

2001 Fall Symposium Review

by Melanie Marty

On November 7, 2001, GETA held its Fall Symposium at the ALZA Headquarters building in Mountain View. The topic for the symposium was "Children's Health – Issues in Assessing Impacts of Chemical Exposures." Many thanks to Barbara Stewart and ALZA for letting us use their beautiful facility. The symposium centered around impacts of chemical exposures to children. Dr. Nina Holland from UC Berkeley provided a presentation on using a biomarker approach to assessing children's exposures to environmental chemicals. Dr. Holland discussed the use of trans, trans-muconic acid and cotinine in urine and blood as markers of benzene and second-hand tobacco smoke exposure, respectively. In addition she discussed the use of buccal cells and urothelial cells for cytogenetic analysis as a means to explore exposure. The advantages of biomarkers for evaluating exposures include detection of exposure at low levels in the absence of symptoms, the potential for providing some mechanistic information on toxicity, and the utility of the data obtained from relatively small sample sizes.. Dr. Holland plans on looking at the impact of genetic polymorphisms in mothers and infants in terms of urinary metabolites of organophosphate pesticides.

Dr. Eva McGhee from UCSF presented a talk on perinatal genotoxicity from HIV treatment. Her work involves looking at genomic instability in HIV-infected cells in response to the virus alone as well as in response to treatment. Dr. McGhee talked about transmission of the virus from mother to baby, and the inhibition of transmission by AZT and 3TC. AZT is a transplacental genotoxin. Increased HPRT mutant frequency was shown in cord blood following treatment with AZT plus 3TC. Dr. McGhee is also using microarray technology to compare gene expression between long-term survivors and newly infected patients following various treatment regimens.

Dr. Kim Hooper also provided a very stimulating talk on the presence of persistent organohalogenes in reproductive-age populations. He discussed the value of monitoring body burden including concentrations in breast milk as a sensible tracking mechanism for trends in public health. Dr. Hooper discussed data on concentrations of polybrominated diphenyl ethers in breast milk in Sweden, in body fat in women, and in Harbor seals. There has been an exponential increase in PBDE concentrations over the last ten years in breast milk and in Harbor seals. This is indicative of a potential public health problem as these compounds mimic thyroid hormone and have neurotoxic properties. Monitoring for such POPs provides an indicator of environmental quality and a means to prevent potential public health problems.

Finally, Helene Margolis from the California Air Resources Board provided an overview of the Southern California Children's Health Study. This is a long-term prospective study of respiratory health in children in Southern California as related to air pollution levels. This study is providing information on chronic exposure to different air pollutants and impacts on lung function and lung function growth in children. Initial results indicate a clear significant effect of NO₂ and particulate matter on FEV1 and elasticity of the lung. When children migrated from more polluted areas to less polluted areas, the lung function improved. Likewise, movement to a more polluted area was followed by lower lung function and lung function growth. Dr. Margolis discussed mechanistic data for impacts of ozone, NO₂, and PM on the respiratory tract.

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Overall, this was a fantastic meeting and brought together a number of scientists working on different aspects of assessing the effects of exposure to environmental chemicals on children. If you missed it, you missed out!