patient to refrain from an avoidance behaviour for the triggers, thus improving quality of life and social functioning.

Aim of special session Preventable chlorpyrifos exposures produce durable behavioural deficits in humans and animals; animal studies suggest oxidative stress contributes to cognitive deficits.

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Introduction Chlorpyrifos (CPF) and profenofos (PFF) are organophosphorus (OP) pesticides that are applied seasonally in Egypt to cotton fields. Urine trichloro-2-pyridinol (TCPy), a specific CPF metabolite, and 4-bromo-2-chlorophenol (BCP), a specific PFF metabolite, are biomarkers of exposure, while inhibition of blood butyrylcholinesterase (BChE) and acetylcholinesterase (AChE) activities are effect biomarkers which may be associated with neurotoxicity.

Methods Urine TCPy and BCP and blood BChE and AChE activities were measured in 37 adult Egyptian Ministry of Agriculture workers during and after 9–17 consecutive days of CPF application followed by PFF (8–10 days), and a second CPF application (5 days) in 2008. In a separate longitudinal study, 57 adolescent applicators and 38 age-matched non-applicators were studied over 10 months in 2010.

Results During the OP applications, mean TCPy and BCP levels were significantly higher than baseline levels and remained elevated following the application periods. Peak urinary BCP and peak TCPy levels for individuals (ranging from 13.4 to 80.52 and 16.4 to 30.107 ug/g creatinine, respectively) were also highly correlated (r=0.77, p<0.001). In adults, a significant inverse correlation was observed between urinary TCPy and blood BChE and AChE activities. In the adolescent study, the mean peak TCPy levels were less than the adults, but the exposure-effect relationship for BuChE inhibition was similar to adults. Both adolescent groups had elevated TCPy and depressed BChE which persisted for 4–7 weeks after spraying ended.

Conclusion Biomarker data in the adolescent non-applicators, which mirrored that of the applicators, indicated that the non-applicators received environmental CPF exposures. The variability in environmental and occupational exposures suggest that job title and work location should not be used as the sole basis for categorising OP exposures. Together, these results can serve to guide future investigations in assessing health risks of OPs and guide efforts to reduce exposures.