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# PRENATAL AND EARLY LIFE EXPOSURE TO 2.45 GHz Wifi-LIKE SIGNALS: EFFECTS ON DEVELOPMENT AND MATURATION OF THE IMMUNE SYSTEM

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The development of the immune system begins during embryogenesis, continues throughout fetal life, and completes its maturation during infancy. Exposure to immunotoxic compounds at levels producing limited/transient effects in adults, results in long-lasting or permanent immune deficits when it occurs during perinatal life. Potentially harmful RF exposure has been investigated mainly in adult animals or with cells from adult subjects, with most of the studies showing no effects. Is the developing immune system more susceptible to the effects of RF exposure? To address this question we exposed the animals to WiFi signals during their pre-natal life (in utero) or during their first weeks of age (childhood). For the in utero exposure study, plug positive females were exposed (SAR 4W/kg, 2 hours/day) starting 5 days after mating and ending 1 day before the expected delivery (14 consecutive days). To study the effects of early post-natal exposure, newborn mice were exposed (constant SAR 4 W/kg, 2 hrs/day, 5 days/week) for 5 consecutive weeks starting the day after birth. In each set of experiments, cage control and sham-exposed groups were used as controls. All the experiments were performed with a blind procedure. In utero exposure to MW did not affect any of the parameters considered for the pregnancy outcome (successful pregnancies, newborns/mother, body weight at birth). For the experiments with newborns, no differences in body weight and development were found among the groups. For the immunological analyses several parameters were considered in both sets of experiments. In thymus: cell number, CD4/CD8 subpopulations, thymocytes proliferation. For the spleen T cell compartment: frequencies of T cells (CD4, CD8), T cell proliferation and cytokine production (IL-2, IFNgamma). For the spleen B cell compartment: B cells frequency, B cell proliferation and antibody production (IgM, IgG). In sera: IgM and IgG concentrations. Results on newborn mice exposed during early post-natal life did not show any effects on all the investigated parameters with one exception: a reduced IFNgamma production in spleen cells from MW-exposed male mice compared with sham-exposed. No difference was observed in female mice. As to mice exposed in utero no differences were observed for all the investigated parameters. These findings were consistently confirmed in male and female offspring and at early (5 weeks of age) and late (26 weeks) time points. In conclusion, our findings do not support the hypothesis that perinatal exposure to WiFi signals induces detrimental effects on the developing immune system.