts below.

***Keywords:** Conflicts, Defilements; Eradication; Chemical; Hazards; Toxic gases; Weapons; Warfare's; Contamination*

Introduction

Conflicts between nations have become exceptional, thanks in part to international institutions like the UN, which have been able to build a body of legislation to dissuade states from engaging in armed confrontations or climate change, both of which are costly in human, material and political terms. However, conflict violence has not vanished; rather, it has scattered [1-3]. You've probably heard people claim that the next nuclear war or the continued release of hideous amounts of pollution into the atmosphere, threatens to end the world and yes, this is one of the logics that is truly true and we must all initiate and rethink all such ideas to avoid future conflicts. There are many understandings for destructions which are correlated with imaginary and factualise actions, *i.e.*

- **Gobbled up by strangelet:** Keep it stable for as long as it takes to absorb the entire earth into a mass of strange quarks.
- **Blown up by matter/antimatter reaction:** This method involves detonating a bomb so big that it blasts the earth to pieces.
- **Destroyed by vacuum energy detonation:** Actually, thriving with vast amounts of particles and antiparticles constantly appearing and then annihilating each other. It also suggests that the volume of space enclosed by a light bulb contains enough vacuum energy to boil every ocean in the world.
- **Hurled into the sun:** Hurl the earth into the sun.
- **Pulverized by impact with blunt instrument:** Essentially, anything can be destroyed if you hit it hard enough. A big asteroid or planet, accelerate it up to some dazzling speed and smash it into earth.

Focused here on chemical corresponding issues and to analyze and state its actuality of conduct, humans existence has rolled out figures and concerns over the next coming ideas to understand and prevent any heinous outrage. Our boundaries and limits are stayed however our possibility is fair enough to be inexistent. Occurrences for chemical eradication are plenty and limitless although we have to undergo and learn the entire fault after any such events [4-6].

Understanding hazards, toxic gases, weapons, warfare's, chemical mixtures/compositions contamination, conversions, etc. are very related and discussed below. Chemical hazards and toxic substances pose a wide range of health hazards (such as irritation, sensitization, and carcinogenicity) and physical hazards (such as flammability, corrosion and explicability). Toxic: It is a chemical that has a median Lethal Concentration (LC_{50}) in air of more than 200 parts per million (ppm) but not more than 2,000 parts per million by volume of gas or vapor, or more than 2 milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 grams each and 300 gramseach. A chemical weapon is a chemical used to cause intentional death or harm through its toxic properties. Munitions, devices and other equipment specifically designed to weaponries toxic chemicals also fall under the definition of chemical weapons. Chemical composition can be defined as the arrangement, ratio and type of atoms in molecules of chemical substances. The chemical composition will vary when chemicals react. For example, when hydrogen combines with oxygen, water is produced. Chemical contamination is a term that refers to the addition of unwanted chemical substances or the presence of expected chemical substances but in greater amounts than necessary or what is considered to be safe.

Literature Review

Since it was first deployed on a large basis during World War I, chemical warfare has been highlydenounced. Chemical weapons are inexpensive, may cause widespread devastation and are relatively simple to manufacture, even in developing countries. Throughout the twentieth century, they were utilized in a variety of conflicts. Chemical weapons' psychological influence on society makes them ideal for terrorism, as demonstrated by the discharge of nerve gas. nerve agents are a particularly hazardous class of organophosphate chemicals that were first synthesized in Germany prior to win.At room temperature, these are all liquids that emit a vapor capable of penetrating the skin, respiratory epithelium and cornea.

