

Impiego di metodi regressivi nello studio della associazione fra differenti modalità di esposizione a mercurio e alcune variabili funzionali

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KEY WORDS

Mercury exposure; biological effects; multivariate analysis; mixed models

SUMMARY

«Use of regressive methods to analyse the association between different modalities of mercury exposure and some functional variables». **Aims:** The "Mercury Multicentric Project" data-set was analysed with the aim to identify a group of biological variables associated with different types of Hg exposure (occupational exposure, fish dietary intake, exposure due to amalgam restorations). The distribution of socio-demographic, biological and surrogate outcome variables was rather different among the collaborating Units. **Methods:** Mixed linear models (MLM) were used to overcome the problems related to the hetero-scedasticity of variances among Units. MLM are a generalization of the standard linear models, the generalization being that the data are permitted to exhibit correlation and non constant variability. MLM therefore provide with the flexibility of modelling not only the means of the dependent variable, but also their variances and co-variances as well. This allows to represent the total variability of the dependent variable as a sum of two components: the first attributable to the Units and the other one to the random error. **Results and conclusions:** A set of biological variables significantly associated with at least one of the Hg exposure variables or with the HgU/creatinine ratio (as surrogate variable for Hg exposure) was identified by means of MLM. This set includes β_2 -MG, sIL8, CD4⁺, sPRL, FT dominant, BAMT, and some variables related to neurological behaviour. An extension of this analysis will be performed with a structural equations approach in order to study the dose-response relationships among the various variables according to a hierarchical path defined on biological basis. One of the possible simplified general models including all the selected variables is described.

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