Interactive effects of aflatoxin M1 and ochratoxin A in a human intestinal cell line: evaluation of cyto and genotoxicity

Aflatoxins (AF) and ochratoxin A (OTA) are frequent contaminants of foodstuff and low doses of these mycotoxins have been shown to co-occur in baby foods. Our objective was to investigate whether a combined intake of AFM1 and OTA could alter the cytotoxic and genotoxic effects of the single mycotoxins. These effects were assessed by the Neutral Red and the Comet assays, following exposure of Caco2 cells to individual and combined doses of the two mycotoxins. A dosedependent cytotoxic response was observed for OTA, whereas AFM1 was cytotoxic only at the highest dose (10μM). Among the several combinations of OTA (2.5, 5 and 10mM) and AFM1 (0.5, 1, 2.5, 5 and 10mM) tested for cytotoxicity, some displayed interactive effects. Noteworthy, combination of 2.5 mM of OTA and 0.5 mM of AFM1, significantly increased the cytotoxicity, as compared to each toxin taken alone, suggesting a synergistic effect. Preliminary data from the comet assay did not show significant induction of DNA damage, neither for single mycotoxins nor for their mixtures. In conclusion, our data suggest the existence of interactive cytotoxic effects between OTA and AFM1. The possible synergism observed between the lowest concentrations of both mycotoxins, which are closer to the realistic doses of human exposure, might be particularly relevant for children, who are more vulnerable to toxic effects.

A. Tavares, Louro, H., National Institute of Health Dr. Ricardo Jorge, Portugal;, National Institute of Health Dr. Ricardo Jorge, Portugal (Presenting); Alvito, P., National Institute of Health Dr. Ricardo Jorge, Portugal, Silva, Maria João