The successful management of chemical agent exposure is dependent on early detection. During times of conflict, people are more attentive; suspicious smoke, mist, drops on flora and buildings or strange odors are all warning indicators. Chemical detectors are not frequently available to civilian emergency services and clinicians must maintain a high index of suspicion in order to diagnose a chemical injury early. Many of the effects of chemical agents are similar to those of common medicaldisorders like respiratory disease and epilepsy. We concentrated on the agents that represent the greatest hazard, as well as chemical weapons injuries and management procedures. A chemical agentis defined as "a chemical substance intended for use in military operations to kill, critically wound or incapacitate people due to its physiological effects." chemical weapons and biological weapons (such as anthrax or plague) are thought to be at opposite ends of a spectrum, with "chemicals of biological origin'' in between. Chemical weapons are categorized based on their mechanism of actionor the length of time they remain active in the environment (persistence), as well as their lethality (Figure 1 and Table 1).

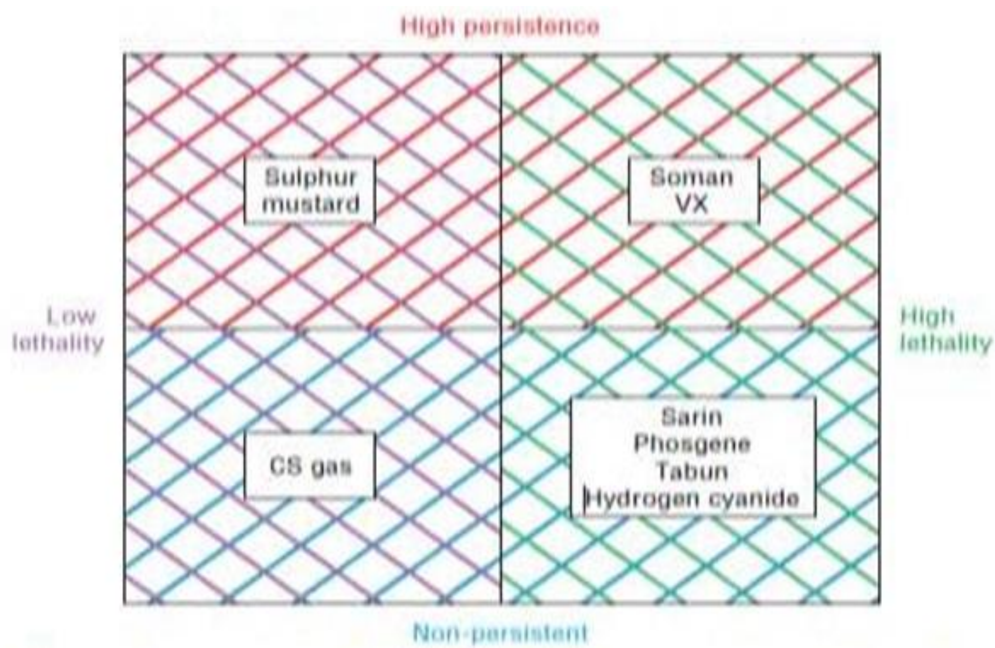

FIG. 1. **Classification of chemical weapons by persistence and lethality**.

TABLE 1.**Clinical features of exposure to sulphur mustard, nerve agents and phosgene**.

Chemical agent	**Means of exposure**	**Rate of action**	**Clinical features of exposure**
Sulphur mustard	Skin contact inhalation	Delayed by 1 h-24 h	Skin: Erythema, blistering leading to full thickness burns. Eyes: Lachrymation, conjunctivitis, photophobia, blepharospasm, eyelid oedema. Respiratory tract: Rhinorrhoea, hoarseness and cough, dyspnoea, tracheobronchitis, bronchopneumonia. Haemopoetic system: Leucopenia and anaemia.
Nerve agents (tabun, sarin, soman, VX)	Inhalation, skin contact	Very rapid	Early or mild poisoning: Tightness of chest, rhinorrhoea, increased salivation, dimming of vision/miosis, eye pain/frontal headache, severe poisoning, bronchospasm/dyspnoea, vomiting/abdominal pain, urinary and faecal incontinence muscle fasciculation and convulsions, respiratory failure and death due to anoxia.
Phosgene	Inhalation	Delayed by 1 h-24 h	Dyspnoea, coughing, pulmonary oedema (after latent period), respiratory failure.

