

Detection of Air Toxics in Urban Areas: Any Contribution to Health Risk?

Introduction: Urban populations in both developed and developing countries are facing health risk linking to toxic air pollutants at ever-lower concentrations. Air toxics predominantly affect to respiratory and cardiovascular systems. World Health Organization has identified ambient air pollution as a high priority in Global Burden of Disease and it is responsible for 1.4% of all deaths. Detection of air toxics requires measurements that quantify different air pollutants in environment. **Objective:** The main aim was to detect ambient air toxics in the urban areas of Yangon City thus assessing exposure and improving public awareness. **Method:** A cross-sectional laboratory based analytical study was conducted for ambient air monitoring. During the summer (April) of 2007, four common air pollutants, ambient temperature and relative humidity were detected for 24 hrs as a pilot survey in commercial, residential and surroundings near by an industrial zone. In the winter (December), a 3 day period monitoring was continued. Personal exposure in the selected areas was assessed using inhalation exposure model and human exposure model (II). All adult respiratory cases in chest medical out-patient department of Yangon General Hospital and total numbers of registered vehicles in Yangon from 2002 to 2007 were collected retrospectively. **Results:** Total suspended particulate matter (TSPM) and particulate matter (PM₁₀) of commercial area (143.21 ± 27.37 , $71.75 \pm 12.64 \mu\text{g}/\text{m}^3$), residential area (118.70 ± 11.06 , $65.30 \pm 9.88 \mu\text{g}/\text{m}^3$) and surroundings near by an industrial zone (188.66 ± 26.00 , $136.92 \pm 24.9 \mu\text{g}/\text{m}^3$), respectively and these were much higher than WHO guidelines. Respirable PM₁₀ percentage was 72% of TSPM. The daily inhaled PM₁₀ exposure was highly probable in the commercial area $17.94 \mu\text{g}/\text{m}^3$ and surroundings near by an industrial zone $32.34 \mu\text{g}/\text{m}^3$. The study revealed that the rising trend of new adult respiratory cases was associated with the increasing growth of the vehicular population (spearman correlation coefficient 0.943, P=0.005). **Conclusion:** The exposure of respirable PM₁₀ mainly come from vehicles exceeding the levels considered safe can be contributors to respiratory illness in the urban areas.