THE ENVIRONMENT AND CARDIOVASCULAR DISEASE: A NEW FRONTIER FOR SUSTAINABLE GLOBAL HEALTH

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Abstract

The Environment is increasingly recognized to play an outsize effect on cardiovascular health. Fine particulate matter <2.5 µm (PM2.5) air pollution is the most important environmental risk factor contributing to global cardiovascular (CV) mortality and disability. While short-term elevations in PM2.5 increase the relative risk of acute CV events longer-term exposures over several years increase this risk by a larger magnitude (~10%), which is partially attributable to the development of cardiometabolic conditions (e.g., hypertension and diabetes mellitus). In this talk, an overview of the mechanistic underpinnings and impact of air pollution exposure with a focus on systemic pathways of signal transduction and integration of air pollution effects on the cardiovascular system. Particular emphasis will be placed on currently understood pathways of translocation, particle sensing, vascular and cardiac effects and central nervous system pathways that may lead to potentiation of risk factors such as hypertension and insulin resistance. A brief overview of interaction between air pollution and global warming related health effects will be touched on. Finally, the impact of mitigation measures will be discussed.