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P-228 Occupational exposure to radiofrequency electromagnetic fields and risk of cancer: preliminary data from the Italian research project BRIC 2018 - ID 06 / Modenese, Alberto; Bravo, Giulia; Grandi, Carlo; Biffoni, Mauro; Gobba, Fabriziomaria. - In: OCCUPATIONAL AND ENVIRONMENTAL MEDICINE. - ISSN 1470-7926. - 78:Suppl. 1(2021), pp. A89.3-A90. (Intervento presentato al convegno 28th International Symposium on Epidemiology in Occupational Health "From the Workplace to the Population: Exposure and Prevention" - EPICOH 2021 tenutosi a Online nel 25-28 October 2021) [10.1136/OEM-2021-EPI.241].

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06/05/2024 22:20

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Occupational exposure to radiofrequency electromagnetic fields and risk of cancer: preliminary data from the Italian research project BRIC 2018 – ID 06

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Introduction

The possible role of Radiofrequency electromagnetic fields (RF-EMF) exposure as potential human carcinogen has been extensively studied considering mobile phones use, while until now less effort was devoted to an evaluation of the risk related to other occupational exposures.

Objectives

The aim of the research is to evaluate the evidence on the possible association between RF-EMF exposure in various occupational activities and carcinogenic effects in published epidemiologic studies.

Methods

A systematic review of human epidemiologic studies investigating carcinogenic effects in workers occupationally exposed to RF-EMF is ongoing within the Italian research project BRIC 2018 – ID 06, supported by the Italian Workers' Compensation Authority (INAIL). The protocol of the study has been registered in the PROSPERO database (CRD42020200202).

Results

The preliminary results of the review indicate that, even if various types of cancers as blood and lymphatic neoplasms, uveal melanoma, testicular, breast, lung and skin cancers were also evaluated, the majority of the studies focus on the possible association between occupational RF-EMF exposure and brain tumors. One of the major problems of research, observed in most of the studies, is the evaluation of exposure: the methods applied for RF-EMF exposure classification and assessment have several limits, possibly jeopardizing aggregate quantitative analyses (as, e.g., pooling Odds Ratios or Relative Risks). Another relevant problem is the presence of various confounding factors, e.g. occupational exposure to physical or chemical carcinogens possibly occurring in several workplaces, and others, potentially affecting the overall results.

Conclusions

The completion of studies collection, and data extraction and quality assessment of the papers including Risk of Bias analysis according to the protocol registered in PROSPERO, are currently ongoing.