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Association of exposure to radio-frequency electromagnetic field radiation (RF-EMFR) generated by mobile phone base stations with glycated hemoglobin (HbA1c) and type 2 diabetes mellitus

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Installation of Mobile Phone Base Stations in residential areas has initiated public debate about possible adverse effects on human health. This study aimed to determine the association of exposure to Radio Frequency Electromagnetic Field Radiation (RF-EMFR) generated by Mobile Phone Base Stations with glycated hemoglobin (HbA1c) and occurrence of type 2 diabetes mellitus. For this study, two different elementary schools (school 1 and school 2) were selected. We recruited 159 students in total; 96 male students from school 1, with age range 12-16 years and 63 male students with age range 12-17 years from school 2. Mobile phone base stations with towers existed about 200 meters away from the school buildings. RF-EMFR was measured inside both schools. In school 1, RF-EMFR 9.601 nW/cm² at frequency of 925 MHz and students had been exposed to RF-EMFR for duration of 6 hours daily, 5 days in a week. In school 2, RF-EMFR 1.909 nW/cm² at frequency of 925 MHz and students had been exposed for 6 hours daily, 5 days in a week. 5-6 ml blood was collected from all the students and HbA1c was measured. The mean HbA1c for the students who were exposed to high RF-EMFR was significantly higher (5.44 ± 0.22) than the mean HbA1c for the students who were exposed to low RF-EMFR (5.32 ± 0.34) ($p=0.007$). Moreover, students who were exposed to high RF-EMFR generated by MPBS had a significantly higher occurrence of type 2 diabetes mellitus [$P=0.0001$] relative to their counterparts who were exposed to low RF-EMFR. It is concluded that exposure to high RF-EMFR generated by MPBS increase HbA1c and occurrence of type 2 diabetes mellitus among school aged adolescents.

Biography

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