**AP-60**

**Gender disparity in inorganic arsenic-induced oxidative stress among Bangladeshi population exposed to high arsenic through drinking water**

Nayar SULTANA¹, Chiho WATANABE¹, Hana FURUSAWA¹, Masahiro UMEZAKI¹, Tsukasa INAOKA²

¹Department of Human Ecology, Faculty of International Health, Graduate School of Medicine, The University of Tokyo, Japan, ²Department of Environmental Sciences, Faculty of Agriculture, Saga University, Japan

Background: Arsenic contamination in water, especially groundwater, has been recognized as a major environmental problem in Bangladesh. It acts as a carcinogen possibly due to the generation of reactive oxygen species (ROS). Gender disparity has been reported in many arsenic-exposure related diseases like cardiovascular diseases, hypertension, liver diseases, as well as skin lesions or cancers. However, no study had been reported about gender disparity in arsenic-induced oxidative stress in Bangladeshi population. Objective: The objective of the study was to examine the levels of urinary 8-OHdG and F2α –isoprostane, two established oxidative stress biomarkers, in relation to the urinary arsenic. Methods: Data were obtained from 219 healthy men (96) and women (126), aged 18-45 years, giving informed consent, from two communities of south-western part of Bangladesh in August 2009. Water of the tube wells that they were using and urine samples were collected and analyzed for total arsenic (by ICP-MS) and for oxidative stress (ELISA). Results: Urinary arsenic (u-As) showed positive association with urinary oxidative stress markers- 8-OHdG (r= 0.60; p<0.001) or 15-F2t-IsoP (r= 0.46; p<0.001). Arsenic-exposed women had significantly higher 15-F2t-IsoP (adjusted mean (95% CI) 6.1 (5.0, 7.2) vs 4.8 (3.9, 5.8) ng/mg Cr) and arsenic methylation capacity (%DMA) (p<0.05) than men. Gender difference in u-As and urinary 8-OHdG was not found in this study group. Conclusions: The results suggest that oxidative DNA damage and lipid peroxidation were associated with arsenic exposure, which were sex-dependent to some extent.