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***Raquel Ramirez-Vazquez, E Arribas, A Najera and J Gonzalez-Rubio****University of Castilla-La Mancha, Spain***Brain tumors and radiofrequency electromagnetic fields**

Simultaneously with the increase of Radiofrequency Electromagnetic Fields (RF-EMF) in recent decades, there has been increasing concern about their potential relation with the etiology of several tumors. Now, the techniques of spatial data analysis jointly with the study of the personal exposure to these fields offer a new approach to the problem. This paper presents the results of an epidemiological study, combining Epidemiology, Statistics and Geographical Information Systems (GIS), in which we analyzed the correlation between exposure to RF-EMF in the city of Albacete (166,000 inhabitants, southeast Spain) and the incidence of several cancers with unspecific causes. We used statistical tools to analyze the spatial point patterns and aggregate data with the aim to study the spatial randomness and to determine the zones with the highest incidence from 95 tumors studied (65 lymphomas, 12 gliomas and 18 meningiomas). We also perform a correlation (Spearman) study between the personal exposure to RF-EMF in 14 frequency bands, recorded by an EME Spy 140 (Satimo) exposimeter in the city's administrative regions, and the incidence of the tumors registered from January 2012 to May 2015. Based on the two performed analyses, we conclude that the studied cancer cases have a random spatial distribution inside the city. On the other hand, the exposure to RF-EMF registered in the city of Albacete shows little correlation with the incidence of the studied tumors (gliomas (0.15), meningiomas (0.19) and lymphomas (-0.03)). Both the spatial point patterns study and the aggregate data analysis clearly show the spatial randomness of the studied tumors (meningiomas, gliomas and lymphomas) in the city of Albacete. Likewise, comparing the Figure 1, we can observe that for both the different tumors and their groups, that the zones with the highest incidence inside the city are similar independently of the type of analysis used. The proposed methodology inaugurates an unexplored analysis path in this field.

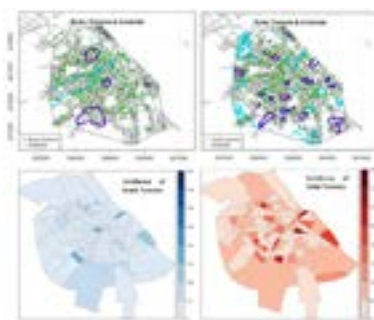


Figure 1

Biography

Raquel Ramirez-Vazquez is master in industrial engineering and student doctorate in Sciences and Technologies applied to Industrial Engineering at the University of Castilla-La Mancha, Albacete, Spain. She is of Mexican nationality. She is expertise in Radiofrequency Waves, Geostatistical, Science Education and Active Learning Physics. She has published papers in Journals with high Impact Factor and has serving as editorial member of journals. She has participated as a speaker in conferences nationally and internationally. She has conducted research stays in some countries such as Cuba, Spain and Mexico. Also, she has been a professor at the Higher Technological Institute of Tamazunchale, Mexico for six years.

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