Preci of paper by Zalyubovskaya, 1977 – paper 1.

Biological Effect of Millimeter Radiowaves.

This study examines the effect of millimetre radiowaves on morphological, functional, and biochemical parameters in rats and mice. Radiowaves produced by a type OV-12 generator in the range of 5 – 8mm, at a density of flow of 1 mW/sq.cm were used to irradiate these animals for 15min daily over a course of 60 days.

Radiowaves at these frequencies have a weak penetrating ability and are primarily and mostly absorbed by the skin so the first investigation was conducted on this major organ of the body of the animals. Investigations showed deformations of the receptor apparatus which appeared as bunches of nerve fibres that had signs of hypertrophy (shrinking) and demyelinization (stripping of the insulation part) of the nerve fibres. In the dermis of the skin the collagen (provides elasticity to the skin) fibres appeared as small trunks of varying thickness and the neural conductors were fragmented. Delamination also appeared in the outer surface layers.

All these findings on the neural system of the skin point to adverse effects of the millimetre radiowaves on the central and vegetative nervous systems which, it turn, directly or indirectly adversely affect principle functions of the organs.

Histomorphological analysis showed disorder of active structures of tissues of myocardium, liver, kidneys, and spleen with disruption of vesicular membranes and the appearance of micronecroses and tissue dystrophy. There wer also qualitative and quantitative changes in both the erythrocytes (red blood cells) and leucocytes (white blood cells) in the blood from these animals. These changes included reduction in numbers of erythrocytes, reduced haemoglobin levels and retention of erythrocytes in the bone marrow. There were also increased numbers of erythrocytic blast cells (reticulocytes), and reduced numbers of leukocytic blast cells. These findings are consistent with adverse effects of the mm radiowaves on blood cell production, haemoglobin production, and white blood cell activity (immune system).

Irradiated animals also showed weaker stimulatory response to stimuli such as light, noise, and pain which also point to damage to the nervous system caused by the mm radiowaves.

Examination of biochemical parameters in blood plasma from the irradiated animals demonstrated increased 17-OCS levels (22.64mkg compared with 14.98 mkg in controls). In adrenal cortex from the irradiated rats, ascorbic acid (vitamin C) levels dropped by 32%.

Additional biochemical studies showed:

- Variation of the content and ratios of catecholamines
- Increased adrenalin and decreased noradrenalin levels in the hypothalamus
- Increased adrenalin (200%) and decreased noradrenalin (11%) in the adrenal cortex
- Changes in functional activity of the catecholamine hormones and their mediators
- Changes in mitochondrial activity in liver, kidneys, heart, and brain consistent with damaged mitochondrial function – possibly the electron transport pathway
- Decreased cytochrome P450 oxidase activity (37%) in liver

The above changes are consistent with the radiowaves damaging cells and tissues of the body such as adrenal cortex, brain, liver, and heart that then lead to reduction in ATP (energy) production, poor nervous system function, and lowered immunity.