Maria Lucia Bueno Garcia, J Clin Exp Cardiolog 2014, 5:3
http://dx.doi.org/10.4172/2155-9880.S1.021

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference on
Clinical & Experimental Cardiology
April 14-16, 2014 Hilton San Antonio Airport, TX, USA

Ambient pollution and cardiovascular system: What is it to fear about?

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Epidemiological and experimental studiesassociate cardiovascular inflammation and atherosclerosis to urban air pollution originated by traffic. However most of these studies present artificial ambient exposure conditions in order to control bias. São Paulo city has almost 20 million inhabitants and 8 million cars and heavy traffic. Although public policies have been implemented recently and pollution has decreasedsignificantly, our data suggest that it still is deleterious to exposed subjects. We developed experimental models in rodents exposed since birth to adulthood to real ambient pollutants of São Paulo city. These studies showed that exposed mice still present inflammationin blood, vascular wall hardening as such coronary arteries and the aorta. Further, our data suggest that this inflammation spread all over other organs through the blood circulation to the liver, kidneys and gonads as well as may affect lung development in pre-terms rodent babies. Epidemiological studies on traffic professionals in São Paulo city also showed that they are at greater risk of inflammation on skin, eye, respiratory and cardiovascular system due to real ambient pollution. Their blood also expressed inflammation and hypercoagulability which are markers of risk of ischemic heart disease. These facts highlights that real ambient pollution from big cities like São Paulo in Brazil,even though within national standard limits, are still silently but persistently affecting the mechanical and functional properties of cardiovascular system of the individuals.

Biography

Maria Lucia Bueno Garcia is Ph.D., MD Associate Professor of Department of Internal Medicine and she works with Prof Paulo Hilário Saldiva in the Experimental Pollution Laboratory from Faculdade de Medicina da Universidade de São Paulo. She has published experimental and epidemiological studies on real ambient pollution and inflammation, focusing cardiovascular andrespiratory system. Her most important manuscript focuses atherosclerosis and autoantibodies against anti-peptide D potentiated by ambient particles from vehicular source of São Paulo city. Her research comprises physiopathological studies on arterial wall hardening, atherosclerosis development and clinical events potentiated by real ambient particles.

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