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Synergistic effect of GSTP1 and CYP2E1 polymorphism on cytokinesis blocked micronucleus frequency and tail moment values in gasoline pump workers among Haryana population

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Occupational workers have a greater risk of exposure to gasoline vapors include service station attendants, gasoline pipelines and refinery workers. As the GSTP1 and CYP_2E_1 are the main phase I and phase II genes involved in the metabolism of benzene, we studied the synergistic effect of GSTP1 and CYP_2E_1 polymorphism on cytokinesis-blocked micronuclei (CBMN) and tail moment (TM) value in comet assay in gasoline pump workers among the Haryana population. The exposed group consisted of gasoline pump workers (n=50) occupationally exposed to benzene and the control group consisted of 50 subjects not occupationally exposed to benzene. In our study we genotypes of both GSTP1(wt/mt+mt/mt) and CYP_2E_1(wt/mt+mt/mt) compared to the other combinations like GSTP1(wt/mt+mt/mt)+CYP_2E_1(wt), GSTP1(wt)+CYP_2E_1(wt/mt+mt/mt), GSTP1(wt)+CYP_2E_1(wt) showed significant association ($P<0.05$) with CBMN and TM value 7.53±1.56 and 13.95±2.40 respectively and showed more prone to genetic damage then the unexposed population.

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