

原著

尿中 σ -クレゾールによるトルエン暴露の生物学的モニタリング

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Biological Monitoring for Toluene Exposure Using Urinary σ -Cresol

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Abstract

The relations between the concentration of toluene exposure and that of urinary metabolites of toluene in toluene workers were investigated. A significant correlation was found between the concentration of toluene exposure and of σ -cresol in workers' urine. A significant difference was found between the concentration of m -cresol in workers' urine of the toluene exposure group and of the toluene unexposed group, but a significant correlation was not found between the concentration of toluene exposure and of urinary m -cresol. In the case of urinary p -cresol, there was not a significant difference between the exposure group and the unexposed group, and there was not significant correlation between the concentration of toluene exposure and of urinary p -cresol. The mean of p -cresol concentration was over hundred times higher than that of σ - and m -cresol concentration. We found that σ -cresol was useful as an index of toluene exposure, but judging from discriminant concentration, hippuric acid was a better index than σ -cresol. Because the histories of the normal values in urine of hippuric acid and σ -cresol differ from each other, in the case of assessment for low concentration toluene exposure, we think that both hippuric acid and σ -cresol concentration should be considered.

要約

トルエン取扱い作業者の個人暴露濃度と尿中代謝物濃度の関係を調べた。尿中 σ -クレゾール濃度は、トルエン暴露濃度と良い相関を示した。一方、 m -クレゾールは、トルエン暴露群の平均値と非暴露群の平均値で有意な差が認められたが、トルエン暴露濃度とは有意な相関を示さなかった。 p -ク

レゾールでは、暴露群と非暴露群の平均値に有意差がなく、暴露濃度との間にも有意な相関を示さなかった。*p*-クレゾール濃度は、*m*-クレゾールに比べて、平均値で100倍以上高かった。トルエン暴露の指標として*o*-クレゾールの有効性を認めたが、判別限界濃度から考えて、馬尿酸より有利である点は見いだせなかった。しかし、両者の正常値(トルエン非暴露尿中濃度)の由来が異なることから、低濃度のトルエン暴露の評価に当たっては、両者の測定値を加味することが有効であると考えた。
