

Review Article

<https://doi.org/10.20546/ijcmas.2020.909.031>

Radon: The Hidden Killer

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ABSTRACT

Radon (Rn) is a naturally occurring radioactive gas in rocks and soils. The long radioactive decay of uranium forms radon. Radon decays to form radioactive particles that may enter the body through inhalation. Daughter products of radon release high energy alpha particles associated with gamma rays when radon undergoes radioactive decay. It is the second most common cause of lung cancer after smoking. When inhaled with radon gas, high energy ionizing alpha particles are produced from the ^{222}Rn decay. Some of these alpha particles will interfere with biological tissue in the lungs resulting in weakened of cell's DNA. Everyone is, to some extent, exposed to radon. Cracks in solid floors and under walls, gaps in suspended concrete and wooden floors and round pipe works and crack space, cavities in walls, building joints and small cracks or pores in hollow walls, can lead to radon entry into the building. The genotoxicity of radon gas is addressed primarily to bronchial epithelial and lung parenchyma. Radon comes into the body via the respiratory system. Therefore, the main target of its toxic effects is lung cells, where further decay occurs by emitting ionizing radiation, causing oxidative damage to DNA, proteins, and lipids. Accumulation of such damages in a cell, contribute to malignant transformation. The epigenetic basis of lung cancer is related primarily to changes in the profile of microRNA (miRNA). Lung damage associated with radon exposure was attributed to disturbances in miRNA and subsequent protein expression.

Keywords

Radon, Radioactive,
Lung cancer,
MicroRNA,
Genotoxicity

Article Info

Accepted:
04 August 2020
Available Online:
10 September 2020

Introduction

Radon (Rn) is a naturally occurring radioactive gas in rocks and soils. The long radioactive decay of uranium forms radon. Uranium is found in the soils and the rock in small quantities. Radon decays to form radioactive particles that may enter the body through inhalation. The heaviest of all noble gasses is radon. Because it is the sole significant contributor to the general population's ionizing radiation dose, it is more

soluble in organic fluids than water. It has gained the most attention in the last four decades among all the noble gasses. Daughter products of radon release high energy alpha particles associated with gamma rays when radon undergoes radioactive decay. It is estimated that about half of the total natural radiation exposure for human beings comes from radon (UNSCEAR, 2000). It is the second most common cause after smoking for lung cancer and is regarded as a human carcinogen. Because of the strong combined