For the past 2000 years, man-made chemical pollutants have been accumulating in soils and sediments. The pollution created by heavy metal mining is an early example. The amount and rate of environmental contamination produced by industrial, commercial, agricultural and home activities have progressively increased since the commencement of the industrial revolution 200 years ago. Pollution patterns may include not only local, highly concentrated areas such as toxic waste dumps or mine tailings, but also smaller concentrations of pollution broadly scattered across the landscape, such as pastures, crop lands, woods, river, lake and estuary sediments. Because the chemical can be released into the environment for a long period before any consequences are seen, the phrase “chemical time bomb” has been developed to characterize such situations. Furthermore, when the obvious environmental effects become apparent, they may be far more severe than anticipated. Forest dieback in the early 1980’s, caused in part by soil acidification and air pollution, is a recent example of an unexpected environmental problem caused by delayed responses to chemical pollutant inputs.

While few compounds are used in military explosives, they can be mixed with plasticizers and other components to produce a plethora of compositions. However, the threat of terrorism and suicide bombers narrows the attention to high explosives. Several of these explosives, as well as various plasticizers and taggants used in plastique explosives, are examples of such explosives. The catastrophic shock wave produced by the detonation of a High Explosive (HE) causes extensive damage and death. High explosives are an intimate mixing of oxidant and reluctant, either inside a single molecule like nitro glycerine, Pentaerythritol Tetranitrate (PETN), Trinitrotoline (TNT) or Triacetone Triperoxide (TATP), or within an ionic solid like ammonium nitrate when mixed with fuel oil. High explosive mixtures are commonly employed. Semtex for example, is a mixture of cyclomethylenetrinitramine (RDX) and PETN (e.g. Aluminum powder, fuel oil). Many of these contribute to large scale radiation pollution, which damages the living world.

Consequence and hazards

A chemical hazard is any material that, when swallowed or inhaled, can create a health condition. Such chemicals cause immediate or delaying death and its radiation are very harmful for living world.Toxins, hazardous compounds and residue from excess chemicals used in food preparation are among them. Chemical dangers can be avoided if your plant adheres to Good Manufacturing Practices(GMPs). Radiation can damage the DNA in our cells. High doses of radiation can cause Acute Radiation Syndrome (ARS) or Cutaneous Radiation Injuries (CRI). High doses of radiation could also lead to cancer later in life.

Let’s go over the human body from head to toe to see how large doses of radiation may harm it.

- **Brain:** Nerve cells (neurons) and brain blood arteries can perish, resulting to seizures.
- **Eyes:** Cataracts are become more likely by radiation exposure.
- **Thyroid:** When radioactive iodine (I-131) is discharged into the environment (this is one of the particles in a “radioactive plume”). The thyroid is extremely susceptible to I-131's effects (in fact, I-131's affinity for the thyroid is employed therapeutically to draw radiation to the thyroid in order to treat thyroid cancer and hyperactive thyroid). When a healthy thyroid is exposed to I-131, it might cause diminished thyroid function and in the long run, thyroid cancer.

- **Lungs:** Breathing in invisible nuclear fallout particles can contribute to lung cancer in the long run.

- **Heart:** High radiation doses can harm the cells in the blood arteries that supply the heart, limiting cardiac function.

- **The digestive tract:** Damage to sensitive cells in the intestinal lining can result in nausea, bloody vomiting and bloody diarrhoea. Organs of reproduction rapidly dividing cells in the ovaries and testes (eggs and sperm) might perish, resulting in infertility.

- **Skin:** Skin cells that divide quickly might be destroyed, resulting in lesions and burns.

The lymphatic system rapidly dividing lymphatic cells die, and injured bone marrow may have difficulty replenishing these immune boosting cells, putting the patient at risk of infection.

