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INFLUENCE OF MAN-MADE AND NATURAL ELECTROMAGNETIC FIELDS ON THE INCIDENCE OF DIFFERENT PATHOLOGIES IN ST PETERSBURG*

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In this paper we consider the effect of natural and man-made magnetic field disturbances on human pathology data collected by the Medical Emergency Service in the city of St Petersburg (Russia) during 1981. In the various medical data many variations of meteorological and social origin have been found (annual, 15.3-day, 7-day periodicities). The 7-day variation in the data for myocardial infarction shows a significant decrease in pathology rate (~70%) during weekends and public holidays. Measurements of man-made magnetic fields performed in the centre of St Petersburg during 1991 and 1994 in the 0.001–10 Hz frequency range show a large decrease in intensity during Saturdays and Sundays. We suggest that the 70% decrease in infarction rate during Saturdays/Sundays is connected with the decrease during these days of electromagnetic noise, indicating the social origin of this variation. The myocardial infarction data cleared of meteorological and social effects show a connection with the occurrence of strong geomagnetic storms.

1. Human beings live in an ocean of electromagnetic fields of natural and man-made origin. Natural electromagnetic fields in the frequency range 0.1–10 Hz are observed all over the world with amplitudes usually ranging between 0.01 nT and some hundreds nT, and a dramatic increase in pulsation activity occurs during severe geomagnetic storms [1]. Electromagnetic fields of man-made origin are observed in a wider frequency range and they depend on the industrialization level; they are characterized by abrupt changes in magnitude and by irregular wave forms. As far as we know, up to now no regular and complete observations have been made of technological electromagnetic fields in industrial centres.

Many experimental and clinic studies showed that biological systems, including human beings, can be influenced by electromagnetic field variations in the u.l.f. range (0.001–10 Hz)

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