

PARC Waste Management Survey: early health effects among workers from waste management industries in Portugal

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Abstract (Max 250 words)

In a society increasingly generating waste, the Circular Economy Action Plan advocates for a more sustainable management of waste. Recycling of plastics and electronic devices (e-waste) is a rapidly growing sector, with more workers involved in tasks possibly favouring exposure to hazardous chemicals, (i.e. bisphenols, heavy metals, etc.). Under the framework of the European Partnership for the Assessment of Risks from Chemicals (PARC), a human biomonitoring study was developed on workers from plastic and e-waste recycling industries in European countries. In Portugal, workers involved in household plastic recycling and non-exposed individuals were included. Blood samples and demographic/lifestyle information were collected upon informed consent, and the cytokinesis-block micronucleus assay was performed in lymphocytes from 28 participants. The exposed group (n=18) presented significantly higher frequencies of micronucleated lymphocytes vs. controls (n=10) (p= 0.045). The same was observed for nuclear buds (p= 0.007) and nucleoplasmic bridges (p<0.001). However, no significant differences were observed between both groups regarding demographic/lifestyle variables. Our findings revealed genotoxic effects, possibly related with occupational exposure to e-waste and plastic waste. Such early effects indicate a possibility for future adverse health outcomes, such as cancer, if exposure continues. An assessment of levels of exposure to several substances among these workers is also currently underway. Such exposure data will allow us to analyse possible correlations between exposure levels and early biological effects, and infer on groups/tasks at higher risk, promoting risk management measures.

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