THE May 31 verdict on cellphones by the World Health Organization made some people happy but dissatisfied many. Through news originating from Lyon, France circulated throughout the world, people came to know that the WHO had for the first time evaluated radio-frequency electromagnetic radiation from mobile phones for carcinogenicity. The International Agency on Research on Cancer (IARC), the specialized arm of WHO for this purpose, categorized radio-frequency electromagnetic fields (RF EMF) as possibly carcinogenic to humans. This puts the field in group 2B of IARC classification scale.

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<th>IARC Classification Scale</th>
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A recent WHO report categorized radio-frequency electromagnetic fields as possibly carcinogenic to humans. Does this establish that cellphones cause cancer? Did the WHO do too little after too long a time?

The worldwide mobile phone industry, currently controlling services to nearly five billion mobile phone subscribers, viewed danger in IARC’s utterance. The International Association for Wireless Telecommunication Industry (CITA) reacted quickly taking advantage of the elbow space that IARC’s categorization allows. It said that the classification does not mean cell phones cause cancer. They added that under IARC rules, limited evidence from statistical studies could be found even though bias and other data flaws may be the basis for the results.

On the other side of the spectrum many researchers were disappointed at...
IARC's soft stand. Annie Sasco, an epidemiologist who was associated with IARC for 22 years, went to the extent of saying that she felt like a loser. She had hoped that the classification would be 2A.

It has to be borne in mind that the IARC did not conduct any fresh investigation. Its role was like IPCC, reviewing evidences from current researches in arriving at a conclusion. Their findings will be described in detail in Volume 102 of the IARC Monograph.

During the week May 24-31, 2011 the IARC Monograph Working Group of 31 scientists from 14 countries undertook a heavy job. They discussed and evaluated the available literature on the following exposure categories involving RF-EMF:

i. Occupational exposures to radar and to microwaves
ii. Environmental exposures associated with transmission of signals for radio, television and wireless telecommunication
iii. Personal exposures associated with the use of wireless telephones

The evidences related to occupational and environmental exposures were judged inadequate for showing a straightforward link with cancer. The focus for wireless telephone users was narrowed down to two particular cancer types – glioma and acoustic neuroma. For other types of cancers the evidences were again found to be inadequate. Dr. Jonathan Samet, overall chairman of the Working Group noted with due caution that the evidence for glioma and acoustic neuroma is strong enough to support a conclusion and 2B classification. As is usual, he stated that more research is required in this field.

One study that was on the table of the Working Group is of particular interest. It covered data collected up to the year 2004 and showed a 40% increased risk for gliomas in the highest category of heavy users. Now what shall we understand by the term ‘heavy users’? For the study the term meant a user who on average speaks for 30 minutes on his cell phone per day over a ten-year period. With phone calls becoming cheaper by the day we find cell phone owners regularly overstepping this boundary marked for heavy users. Youngsters lead in this respect and are always proud to flaunt their cell-talk records, which run into several hours per day. Thus the ‘heavy user’ category has to be redefined if WHO expects its reports to be more realistic.

Prior to the last week of May 2011 the WHO had consistently maintained that no relation could be found between use of cell phones and cancer. The Fact Sheet released by its media center in May 2010 said: ‘To date, no adverse health effects have been established for mobile phone use.’ It thus ruled out any health damage until the monograph from IARC on this issue is fully scanned by interested parties it will not be possible to say whether IARC did a good job or not.

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There are two ways in which cell phone radiation might affect the body. Tissue heating is the principal mechanism of interaction between radio frequency energy and the human body.

RF-EMF was suspect for interfering with electrical activity in brain or heart leading to disturbances in several key functions of the body. But here again, the WHO has given cell phone radiation a clean chit saying there is no clear evidence of "electromagnetic hypersensitivity".
from cell phones including cancer. The organization also mentioned findings from its INTERPHONE study that was not able to establish any causal relationship between prolonged mobile phone use and glioma or meningioma. In this connection a look into the INTERPHONE study merits attention.

The INTERPHONE was initiated (report accepted in March 2010) as an international set of case-control studies focusing on four types of tumors in tissues that most absorb RF energy emitted by mobile phones: tumors of the brain (glioma and meningioma), acoustic nerve (schwannoma) and parotid gland. The objective was to determine whether mobile phone use increases the risk of these tumors and, specifically, whether RF energy emitted by mobile phones is tumorigenic. It was an international, largely population-based case-control study. Eligible cases were all patients with a glioma or meningioma of the brain diagnosed in the study regions during study periods of 2–4 years between 2000 and 2004.

The largest study of the risk of brain tumors in relation to mobile phone use conducted to date included substantial numbers of subjects who had used mobile phones for over 10 years. Overall, no increase in risk of either glioma or meningioma was observed in association with the use of mobile phones. INTERPHONE study focussed on tumors in people of 30–59 years age group, as they were expected to have had the highest prevalence of mobile phone use in the previous 5–10 years, and on regions likely to have the longest and highest use of mobile phones (mainly large urban areas).

Interestingly, the project termed this group to have the longest and highest use of previous 5–10 years, and on regions likely to have had the highest prevalence of mobile phone use in the 30–59 years age group, as they were expected to have had the highest prevalence of mobile phone use in the period of 2–4 years between 2000 and 2004.

On the other hand RF-EMF was suspect for interfering with electrical activity in brain or heart leading to disturbances in several key functions of the body. But here again, the WHO has given cell phone radiation a clean chit saying there is no clear evidence of “electromagnetic hypersensitivity”.

On the question of long-term effects and mainly the occurrence of cancer it had admitted the existence of some grey area saying ‘because many cancers are not detectable until many years after the interactions that lead to the tumour, and since mobile phones were not widely used until the early 1990s, epidemiological studies at present can only assess those cancers that become evident within shorter time periods.’ In animal studies also no cancerous effect of RF EMF was detected, reported the international body.

Cancer, though at the center of our focus, might not be the only point of concern for all. For example, it has been reported from Kerala that the electromagnetic waves emitted by mobile phone towers and cell phones might kill honeybees and thus pose a threat to bee populations. In Current Science Volume 98, No. 10 dated May 25, 2010 Ved Prakash Sharma and Neelima R. Kumar had reported observed changes in honeybee behaviour and biology under the influence of cell phone radiations. Whether these findings will be included in intensive investigations on the effects of cell phone radiation by WHO or rejected by it for one bias or the other will become clear in the days to come. Incidentally the INTERPHONE study did not include India.

The review at Lyon drew largely from the INTERPHONE database.

Until the monograph from IARC on this issue is fully scanned by interested parties it will not be possible to say whether IARC did a good job or not. Even then loads of doubt will remain on WHO’s action. Did it do too little after too long a time? This is a question that is already being asked widely.

Differences within IARC will also have to be carefully examined. No one can afford to forget that the publication of INTERPHONE study report got delayed by an ‘inexplicable’ four years. The reason apparently cited was that the scientists could not come to a conclusion on how to present the report. The IARC Monograph has to be read against this perspective.

WHO has promised to conduct a formal health risk assessment of radio frequency fields exposure by 2012. The modus operandi will definitely depend on how different quarters react to Monograph 102 of IARC. A debate is brewing over RF-EMF and as we have observed in the case of IPCC reports, it will be extremely difficult to wish away dissenting voices.

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