

“ APPROVE”
General Manager
OOO” Center for Electromagnetic Compatibility”
Professor doctor
IU.G.Grigoriev
25.November. 2005

ACT

of conducting biological experiments to evaluate the
effectiveness of the protective device TORSION

In the center of bio electromagnetic compatibility was carried biological experiment on mice , to assess the effectiveness of the protective device Torsion, when exposed to an electromagnetic field from the cell phone .

Experimental scheme

Exposure was conducted with two groups of mice under electromagnetic field operating conditions of cell phone, daily for 2 hours a day for 5 days. The third group was a control group of animals (intact control). All this irradiation was carried out in succession by one type cell phone: Group 1 -phone without a protective device, Group 2 -phone with a protective device TORSION. Irradiation was carried out from 14 to 18 November 2005 in the daytime in the time interval from 11 to 16 hours. The experiment was conducted in a laboratory room with natural light and normal temperature and humidity conditions. . The animals were placed in a plastic box with dimensions 53x 30x21 cm. The cell phone was placed on the cover of the box in the center.

Animals in the experiment

In the experiment were involved 113 mice in three group:

1st.group – 39

2 nd. group -38

3rd. group-36

Technical support of the experiment

In the experiment was used standard cell phone MOTOROLA M3288 /GSM 900/1800

Method of determining the biological effect

Method of determining the biological effect is based on the assessment of the overall anti-infective resistance in the experimental mice. Anti infection resistance was evaluated on a model of acute intestinal intoxication with coli bacteria mice with the definition of a 50% lethal dose "LD50" interpolation method Reed and Menchu. The level of resistance was determined by the death of the animals within 48 hours, falling to the dose of infection by bacteria, expressed in millions of units.

After 5 days exposure, the test and control groups of mice were divided into 4 sub groups each. All mice received 4 doses colibacterin (one dose each subgroup) in a volume of 1ml.l.

As material was used colibacterin produced by "NPO MICROGEN" Ministry of Health Russian Federation –license No 64/021-JI/03

Results of the experiment

Results of measurements of the electromagnetic field emitted by the cellular phone during impact on mice are shown in Table 1

Table 1

Results of measurements of the electromagnetic field

N of the point of measurement	fixed values of Energy Flux Density $\mu\text{KW}/\text{cm}^2$ without TORSION	fixed values of Energy Flux Density $\mu\text{KW}/\text{cm}^2$ with TORSION
№ точки измерения (см. рисунок 1)	Зафиксированные значения ППЭ, $\text{мкВт}/\text{см}^2$, без ЗУ	Зафиксированные значения ППЭ, $\text{мкВт}/\text{см}^2$, с ЗУ «Экран»
1	18,63 +10,81 -6,89	18,03 +10,46 -6,67
2	37,34 +21,66 -13,82	36,64 +21,25 -13,56
3	34,86 +20,22 -12,90	33,47 +19,41 -12,38
4	15,72 +9,12 -5,82	15,51 +9,00 -5,74
5	15,96 +9,26 -5,91	16,07 +9,32 -5,95
6	15,91 +9,23 -5,89	15,93 +9,24 -5,89
7	49,24 +28,56 -18,22	49,61 +28,77 -18,36
8	35,56 +20,62 -13,16	34,70 +20,13 -12,84
9	24,48 +14,20 -9,06	24,35 +14,12 -9,01
10	17,14 +9,94 -6,34	17,81 +10,33 -6,59
11	9,14 +5,30 -3,38	9,32 +5,41 -3,45
12	24,05 +13,95 -8,90	24,37 +14,13 -9,02
13	24,14 +14,00 -8,93	24,18 +14,02 -8,95
14	10,43 +6,05 -3,86	10,86 +6,30 -4,02
15	14,86 +8,62 -5,50	15,27 +8,86 -5,65

Determination of the biological effect was concluded using the method of "blind studies" - the researcher process the results, did not know about the conditions of exposure of this group. The biological effects of exposure at electromagnetic field emitted by cell phone, are shown in table 2.

Table 2 – biological test results

group N dose of infection number of infected number of died LD 50/48
with colibacterin mice mice colibacterin

Группа	Доза заражения колибактерином, млн	Количество зараженных мышей	Число погибших мышей	LD _{50/48} колибактерина, млн
1	2	3	4	5
№ 1	150	9	8	66,0
	60	10	9	
	30	10	9	
	15	10	6	
№ 2 (с защитным устройством «Экран»)	150	8	8	90,0
	60	10	10	
	30	10	9	
	15	10	1	
№ 3 (интактный контроль)	150	7	6	92,4
	60	10	9	
	30	9	3	
	15	10	1	

No 1 – group without TORSION

No2 – group with TORSION

No3 – control group

The results show that in group1 LD50/48 is much lower(28,6%) than with the control group. This suggests that the impact causes a decrease in the reactions of the immune system, which manifests in the weakening of protection against infection.

The results shown by group 2 are practically the same with the control group, which means that there are no any changes in the reactions of the immune system.

Conclusions

- 1.The protection chip TORSION does not change the intensity of the emitted electromagnetic field
2. The results show a decrease in the reactions of the immune system, which manifests in the weakening of protection against infection after 5 days (2 hours daily) impact of electromagnetic field emitted by the cellular phone .
3. Using TORSION ,there are not any changes in the reactions of the immune system from impact of electromagnetic field emitted by the cellular phone , which definitely shows the protective effect of using TORSION

A.L.VASIN – ph.D.in biological sciences Center for Bio electromagnetic compatibility, RUSSIA

G.V.BATANOV – ph.D

A.V.MERKULOV