

Cadmium Concentrations in Breast Milk and Factors of Exposition: Systematic Review

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Abstract : Background: This is the first systematic review summarizing 43 years of research from 36 countries in the assessment of cadmium in breast milk; a suitable matrix in human biomonitoring. Objectives: To report from the published literature the levels of cadmium in breast milk and the affecting factors causing the increase of cadmium concentrations; also to gather several quantitative data which might be useful to evaluate the international degrees of maternal and infant exposure. Methods: We reviewed the literature for studies reporting quantitative data about cadmium levels in human breast milk in the world that have been published between 1971 and 2014 and that are available on Pubmed, Science direct and Google scholar. The aim of the study, country, period of samples collection, size of samples, sampling method, time of lactation, mother's age, area of residence, cadmium concentration and other information were extracted. Results: 67 studies were selected and included in this systematic review. Some concentrations greatly exceed the limit of the WHO, However about 50% of the studies had less than 1 µg/l cadmium concentration (the recommendation of the WHO); as well many factors have shown their implication in breast milk contamination by Cadmium as lactation stage, smoking, diet, supplement intake, interaction with other mineral elements, age of mothers, parity and other parameters. Conclusion: Breast milk is a pathway of maternal excretion of cadmium. It is also a biological indicator of the degree of environmental pollution and cadmium exposure of the lactating women and the nourished infant. Therefore preventive measures and continuous monitoring are necessary.

Keywords : breast milk, cadmium level, factors, systematic review

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