Hazard categories

- Naturally occurring poisons are those that are created by plants, animals or microbes (ex: aflatoxins in peanuts, poisonous neurotoxins in mushrooms, scrombotoxins in fish).
- **Intentionally added:** These are substances that have been intentionally added to food that exceed the permitted limits stipulated by the food and drug act and its regulations (ex: food additives like sodium nitrate).
- **Inadvertently introduced:** These are substances that contaminate food while it is being processed (ex: sanitation or maintenance chemicals, pesticides or environmental pollutants).
- **Food allergens:** These compounds in food can cause an allergic reaction in humans (ex: peanuts, fish, dairy products).

Potential dangers

In the food processing industry, there are numerous possible sources of chemical risks. A formal hazard analysis performed on a regular basis can assist you in determining the risk levels that may affect your product. A proper analysis will take into account potential threats such as:

- Incoming products contaminated with toxins that cause bacteria or moulds to grow, pesticides, veterinary medications, and non-food grade chemicals/ink used in packaging materials.
- **Allergens:** Undeclared allergies on ingredient labels, as well as cross contamination with allergens, pose a concern.
- **Food contact surfaces:** The use of prohibited materials may result in chemical migration into food.
- **Non-food chemicals:** These include sanitizing or maintenance chemicals (used or stored near food contact surfaces), colours or inks from coding machines, water treatment chemicals and so on.
- **Employees:** Employee errors in adding excessive food additives or unapproved ingredients into the process are a potential risk.

Evaluating the health effects of chemical mixtures

Many chemicals, without a doubt, cause human sickness. Well documented impacts include arsenic and skin cancer, asbestos and lung cancer, lead and IQ decrements and dioxin and chloracne. Although the health consequences of individual pollutants may be visible in high exposure situations, the vast majority of people are exposed to chemical mixes of organics and inorganics at lower quantities. There are an almost limitless number of pollutants that can be combined and we often don't know which are the most relevant, which dose ranges should be researched or which biologic end objectives should be studied. Although just a few studies have looked into the interactions of two chemicals, we are all exposed to several substances in our daily lives and the physiological effects of 20 distinct chemicals may be significantly different from those of just two. In the last century, the number of chemicals to which humans have been exposed has expanded tremendously. Mankind has always been exposed to numerous metals, which are naturally found in the environment, drinking water and food. Many natural compounds are present in the foods we eat and many of these operate at several sites in various organs and cells. Polycyclic Aromatic Hydrocarbons (PAHs), which are generated during combustion, have been a source of exposure since humans discovered how to make fire. Humans have become more exposed to a wider spectrum of hydrocarbons and their by products as the usage of fossil fuels for a variety of purposes has grown. However, the amount of chemicals created by the chemical and pharmaceutical industries in the twentieth century significantly increased human exposure. Pesticides, herbicides and fungicides are used to grow practically all food crops. We make meat products by using a lot of growth hormones and antibiotics. Plastics rapid development has resulted in exposure to many chemicals that may seep into food. The number of drugs available has grown dramatically, with the majority clearly beneficial to human health but the risk of interactions with other environmental agents.

When two compounds interact, they may share a common sight of action, such as a receptor or an enzyme. In this situation, their effects could be additive if they both activate the target or occlusive if one activates and the other binds without activating or with a slow dissociation constant. Many effects, however, are more sophisticated than just attaching to a receptor or enzyme and occur by affecting gene expression, changing levels of intracellular ion concentrations, influencing cellular metabolism or producing cellular regulators. Few substances, in actuality, have a single biological target. There may be distinct activities on the kidney, liver and brain, each with a distinct disease related consequence. The actions at each of these sites are determined by the presence of distinct cell types' genes, receptors and cellular regulators. When targets that regulate other organs and cells are affected (for example, the thyroid or pancreatic beta cells), the chemical agent has a considerably bigger influence.

