Introduction

The radiation in form of light which can travel in vacuum is known as electromagnetic radiation (EMR). The electromagnetic radiation consists of natural radiation and man-made electromagnetic fields that are produced either intentionally or as by-products of the use of electrical devices and systems. The natural electromagnetic radiation originates from terrestrial and extraterrestrial sources such as electrical discharges in the earth’s atmosphere and radiation from sun, galaxy and space. Characteristic of natural fields is a very broadband spectrum where random high peak transients or bursts arise over the noise-like continuum background. This natural background is orders of magnitude below local field levels produced by man-made radio frequency (RF) sources. The everyday use of devices and systems emitting radiofrequency electromagnetic fields is continuously increasing. Sources generating high levels of electromagnetic fields are typically found in medical applications and at certain workplaces. Medical devices used for magnetic resonance imaging, diathermy, hyperthermia, various kinds of RF ablation, surgery, and diagnoses may cause high levels of electromagnetic fields at the patient’s position or locally inside the patient’s body. In addition, some of these medical applications may produce high fields at certain workspaces.

The electromagnetic (EM) spectrum due to EMR includes several different classes of radiation: low frequency, radio waves, microwaves, infrared waves, visible light, ultraviolet light, x-rays and gamma rays. Wave frequency differentiates one class of radiation from another. The pollution caused by EMR is due to frequencies which are oscillating slower than visible light waves. But x-rays and gamma rays (which oscillate faster than visible light) are highly dangerous but they are rarely present at our dwelling places and workspaces.

The EM spectrum contains an array of electromagnetic waves increasing in frequency from Extremely Low Frequency (ELF) and Very Low Frequency (VLF), through Radio Frequency (RF) and Microwaves, to Infrared (IR) light, Visible Light, Ultraviolet (UV) light, X-rays, and Gamma rays. Generally, electromagnetic radiations can be classified into two types: ionizing radiation, non-ionizing radiation. This classification is based on whether they are capable of ionizing atoms and breaking covalent bonds or not. Ultra violet and higher frequency radiations, such as X-rays or gamma rays are ionizing. These pose their own special effects on the life of human beings. Non-ionizing radiation is associated with two major potential hazards that are
electrical and biological. Moreover, induced electric current caused by radiation can generate sparks and create a fire or explosive hazard.

The studies of workers on electricity exposed to strong electric and magnetic fields (60 Hz) from power lines provided no consistent evidence that these are damaging to DNA or that they are capable of causing mutations or cancer. The most apparent biological effects of RF energy to living cells are due to heating. While it is not certain that RF radiation generally poses any risks to human health, some reasons exist for being concerned about human health effects from the cellular phones themselves. These concerns exist because the antennas of these phones deliver much of their RF energy to small portions of the user’s head. No evidence exists regarding any harmful effects resulting from exposure to typical levels of RF and EMF radiation. The exposure to such radiation may not be completely safe at certain power levels and frequencies. It is always a good idea to avoid unnecessary radiation exposure whenever possible.

The American Academy of Environmental Medicine (AAEM) has been studying and treating the effects of the environment on human health for over 50 years. In the last 20 years, our physicians started seeing patients who reported that electric power lines, televisions and other electrical devices caused a wide variety of symptoms. By the mid 1990’s, it became clear that patients were adversely affected by electromagnetic fields and becoming more electrically sensitive. But in the last five years with the advent of wireless devices, there has been a massive increase in radiofrequency exposure from wireless devices as well as reports of hypersensitivity and diseases related to electromagnetic field and RF exposure. Multiple studies correlate RF exposure with diseases such as cancer, neurological disease, reproductive disorders, immune dysfunction, and electromagnetic hypersensitivity.

The electromagnetic field (EMF) is present around us most of the time. People are exposed to these electric and magnetic fields from many sources. Sources include high, medium and low voltage power lines, electric wiring inside buildings and electric appliances. Strong electromagnetic fields of about 50 to 60 Hz and the related radiation are also harmful to humans. Long-term exposure may aggravate any existing health problems or diseases. It may cause or intensify especially lack of energy or fatigue, irritability, aggression, hyperactivity, sleep disorders and emotional instability. Strong electromagnetic fields of about 50 to 60 Hz and the related electromagnetic radiation are harmful to humans. Electromagnetic fields are reproduced by both man-made and natural sources. For example, the main source of electromagnetic radiation
is the sun, while other man-made items like hairdryers, electrical ovens, fluorescent lights, microwave ovens, stereos, wireless phones and computers, mobile phone, Wireless networking, TV / Radio broadcasting, 60 Hz power lines, X-ray imaging. All produce electromagnetic fields of varying intensities at the places where they are kept.

But life cannot be imagined without these appliances or equipments. Large numbers of devices among these generate electromagnetic radiations. These electromagnetic devices have various uses in domestic, industries and medicine. Magnetic Resonance Imaging (MRI) and Computer Tomography (CT) scan are mostly used to find out the abnormality in human body. Hyperthermia technique is often used to treat cancer and tumours. The induction heating is used in industries. In spite of all important applications the electromagnetic fields imposes great danger to the human body. Electromagnetic pollution (or EMF pollution) is a term given to all the man-made electromagnetic fields (EMFs) of various frequencies which is present at homes, workplaces and public spaces. When we say something in the environment is called a pollutant one, it implies that it is somehow harmful to nature human beings and nature.

The recent research concerning the influence of the electromagnetic field on the living organisms have demonstrated that these influences had different effects on intracellular phenomena, cells, organs and the organism itself.

Presently our society is facing a problem of an unprecedented increase in the number and diversity of sources of electric and magnetic fields. Such sources include power lines, computers, radios, television, mobile phones, mobile towers, microwave ovens, and radar. However, this development shows two faces: on one hand, it has made our life richer, safer and easier. But on the other hand, it was and still is accompanied by concerns about possible health risks due to electromagnetic and radiation. There are people claiming that the reason for their adverse health symptoms is the exposure to electric, magnetic or electromagnetic fields (EMF) from nearby electric appliances or communication devices we use. The human body is always exposed to EMR of varying intensity which depends upon site of exposure and frequency of radiation. It has been already accepted that ionizing radiation has impact on health. The present study is aimed to study the effect of following electromagnetic radiation sources. These are

1. mobile phone,
2. mobile tower,
3. electric powerline and
4. geopathic stresses (The energy emitted by the earth at a specific surface location)