Understanding Work-related Asthma

Connecting glutathione with immune responses to occupational methylene diphenyl diisocyanate exposure


Key Findings

- Researchers developed mixtures of MDI similar to what would be found following typical workplace exposures and placed them in various solutions, some of which mimic conditions in the human body.
- MDI was previously known to react with albumin, a human protein found in many parts of the body, including the bloodstream, as well as with glutathione (GSH), a substance also found throughout the body, including the lungs and the skin.
- In the test tube, MDI bound to GSH but was also able to transfer from the GSH to albumin.
- The MDI-albumin produced was then recognized by antibodies from MDI exposed workers, but not by controls.
- MDI also reacted with other proteins, but these were not recognized by antibodies from exposed workers.
- The researchers conclude that GSH may act as a shuttle to transport MDI from the site of contact with the body to the bloodstream and elsewhere.
- Further research is needed to better understand the process and to explore possible ways of reducing the effect of MDI exposure.

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See abstract: http://1.usa.gov/1mFxx05