OPINION

Environment and surrounding Impact

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ABSTRACT

Medical geology is a new interdisciplinary science that studies the connection between geological elements and human health. Its subject of research is complex, and experts from various fields and scientific domains, including geosciences, collaborate on it. Some minerals' unique and exceptional physicochemical properties make them ideal for a variety of medical applications, including the formulation of pharmaceutical drugs in the pharmaceutical industry, the manufacture of dental cements and moulds in dentistry, immobilisation by fractures or surgical procedures in traumatology, and bone grafts or implant construction in maxillofacial surgery.

Key Words: *Planet earth; Geoscience; Surrounding; Atmosphere; Minerals*

INTRODUCTION

The pharmaceutical business makes extensive use of minerals. Because of their physicochemical qualities, minerals can be em-employed as excipients in medicinal formulations. They must not, however, be harmful to human health. Oxides, hydroxides, sulphates, carbonates, phosphates, chlorides, phyllosilicates, and zeolites are some of the most often used minerals in medicine and health. Minerals can be used to make contrast media for diagnostic imaging, dental cements and moulds, immobilisation of limbs and fractures, operations, implant building, spas, and beauty centres.

The environment is the consequence of a complex combination of external variables (physical, chemical, biological, and socioeconomic components) that have yet to be fully recognised, and their interaction with humans is still poorly understood. The only creature capable of having a beneficial or bad impact on the environment is humans. However, manmade activity has had a destructive effect on the environment, despite the fact that it has ignored its intellectual potential, which could otherwise be utilised to focus on a future with higher expectations and in the best interests of living beings. Humanity is currently living in a technological period in which nature has been relegated to a secondary position, serving only as a source of raw materials for society's progress.

As a result, it is critical to recognise the importance of contributing to the enhancement of environmental quality in order to slow the rate of degradation. The environmental mobilisation of pollutants by natural occurrences, on the other hand, is a hot topic; but, for s-ome reason, there are limited efforts to examine its impact on health. It is well known that humans use natural resources to meet their needs regardless of what happens to the environment and its effects on public health (exposure to toxic levels of trace elements, deficiency of essential trace elements, exposure to mineral dust or radioactivity), which is the subject of medical geology research. The advancement of science and technology has opened up new lines of research that demand multidisciplinary collaboration and the participation of experts from many fields. Medical geology is a good illustration of this because it offers collaboration between two seemingly unrelated domains of knowledge, such as Earth sciences and biomedical sciences. Minerals' importance in medical geology: environmental effects on health. The complex relationships between environmental factors relating to the presence of contaminants in different geological settings, their mobility, geographical distribution, and their effects on the health of humans, animals, and plants is a field of applied sciences that is becoming increasingly popular. It is well understood that the environment has a variety of effects on health. However, understanding the complex relationships between the environment and human health is required, which necessitates multidisciplinary work including professionals from the domains of medicine and geology. It is well understood that the environment has a variety of effects on health. However, understanding the complex relationships between the environment and human health is required, which necessitates multidisciplinary work including professionals from the domains of medicine and geology. Exposure to natural dust, radioactivity, poisonous elements, hazardous organic and inorganic compounds, volcanic emissions, and other environmental health problems are examples of areas where medical and geology

