Combining Epidemiology and Toxicogenomics to Support an Unfocused Analysis of Pesticide Exposure and Parkinson's Disease

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Abstract

In agriculture, pesticides have been used extensively for more than 50 years. The majority of the thousands of presently in use, though, have not been fully evaluated for their impact on Parkinson's disease (PD). Additionally, ZPT exposure changed the way that genes were expressed throughout the early stages of embryonic development, particularly in relation to morphological abnormalities and metabolic dysfunctions including decreased oxidoreductase activity. Quantitative analysis of marker genes further revealed that ZPT also induced endoplasmic reticulum (ER) stress and autophagy. Activities of antioxidants and caspases studies revealed inductions of oxidative stress and apoptosis by ZPT. As a result, we draw the conclusion that oxidative damage, apoptosis, endoplasmic reticulum (ER) stress, and autophagy are all involved in ZPT-induced embryonic toxicogenomic responses.

Keywords:

Introduction

Characterization database

Materials and Methods

Pesticide selection

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Discussion