Chemical mixtures can be ingested, inhaled or absorbed *via* the skin. The site of disease is frequently defined by the route of exposure. For example, smoking causes lung cancer, whereas skin cancer is caused by mutagenic compounds applied to the skin. Some pollutants may have varying effects depending on how they are exposed, such as asbestos inhaled versus asbestos swallowed. This is reasonable since the location of application reflects local mutagenesis effects or reactive substance production, such as reactive oxygen species. Other toxicants are swiftly absorbed and distributed by the body regardless of the route of exposure and health effects are not affected by the route of exposure. The route of exposure is less important for the more persistent pollutants because they are presenting long enough to equilibrate in the body. Because different pollutants may have distinct reservoirs in the body (for example, metals to bone and teeth, organics to adipose tissue), toxic activities in the reservoirs may also be predictive of disease. However, each of these reservoirs is normally in balance with blood and tissue levels.

Environmental factors contributing to human disease

The degree to which environmental factors contribute to disease in general is an important first question in analysing the role of chemical mixtures in human disease. Even on this subject, there is no universal agreement. We estimate that environmental causes (chemicals, radiation and tobacco smoke combined) cause around 80% of all malignancies. Furthermore, we estimate that environmental factors account for 25%-33% of the overall global disease burden and that children are particularly vulnerable to environmental factors. This figure includes diseases caused by infectious organisms spread through the environment. In recent years, evidence for the role of environmental agents to a number of diseases that were previously thought to have environmental causes has surfaced. This is notably true for the broad categories of diseases classified as endocrine disruption, as well as a variety of chronic diseases such as cardiovascular disease, diabetes and even bone, joint, and intervertebral disc disease. We have some evidence for a range of chemicals having a relationship to the disease in many of these instances, but we presently have little or no information of the nature and impact of interactions among chemicals connected to the disease state.

Human diseases based on current physiologic mechanism knowledge

Many environmental influences alter the biochemistry and physiology of the organism without necessarily decreasing life or creating overt sickness. These acts can result in irreversible, life-long variations in physical size, IQ, behavior, reproductive ability and susceptibility to other disorders if they occur during development. Even later in life, such exposures can have an impact on mental andsexual processes. Many people use the term "endocrine disruption" to describe these various impacts, but this term does not cover the entire spectrum of changes that can occur in organs such as the brainthat are not caused by changes in the endocrine systems. To demonstrate these principles, we will discuss two types of sickness below.

Abnormalities in neurobehavioral function: The first unequivocal evidence that lead exposure in early infants resulted in both a decrease in IQ and the development of a series of disruptive behaviors characterized by a shorter attention span was published in 1979. They studied these children for several years and eventually determined that lead's effects on neurobehavioral function were virtually irreversible, as the decrements did not reduce with time. The discovery that lead chelation reduces blood lead levels in children over the age of 2-3 years but does not repair cognition abnormalities support this view. Although the IQ impairments were only in the range of 5-7 IQ points and thus presumably do not result in huge variations in individual performance, a systematic "dumbing down" of the population has massive societal effects.

Hormonal disruption due to sex steroids: The developing organism is highly sensitive to changes in hormone function. Human male and female gonads are morphologically identical in the early embryonic stage. At the fifth and sixth weeks of fatal development, sexual differentiation begins under hormonal influence and hence changes in hormone function during this very sensitive time can have substantial, often debilitating, consequences. The balance between estrogens and androgens is essential for appropriate reproductivedevelopment, growth and function. Although it is especially vital throughout development, maintaining natural feminine or male features is important throughout life.

Human diseases based on current cellular and molecular mechanism knowledge

Neurodegenerative conditions: A lot of characteristics are shared by the various neurodegenerative disorders. Upper and lower motor neurons die and vanish in Amyotrophic Lateral Sclerosis (ALS), neurons in the substantia nigra in Parkinson's disease and neurons in the frontal cortex and hippocampus in Alzheimer's disease. For each, a tiny percentage of instances appear to be genetic, but the vast majority appears to be random, and for each, a variety of environmental agents may be contributors to the disease.

