synthesis of PAI-1, and an increase in PA inhibitory activity. A more complete understanding of the regulation of epithelial cell u-PA/PAI-1 expression may provide insight into repair of lung injury and potential ways to favorably manipulate this process.

REFERENCES

Cultured Human Bronchial Epithelial Cells Release Cytokines, Fibronectin, and Lipids in Response to Ozone Exposure*

Karen McKinnon, Ph.D.; T. Noah, M.D.; M. Madden, Ph.D.; H. Koren, Ph.D.; and R. Declin, Ph.D.

We exposed the bronchial epithelial cell line, BEAS-2B (Reddel R, et al. Can Res 1988; 48:1904), cultured on collagen-impregnated filters to air or 0.1, 0.25, 0.5, or 1.0 ppm ozone (O₃) for 1 h. Fluid obtained from either apical or basolateral compartments was analyzed for cytokines and inflammatory mediators released in response to O₃ exposure. The O₃ had dose-dependent cytotoxic effects as determined by the release of LDH or ²⁵²⁵Cr and by the uptake of trypan blue or propidium iodide.

Fibronectin (ELISA) and IL-8 (RIA) appeared in both apical and basolateral compartments within 1 h following exposure to concentrations as low as 0.1 ppm O₃. The PAF (RIA) appeared in apical and basolateral compartments within minutes following exposure to O₃. Exposure of BEAS-2B cells to 0.1 to 1.0 ppm O₃ caused the vectorial release of IL-6 into the apical compartment within 4 h as measured in bioassay and ELISA. IL 6 could be measured in the basolateral compartment within 24 h.

Low concentrations of O₃ (0.1 ppm) caused a rapid release of PGE₂ and TXB₂ (RIA) in both the apical and basolateral compartments of BEAS-2B cells. Higher concentrations of O₃ stimulated dose-dependent release of additional arachidonic acid metabolites. The HPLC analyses by two different separation methods showed the presence of peaks that comigrated with authentic standards for TXB₂, PGE₂, PGF₂α, LTD₄, LTD₅, 15-HETE, and HHT. Thus, O₃ stimulated the BEAS-2B cells to release many of the same inflammatory mediators that are detected in the bronchoalveolar lavage fluid of humans exposed to O₃ (Koren H, et al. Am Rev Respir Dis 1989; 139:407) which indicates that this model may be useful in the study of human airway inflammation.

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