Comments on the paper: Relationship between regular cell phone use and human semen quality

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The only available source of information to date about this work is a short abstract, included in this report as Annex. On that basis, one can infer that the study is an observation of a possible association between a decreased sperm quality and the use of mobile telephones. It does not deal with effects of provoked exposure to controlled mobile-telephone microwaves.

Regarding the influence of RF radiation on reproduction, the most actual review was published recently by the NRPB in the UK (Health Effects of Radiofrequency Electromagnetic Fields. Documents of NRPB vol. 14, No. 2, 2003). In Section 4, Animal Studies, the chapter “Reproduction and Development” (Page 76), states: “Overall, there has been no convincing evidence that exposure to low level RF fields can affect reproduction and development in mammals; where consistent effects have been reported they can be attributed to the thermal insult induced by RF exposure (Independent Expert group on Mobile Phone IEGMP, 2000).” Moreover, the Section 6 on “Non-cancer Epidemiology and Clinical Research, chapter "Male sexual function and fertility" (Pages 102-103), concludes: "Current evidence on RF radiation and male sexual function is extremely limited. Three out of five published studies have suggested a reduced sperm count in exposed workers, but all of these investigations have been small, and one (Lancranjan et al., 1975) was of doubtful rigour". Hence, there is a consensus that the biological basis for a reduced spermatogenesis is a temperature elevation in the testis that can only take place at sufficient high exposure levels. It needs to be stressed that the studies referred to by the NRPB report considered workers' exposure at levels that are orders of magnitude higher than any conceivable exposure to mobile phones.

In the abstract under consideration, the exposure is indirectly estimated from the duration of use of the mobile telephone during conversation or in the stand-by mode (i.e., as one can infer from the abstract no dosimetric investigation was included). However, in both cases, exposure of the testis is negligible: during conversation because of the distance, and in stand-by because of the absence of emitted power (apart from isolated and short identification signals). Even in the case where earphones are used and the handset is held in the trousers’ pocket during conversation (worst-case hypothesis), most of the emitted power would be absorbed in the leg, with negligible exposure of the testis. Looking at the specific effects reported (sperm concentration, slow progressive motility, rapid progressive motility), they seem related randomly to the exposure parameters (duration, stand-by/active mode), without a clear dose-related pattern. A further reason for perplexity is that the reduction in sperm concentration is higher when the telephone is on the stand-by mode with sparse emission of short pulses for tracking the position compared with the conversation mode with repetitive pulses at 100fold higher frequency. Some terms are not even clear, such as "transmitters and non-transmitters". Further, no information appears to be available in this study to evaluate the role of risk factors for reduced sperm quality, which could be confounders of the apparent relation between exposure to mobile phones and sperm quality. In conclusion, in view of the limited information provided, the quality of the study, and the lack of plausibility the importance given by the media to this paper is grossly exaggerated and not justified. The reported findings are not sound enough to base any decisions on them; however, for other reasons, further research on fertility is justified and already ongoing.

European Commission Projects

In FP5, no research project was specifically devoted to reproduction and fertility. In FP6 EMF-NET Coordination Action will take into consideration reproduction and fertility issues both in females and males, inside EMF-NET Coordination Action: 1) *Main Task on Laboratory and Epidemiological studies*: reproduction concerns are indirectly inserted in the RF Key Issues. 2) *Main Task on Occupational Exposure*: exposure of workers to RF. 3) A decision should be taken in the next future on discussing this issue in a specific EMF-NET *Interpretation Report* (in charge of a specific TWG of experts) or including the topic in a more general one.