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| 제목 | 국문 | 서울지역에서 대기오염과 영아 사망의 감수성에 관한 연구 | | | |
| | 영문 | Infant Susceptibility on Mortality to Air Pollution in Seoul | | | |
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| <p>1. 목적</p> <p>Much of the evidence for susceptibility to air pollution involves effects on elderly population, however, there is less evidence about the susceptibility of infant to air pollution. In response to air pollution exposure, different age groups may respond differently. Recently, a few studies dealt with mortality associated with air pollution found that infants are more susceptible to air pollution than general population.</p> <p>In the current study, we compared the effect of air pollution on mortality among postneonates, aged 2-64, and over 65 years of age.</p> <p>2. 방법</p> <p>Daily records of mortality in Seoul were obtained from the Korean National Death Registry during January 1995 to December 1999. We used the code of the 10th revision of the International Classification of Diseases (ICD) for cause of deaths. In addition to total mortality, we also calculated mortality from respiratory disease (ICD 10 J04 -J98) for each age groups. Daily counts of total mortality were divided into three age groups: aged 1month-1year (postneonatal), aged 2-64, and over 65 years of age.</p> <p>Measurements of PM10, carbon monoxide, nitrogen dioxide, sulfur dioxide, and ozone were done hourly. Twenty-four hour averages of pollutant concentrations were constructed between measurement sites. In the case of ozone, a daytime 8-hr average was used instead of a 24-hr average.</p> <p>To compare the mortality among age groups, Age-stratified analyses were then performed, for both total and respiratory disease-specific mortality. To remove long-term trends and seasonality, we developed smoothing parameter for temperature, relative humidity and day of week with span to minimize Akaike's information.</p> <p>To compare the effect magnitude of pollutants on mortality, we calculated relative</p> | | | | | |

risk of total or respiratory mortality with interquartile change of PM10 and other air pollutants for each age group .

3. 결과

Total 1,187 postneonates, 76,788 persons aged 2-64 and 102,036 elderly over 65 were died during the study period. Average deaths per day were 0.7, 42.1 and 55.6 deaths among age groups, respectively. The 24-hour average concentration of CO, NO₂, SO₂ and PM₁₀ was 11.6(100ppb), 32.5 ppb, 11.1ppb and 69.2 μ /gm³.

For all age groups, total deaths were increased with concentration of PM₁₀. Particularly, the effect of PM on total mortality among postneonates was much greater than these of other groups.

The risk in postneonates increased more than those in other groups with increasing the concentration of PM₁₀. For postneonates, RR of PM₁₀ on total mortality (RR=1.089, 95% CI, 1.047-1.134) was highest among age groups. Next was for elderly over 65 (RR= 1.024, 95% CI).

Regarding effect size, RR of PM₁₀ on respiratory disease specific mortality for postneonates(RR=2.018;95%CI, 1.784- 2.283) was greater than on total mortality. We also found fairly consistent relations among age group who died from respiratory diseases as well as total mortality

4. 고찰

In this study, we found that postneonatal infants are most susceptible to PM₁₀ in terms of mortality, especially on respiratory disease-specific mortality. Postneonatal mortality increased by 8.9% for each 42.9 μ g/m³ rise in PM₁₀.

Children or infants are reported to present different responses to particulate exposure from those of adults. Infants seem to be more vulnerable to have respiratory disease leading to death from particulate air pollution because infant lung and immune system is immature.

To our knowledge, however, this is the first study to determine that infant are most susceptible among age groups.

It has the implication to change air pollution criteria to control the level not to affect infant s health rather than adult s health.