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professionals could collaborate and contribute to the search for solutions. Furthermore, the advancement of a number of instruments and databases allows medical geologists to research vector-borne diseases and simulate pollution dispersion in surface and groundwater, soils, and the air. Can minerals be classified as chemicals that have harmful or positive health effects? Mineral research is crucial to do in order to determine not just their medical applications but also their health impacts. As a result, it is possible to carry out mineral characterization to evaluate their physical and chemical properties in order to determine whether minerals may have harmful effects, such as asbestos, or favourable effects, such as clays and zeolites. Minerals have a significant impact on health and can influence it in a variety of ways. Some minerals' unique and outstanding physicochemical qualities make them ideal for supplying necessary nutrients for the production of nutritious foods, environmental cleanup, and medication development. In medicine, there are numerous applications, such as the formulation of pharmaceutical drugs in the pharmaceutical industry, the manufacture of dental cement and moulds in dentistry, the immobilisation of fractures or surgical procedures in traumatology, or bone grafts or implant construction in maxillofacial surgery. Natural zeolites' porosity, adsorption capacity, and ion exchange capabilities make them a viable vehicle for encapsulating and releasing pharmaceuticals in a range of applications in health sciences. Some, on the other hand, minerals can have a negative impact due to exposure to hazardous substances found naturally in georesources, such as metal(loid)s, radioactive metals, and isotopes, which can be released into the environment as a result of mobilisation through biogeochemical activity induced by various natural and anthropogenic processes. As a result, chemicals such as As, Pb, Cd, Hg, U, and asbestos or their components can be toxic, and their consumption via food, water, soil, or air occurs by ingestion, inhalation, or skin absorption, according to Fergusson. In this way, given the physical and chemical qualities of minerals, they may be necessary to maintain human health, but under unfavourable situations, mineral deficiency or excess might affect the formation of disease. Water contamination is one of the world's most pressing issues, particularly in light of high heavy metal concentrations. Natural waterways are critical in the transport of potentially harmful compounds from the physical environment to the biosphere, forming a complex dynamic interplay between the environment and human health. Although rocks and minerals normally do not contain large quantities of heavy metals, it is quite easy to locate waters with concentrations that exceed those permitted by the EPA. Waters with concentrations that exceed the World Health Organization's drinking water limits are quite easy to identify (WHO). Society will have to confront the future of water resources on globalised earth where georesourses will be scarce and the impact of anthropogenic activities on the environment and human health will be severe. Although anthropogenic sources of pollution from mining, agriculture, and home and industrial wastes have been harming its water quality, the surface and underground hydric resources provide a source of water supply. Water contamination encourages the extinction of animals and flora as protective factors and quality of life, deteriorating the ecosystem and, as a result, human quality of life. Liquid effluents from industrial activities, such as mining, electroplating, power plants, appliance manufacturing, and tanneries, include large amounts of highly hazardous, non-biodegradable, and carcinogenic chemicals. Heavy metals are found in many ecosystems, but they are only exposed to living things as a result of our activities. Heavy metals can be found in ore minerals, which are mined either open-pit or underground. Sulfides (argentite, Ag2 S; sphalerite, ZnS; cinnabar, HgS; stibine, Sb2 S3; galena, PbS; oropiment, As2 S3) and oxides (argentite, Ag2 S; sphalerite, ZnS; cinnabar, HgS. Some heavy metals exist as both sulphides and oxides, and some minerals, such as chalcopyrite (CuFeS2), can contain at least two heavy metals. Heavy metals occur as a close system in mineral ores, as previously stated. However, when mining activities progress, they are released from mineral ores and dispersed throughout the environment, accompanied by the creation of Acid Mine Water (AMW). AMW is caused by a complex series of geochemical reactions that occur when sulphide minerals are exposed and interact with the atmosphere, surface, and underground water, changing the chemical composition and quality of water and producing polluted waters that are highly acidic and contain high levels of toxic metals, causing harm to aquatic flora and fauna.

Environmental health

Global warming is a cause for concern because of the speed with which it has progressed in recent years, impacting human health and endangering humanity's future. The geological environment is a factor that can influence an area's environmental health, allowing for the establishment of a natural link between the medium and the population's health. This relationship exists in both urban and rural places, but when it comes to the natural environment, particularly the geological environment, it is more visible in rural communities, particularly among the poorest and most disadvantaged. In the mid-twentieth century, the contemporary worldview, founded on anthropocentrism and defined by scientific progress, drove human action toward world dominance, resulting in the term "environmental ethics". It prompted a critical and reasonable examination of the natural environment's intrinsic value and non-human features. The necessity to understand how living things must interact with the environment has become more credible in recent years as a result of the spread of different diseases. Both environmental degradation and natural environmental influence, when adverse, can be exacerbated by government action and responsibility because most policies have environmental and regulatory repercussions and generally disregard ethical aspects of them. The ecological problem is caused by modern civilisation and the values that underpin it. Inequality, discrimination, and poverty are all consequences of excess opulence. Poverty is a major contributor to environmental degradation in poor nations, particularly in Africa. These people frequently have to work or live in close proximity to the environment, which puts them at risk when the environment is toxic. It is critical to contribute to the preservation of natural resources while minimising the environmental damage caused by anthropogenic activities in order to preserve a balance between environmental and human health. This will serve as the foundation for creating a healthy environment and preventing diseases by implementing available technologies, legislation, and public health interventions. On the other hand, a better understanding of the effects of diverse environmental elements can assist regulatory agencies in the development of preventive health measures that not only aid to minimise disease spread but also help to prevent disease.