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GLUTATHIONE S-TRANSFERASE GENOTYPE MAY BE A MODIFIER ON UROTHELIAL CELL CYCLE IN DYESTUFF MANUFACTURING WORKERS

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Objectives In the past study, the latent period of bladder cancer caused by occupational exposure is 6 months to 40–8 years. Benzidine-based dyes have been produced and used in Taiwan until 1992. It can be expected that new patients with urothelial cancer in the near future. This study was designed to investigate the association of GSTT1, GSTM1 and GSTP1 genotype with the urothelial cells cycle in dye workers.

Methods A cross-sectional study was designed to investigate the association between occupational exposure and cell cycle of urothelial epithelium. A total of 225 subjects who were working in a dyestuff-manufacturing factory, which established over 20 years and located at northern part of Taiwan, were sampled. A questionnaire was used to collect the demographical characteristics and work history. Urine and blood samples were also collected. The urinary epithelium cell cycle was analysed by flow cytometer. Polymorphisms of GSTM1 and GSTT1 genotype were identified by PCR, while polymorphism of GSTP1 was then followed by restriction enzyme length polymorphism technique.

Results As a result of our study exhibited those who carries genotype of GSTM1 null and GSTT1 null would influence the DNA ploidy of urothelial cells to become abnormal under the exposure of benzidine. In smoking group, who carries genotype of GSTM1 null, GSTT1 null and slow GSTP1 would in higher risk of abnormal urothelial cells.

Conclusions Polymorphisms of GSTM1, GSTT1 and GSTP1 genotype may be enhancing the association between occupational exposure and cell cycle of urothelial epithelium in dye manufacturing workers.