Neuroendocrine effects of hexachlorocyclohexane exposure in the human body

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ABSTRACT
Cidade dos Meninos (CM), Duque de Caxias, was the site of a Hexachlorocyclohexane (HCH) factory, which is a highly toxic compound that accumulates in the body and the environment.

Keywords: Hexachlorocyclohexane, Mini-Mental State Examination, Environmental Risk, Toxicity.

1 INTRODUCTION

The City of Boys (CM), Duque de Caxias, was home to a factory of Hexachlorocyclohexane (HCH), which is a compound of high toxicity that accumulates in the body and in the environment. After decommissioning in 1961, a huge amount of HCH was abandoned at the site, exposing the population to the harms of this insecticide.

2 OBJECTIVE

To evaluate the neuroendocrine effects related to HCH exposure in MC inhabitants.

3 METHODS

Observational, comparative, and controlled study. The sample consisted of 66 residents of the MC attended from March to September 2022. Epidemiological, sociodemographic, quality of life (SF-36), mental status assessment (Anxiety/BECK-BAI, Depression/BECK-BDI, MMSE) and clinical examinations were performed. The data were submitted to qualitative analysis. RESULTS: The MC residents included

in the study had a mean age of 54±18.1 years, where 65% were women, 57% were black (black and brown) and 55% had completed high school. Most had contact with soil (92%), used well water (87%) and consumed food produced in the MC (93%). Many (46%) reported having good quality of life, despite living in an area of environmental risk and human health. The assessment of mental status revealed that most of the population (53%) had difficulties locating themselves in space and time; Only 44% had quick thinking and more than half (51%) showed memory impairment. Through the BECK-BAI it was observed that 25% had some degree of depression, and in the BECK-BDI that 35% had some degree of anxiety. In addition, 13% had hyperglycemia and 36% had thyroid changes, such as nodules and gland enlargement.

4 CONCLUSION

Although only 20% of the population has been examined, it has already been possible to observe relevant neuroendocrine changes possibly related to HCH exposure, which justifies the importance of continuing the investigation about this problem.