Cancer: Cancer is caused by interactions between environmental exposures and genetics. Only genetic variables may account for less than 5% of malignancies. As a result, susceptibility is crucial to understanding cancer and numerous environmental elements influence susceptibility. Cigarette smoking is the single most significant risk factor, accounting for 30% of all cancer deaths and 85% of lung cancer fatalities. Diet, pollution, radiation, infectious agents and medicines are also variables. Deposit the fact that genetics alone cannot explain the majority of malignancies, cancer is basically a genetic disease in the sense that environmental agents or viruses can affect the genes that control celldivision.

Diseases caused by both physiological disruption and cell damage

Cardiovascular illness: In affluent countries such as the United States, cardiovascular disease is the leading cause of illness and mortality. Genetic predisposition, high fat diets, smoking and a lack of exercise are all known risk factors for cardiovascular disease, particularly ischemic heart disease. Cerebrovascular disease ("brain assaults") has the same aetiology and risk factors as ischemic heart disease, which results in myocardial infarctions.

Cellular models of environmentally induced disease

Chemical mixtures and steroidal hormone function: Steroid hormones are lipid molecules with restricted solubility in plasma and are consequently delivered through the plasma compartment to target cells by specialized plasma transport proteins. Each transport protein has a unique ligand binding domain for the hormone with which it is associated. It is widely assumed that the "free" form of the steroid hormone enters target cells and binds to the appropriate receptor, rather than the conjugate of the hormone with its plasma transport protein. Steroid hormone receptors are proteins that are primarily found in the cell nucleus or are divided between the cytoplasm and the nucleus. Unoccupied steroid receptors may be found in cells as heterodimeric complexes with the 90-kDa heat shock protein, which prevents the receptor from attaching to DNA until it has first interacted with its steroid hormone. The hormone receptor complexed with the HR-HSP undergoes a conformational change and is deemed activated after the hormone binds to the receptor. The active receptor attaches to DNA at a specific location, causing gene transcription and ultimately, a specific physiological reaction (e.g. cell proliferation and tissue restructuring). Steroid endocrine systems are regulated by a number of feedback mechanisms that involve both hormone production and receptor levels in target tissues.

Male fertility has dropped: If the chemicals operate as antiandrogens, estrogens, AHR (Aromatic Hydrocarbon Receptor) agonists or deadly germ cell toxicants, perinatal exposure to chemical mixtures changes sexual differentiation and may impair normal hormone function. Antiandrogens bind to androgen receptors but do not activate them. A variety of substances, including medicines (hydroxyflutamide), insecticides (procymidone, vinclozolin, o,p'-DDE), fungicides (vinclozolin) and estrogens, have been shown to have antiandrogenic effect (diethylstilbestrol and estradiol). In experimental animals, perinatal antiandrogen exposure can be shown as a decrease in anogenital distance, nipple retention, hypospadias, delay in preputial separation, decrease in sex accessory gland weights and inhibition ofendogenous gene expression. Estrogens can have antiandrogenic effects by either inhibiting testicular androgen secretion *via* preventing luteinizing hormone secretion or directly suppressing testosterone production by Leydig cells. Estrogens influence male reproduction *via* binding to the ER and activating particular gene responses. In male experimental animals, estrogens antiandrogenic effectsare detectable *in vivo* as changes in mating behaviour, blood levels of luteinizing hormone, and spermatogenesis. AHR agonists (TCDD, non-ortho substituted PCBs) bind the AHR and stimulate p450's, which can activate procarcinogens and modify steroid hormone metabolism.

