Effect of GMS(Towers and Mobil radiation) on reproductive hormones in males

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Abstract: Today, cell phone technology is an integral part of everyday life and, its use to chat including voice and picture in addition to many other applications. Male reproductive system is highly compartmentalized and sensitive biological system that requires the integration of intrinsic and extrinsic factors to normal function, hence we studied effects of GMS (Towers and Mobil radiation) on reproductive hormones (FSH,AMH,LH, Testosterone) and interference of other factors such as smoking ,distant and hours near towers, Mobil using period, and tumors related with .Our study applied on (144) sample compared with (50) control, the result showed significant increase in LH&FSH levels while significant decrease in Testosterone & AMH hormone, also significant increase in hormone levels smoking and non-smoking persons and distend from tower.

Keywords: GSM , reproductive hormone, mobile.

Introduction:

In recent year it was observed that most growing efforts are concentrated on the human health effect, by exposure to electromagnetic waves emitted by wireless communication devices such as mobile and towers.¹

While the number of mobile phone service subscribe are estimated to be more than (5) billion all over the world. accordingly 31 scientists and 14 countries had been met in the International Agency for Research on Cancer (IARC)2011 in Lyon, France, to evaluate and assess the risk of disease cancer due to exposure, that published in volume No.(102) of the agency.

(IARC) belongs to world health organization (WHO) classified radio waves of the electromagnetic field as a potential factor for cancer for human, which was adopted to increase the risk of Glioma(a type of brain malignant associated with the use of mobile phones.

Researchers discussed the possibility of negative effects on human health as a result of prolonged exposure to these waves, Gonadotropins (FSH, LH) and testosterone and AMH are the prime regulators of germ cell development. Abnormal spermatogenesis is often associated with altered serum gonadotropins and testosterone. A number of recent reports have suggested a possible link between cell phone use and male infertility². The concern has arisen that carrying a cellular phone near the reproductive organs such as the testes may cause dysfunction and particularly a decrease in sperm development and production, and thus decrease fertility in men.

Keeping the cell phone in areas close to gonads in active mode will negatively affect spermatozoa and impair male human fertility needs to be determined. Additionally, it needs to be determined whether men of reproductive age who engage in high levels of mobile phone use should not keep their phones in receiving mode below waist level.³
Human caused by these waves, it recommended the need for continuous researches and monitoring to
determine the relationship between the mobile phone and the growing risk of cancer and infertility problems.

According to this study intended investigate the effect of electromagnetic waves emitted from mobile
communication and towers on human health and the overall reproductive hormones in men as complementary
series of the international research works in our area.

Materials and methods:

Blood samples are collected (7ml) from 144 male persons how exposed to electromagnetic waves from
mobiles and communication towers, then compared with (50) healthy people (control sample), after measuring
hormone level of FSH, LH, AMH and testosterone. The research used an application prepared for this purpose to
get information about marital status, smoking, distance of the tower, mobile using period and number of towers.

Serum concentrations of FSH, LH were measured using ELISA. The ELIZA kit that was used. The level of
serum testosterone was measured using enzyme-linked immunosorbant assay (ELIZA) method. The ELIZA
kit that was used was manufactured by Bio-Check, Inc. Company (USA). Serum AMH concentrations were
measured using AMH/MIS enzyme linked immunosorbant assay kit (Immune test material USA).

Results and discussion:

The results of the current study showed (table 1) significant increase (p<0.05) (p<0.01) in level of
LH, FSH hormone respectively compared with control while AMH, Testosterone hormones level decreased
significantly (p<0.05). It is known that there is an inverse relationship between LH, FSH, AMH and testosterone
where the high level of first hormone led to reduce level of second ones. Testosterone is one of the important
hormone that has close relationship with fertility in men. The study by showed the effect of mobile phone use
and the frequency of radiation released from on the male reproductive system through its impact on the
movement of sperm, shape, census and function of sperm as well as reduced levels of AMH, Testosteron.

Table (1) reproductive hormone level in male exposure to communication tower radiation

<table>
<thead>
<tr>
<th>sample</th>
<th>FSH</th>
<th>LH</th>
<th>Testosterone</th>
<th>AMH</th>
</tr>
</thead>
<tbody>
<tr>
<td>control</td>
<td>2.39 ±0.21</td>
<td>4.00 ±0.24</td>
<td>9.79 ±0.42</td>
<td>6.45 ±0.33</td>
</tr>
<tr>
<td>Experiment</td>
<td>12.93* ±0.28</td>
<td>10.61** ±4.00</td>
<td>3.12* ±0.09</td>
<td>1.45* ±0.04</td>
</tr>
</tbody>
</table>

Mean ±SE

In the studies carried out by the Indian council of medical Research (ICMR) on communication tower
effect on organisms in India, including the study carried out by, concluded that electromagnetic field working to
effect on the function of androgens which are regarded as a primary mutation for maturation of sperm, and for
this reason these rays considered as an affecting factor on male fertility.

Table (2) reproductive hormone level in male according to smoking, distance from tower and Social status

<table>
<thead>
<tr>
<th>Hormone level</th>
<th>Smoking</th>
<th>Distance from tower</th>
<th>Social status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>smoker</td>
<td>near</td>
<td>far</td>
</tr>
<tr>
<td>FSH</td>
<td>10.03*</td>
<td>±0.22</td>
<td>11.01**</td>
</tr>
<tr>
<td></td>
<td>Non-smoker</td>
<td>±0.09</td>
<td>±0.71</td>
</tr>
<tr>
<td>LH</td>
<td>11.05*</td>
<td>±0.03</td>
<td>8.54</td>
</tr>
<tr>
<td></td>
<td>±0.12</td>
<td>±0.35</td>
<td>±0.30</td>
</tr>
<tr>
<td>Testosterone</td>
<td>4.61**</td>
<td>±0.13</td>
<td>5.21**</td>
</tr>
<tr>
<td></td>
<td>±0.04</td>
<td>±0.35</td>
<td>±0.06</td>
</tr>
<tr>
<td>AMH</td>
<td>2.41**</td>
<td>±0.21</td>
<td>3.12**</td>
</tr>
<tr>
<td></td>
<td>±0.47</td>
<td>±1.4</td>
<td>±0.11</td>
</tr>
</tbody>
</table>

Mean ±SE
The current study showed (table 2) significantly increase in LH, FSH levels (p<0.05) respectively in smokers than non-smokers, and significantly decreased in AMH, Testosterone level (p<0.01) among relative to non-smokers. Cigarettes smoke effect the somatic cells and may be mtefra factor, and this is a result of present of toxic materials such as nicotine, unilateral, dioxide and cadmium that inhale through cigarette smoking that interferes with effect from exposure to radiation from communication towers, and a result in a decline in fertility hormone levels in males, as well as the occurrence of sperm abnormalities.

The significant elevation (p<0.01) in FSH levels, with significant decreasing (p<0.01) in AMH levels, Testosterone in people near to communication towers, while significant increase in LH hormone levels that agree with, whom worked on measuring of electromagnetic radiation in the vicinity of the towers these were closed to the schools, hospitals, housing and compared with the levels that human and animal affected by the results showed that the level of exposure id higher than the allowable limit and the effect will by greater as the distance become closer. Also the carried study showed significant decrease (p<0.01) in testosterone levels among married couples compared to non-married couple, while results were non-significant for AMH, FSH, LH respectively and this is consistent with the studies done by.

References:

7. INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) :2011,report.issue no.208

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