Exposure to inorganic arsenic (iAs) in drinking water remains a global issue of concern and is associated with a range of health outcomes in adults, including immune dysfunction. Young children have been identified as a particularly sensitive population to effects of exposure to iAs, yet mechanisms of adverse health outcomes are understudied. Here we set out to examine the effects of iAs exposure on circulating serum protein in adolescents. To identify proteins as potential biomarkers of exposure, levels of U-tAs and its methylated metabolites were determined and serum proteins assessed for changes in expression. The results indicate an enrichment of TNF-regulated immune and inflammatory response proteins that display decreased expression in relation to U-tAs. Notably, when analyzed in the context of the arsenical proportions, there was minimal overlap between the protein lists further suggesting iAs metabolite-specific associated adverse health outcomes. These data represent the first assessment of protein expression in serum in adolescents exposed to inorganic arsenic.

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