DNA damage and oxidative stress in sperm: Phospholipids make up the majority of the lipids in sperm cells (60%-70%), and they are rich in polyunsaturated fatty acids. As a result, sperm cells are vulnerable to lipid peroxidation caused by ROS like superoxide anions, hydroxyl radicals, and hydrogen peroxide. More than 60% of the main polyunsaturated phospholipid fatty acid in human spermatozoa, docosahexaenoic acid was lost aftertwo hours of exposure to an iron/ascorbate prooxidant catalyst system. Malondialdehyde, a byproduct of lipid oxidation, increased in response to fatty acid breakdown (MDA). This phospholipid breakdown has the potential to destroy cell membranes. Furthermore, ROS can react with DNA molecules, resulting in mutations that impair both spermatogenesis and progeny genetic status. In studies of the causes of infertility in human male populations, MDA levels and/or levels of an oxidative DNA damage biomarker, 8-hydroxy-2'-deoxyguanosine (8-OHdG), were found to be statistically linked with declines in indices of sperm quality such as sperm quantity and sperm motility.

Study of the health effects of chemical pollutants in foods

The food we eat is one of the most important determinants of our health. While research on food quantity and quality has expanded, owing primarily to rising obesity rates worldwide, there is significantly less study on food safety available. Although substantial attention is paid to acute disorders caused by microbiological foodborne pathogens, the dangers associated with chemical pollutants remain critically understudied. Chemical contamination can occur at any stage of food preparation, packaging, transportation and storage. Chemical contamination can occur as a result of environmental contamination, such as hazardous metals, polychlorinated biphenyls and dioxins or as a result of the intentional use of chemicals such as pesticides, veterinary pharmaceutical treatments and food contact materials. Chemical pollutants in food can produce acute episodes with a single exposure (for example, gastrointestinal symptoms from paralytic shellfish poisoning) or chronic effects with repetitive long term exposure (such as liver cancer due to chronic exposure to mycotoxins). The most recent global and regional illness burden estimates from arsenic, cadmium, lead and methyl mercury reveal significant gaps in this research foundation. For example, outcomes reflecting the links between lead and hypertension, as well as arsenic and heart disease, were excluded. Similarly, other estimations of marine toxins, pesticide residues, food additives (sulphites, nitrites, etc.) mycotoxins other than aflatoxin, process contaminants (acrylamide, polycyclic aromatic hydrocarbons, etc.), and natural pollutants were not taken into account in these research (aminoglycosides, aristolochic acid, etc.). All of these factors may be significant in terms of the impact of chemicals and toxins on the foodborne disease burden.

Chemical contamination in food is an understudied topic of health study. Estimates of the health burden are required to enhance public health awareness of the impacts of foodborne chemical pollutants. We must also collaborate with food safety stakeholders from all around the world to create. Mitigation methods and efficiently allocate resources for disease prevention. To correctly reflect the current incidence of food exposures to chemical pollutants, better surveillance data and suitable means of exposure assessment would be required. Chemical specific biomonitoring data, as well as epidemiological data on various disorders linked to chemicals in food, must be generated. To assess the baseline disease burden and connections with outcomes, confirmation of the source of sickness from chemical exposures and the application of formal epidemiological methodologies must be enhanced. These processes are vital for assessing and determining the real incidence of foodborne disease caused by chemical pollutants, which is essential knowledge for addressing this mostly unknown global health concern.

Discussion

When handling or dealing with chemicals, you should always take precautions to avoid chemicals entering your body by inhalation, ingestion or skin contact. Maintain proper housekeeping and personal hygiene. Make good use of the PPE provided. Follow your supervisor's safe work guidelines and practices. Know where to look for information on the substances you’re dealing with, as well as the hazards and precautions you may take.

Prevention is the most efficient method of chemical hazard mitigation. Putting in place an efficient chemical management programmer at your plant may help to decrease or eliminate chemical dangers in food, contaminants, pollutants and exposures, among other things.

