

## **Polychlorinated biphenyl and heavy metal exposures among fishermen in the Straits of Malacca: neurobehavioural performance**

### **ABSTRACT**

The aim of this study was to determine the level of exposure to polychlorinated biphenyls (PCBs) and selected heavy metals among fishermen via dietary intake of fish and other seafood from the eastern coast along the Straits of Malacca. This study determined the neurobehavioural performances (based on neurobehavioural core test battery scores) of the fishermen and evaluated the correlations between scores of neurobehavioural core test battery and exposure factors. Ninety fishermen participated in the study. The total fish intakes of the fishermen were measured using a set of food frequency questionnaires. The PCBs contents in the seafood samples ranged between 0.2 and 0.6 pg/g fresh sample. The concentrations of mercury (Hg), arsenic (As), cadmium (Cd), and lead (Pb) in the seafood samples were 1.1-5.4, 0.3-4.4, 0.6-36.1, and 0.02-0.3 g/g fresh sample, respectively. The PCBs, Hg, As, Cd, and Pb exposures of the fishermen was estimated to be 2.8, 0.02, 4.5, 0.09, and 0.5 pg/kg body weight/day, respectively. PCB and heavy metal exposures through dietary intake of fish and seafood were within the tolerable daily limits. The results of neurobehavioural core test battery revealed that the neurobehavioural performances of the fishermen were not affected due to PCB and heavy metal intoxication. No correlations were found between the exposure and neurobehavioural performance among the fishermen. These data are useful for policy makers to assure the safety and quality of seafood in relation to sea pollution. Although the levels of exposure were low, periodic assessment of the quality of fish and fish products is required due to the polluted seawater.

**Keyword:** Fish; Fishermen; Heavy metal; Neurobehavioural; Polychlorinated biphenyl