Immunotoxicological and neurotoxicological studies on styrene exposed workers

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- Abstract -

We investigated concentrations of styrene in air and analyzed styrene in blood and mandelic acid (MA) in urine from styrene exposed workers. With these monitoring markers, we futher studied the presence of auto-antibodies against neurofilaments (NF) and S100 beta protein to evaluate neurotoxicity. Most of workers in our studies were exposed less than permissible exposure limit (50 ppm). When we compared the differences in styrene in air, styrene in blood, and MA in urine between the positive

and negative workers, the workers with positive reaction to NF showed significant differences ($P<0.05$) in styrene in blood and MA in urine compared to the negative workers. There was, however, no significant difference in the styrene in air and in blood, and MA in urine between the positive and negative workers to S100 beta. Further evaluation of these biological markers is required with neuropathological and neurobehavioral data. Taken together, this result suggests that the styrene concentration lower than PEL may not cause genotoxicity but elicit neurotoxicological and immunotoxicological damages.