A successful chemical control programme should include the following elements:

- Teach personnel proper cleanliness, maintenance and pesticide handling and application methods.
- Keep chemicals away from food, ingredients, packaging and food contact surfaces.
- Make it a normal practice for personnel to clean and remove any chemical residues from all touch surfaces following maintenance.
- Avoid using too much oil or lube on machinery. Re evaluate all methods on a regular basis to ensure they are effective in removing chemicals.
- Make certain that chemical containers and measurement equipment are properly labelled or colour coded and that they are exclusively used for chemicals.
- Handle allergies with appropriate instruments and schedule items containing allergens last in the production cycle.
- Keep allergies apart from other components to avoid cross contamination (ex: tightly close containers, use separate storage room or ensure adequate physical separation).

- Use proper storage techniques (ex: uncontrolled moisture levels during grain storage can produce mycotoxins).

Understanding the current situation and understanding how to avoid it are critical for any human caused activity, since chemical radiation may cause major harm to the environment and all living things. Several international treaties have been drafted in an attempt to regulate and eventually eliminate chemical warfare. Xenobiotic exposure is putting humans under constant and rising strain.

Chemical pollution has the potential to disrupt the delicate balance of the earth's ecosystems. Soil pollution has been caused by mining, agriculture and waste disposal. Heavy metals such as cadmium, mercury and lead can degrade soil quality and diminish the number of microorganisms that promote soil fertility. Soil health has an impact on biodiversity and populations' ability to generate food. The ocean is polluted by a high amount of plastic and other chemical waste, which has resulted in 'dead zones' or areas where the oxygen level in the water is insufficient to support life. High or sustained chemical exposure has also had an influence on marine biodiversity. The ability of a drug to create negative effects is referred to as its toxicity. These effects can affect a single cell, a cell cluster, an organ system, or the entire body. A toxic effect can be obvious harm or a decline in performance or function that can only be measured by a test.

Conclusion

International treaties such as the prevention of chemical defilement and eradication convention should help control the proliferation of chemical weapons, contaminations, warfare and so on causing tremendous pollution, radiation, exposures and so on and affecting lives, from harmful diseases and verify disarmament, but it would be naive to believe the threat will last until any naturally occurring outburst. Military and emergency services must retain their capacity to address large scale chemical eradiation assaults, which necessitates ongoing education, training, and planning. Chemical pollution is any damage we create to the environment and no one can survive without contaminating our earth. However, avoiding or panicking is extremely dangerous; therefore drumming is required and is better than any remedy. e.g. the sex of a sea turtle is determined by the temperature of the sand incubating the eggs. Warmer temperatures of 29.1 degrees Celsius and above produce females and cooler temperatures produce males. Increasing temperatures as a result of climate change means more females are born, disturbing the natural gender ratio. Such is an important climate change can be caused by chemical struggles.

Ethical Statement

All genuine work and presentation are made by the author.

Consent Statement

I agree to publish my research work in the journal.

Conflict of Interest

None.

Availability of Data and Materials

All data generated or analyzed during this study are included in this published article and its supplementary information files.

References

1. Bajgar J, Fusek J, Kassa J, et al. Global impact of chemical warfare agents used before and after 1945. In Handbook of Toxicology of Chemical Warfare Agents, 3rd edition, Academic Press, Hradec Kralove, Czechia. 2020;27-36.
2. Gulati K, Thokchom SK, Ray A. Impact of chemical warfare agents on the immune system. In Handbook of Toxicology of Chemical Warfare Agents, 3rd edition, Academic Press, New Delhi, India. 2020;685-703.
3. Katke S. Repercussion of conflicts caused through chemical defilement and eradication in contemporary existence. 2022.
4. Vardhan KH, Kumar PS, Panda RC. A review on heavy metal pollution, toxicity and remedial measures: Current trends and future perspectives. J Mol Liq. 2019;290:111197.
5. Rajendran S, Priya TA, Khoo KS, et al. A critical review on various remediation approaches for heavy metal contaminants

removal from contaminated soils. Chemosphere. 2022;287:132369.
6. Tahir MB, Kiran H, Iqbal T. The detoxification of heavy metals from aqueous environment using nano-photocatalysis approach: A review. Environ Sci Pollut Res. 2019;26(11):10515-10528.