

exposure to the GSM mobile phone Motorola 8700, involving 20 healthy volunteers using visual evoked potential (VEP) examinations as an electrophysiological marker of CNS dysfunction. Five parameters of VEP were evaluated by means of multi-factorial ANOVA. Confounding effects of age, sex, and of the call itself were taken into consideration, but no statistically significant differences in latencies or amplitudes of VEP were observed.

De Seze et al.²² analyzed the hormone secretion of 20 healthy volunteers who were exposed to RF radiation through the use of a mobile phone for 2 h/day, 5 day/week, for 1 month. They used participants themselves as their own controls, and the end points included serum levels of adrenocorticotropin, thyrotropin, growth hormone, prolactin, luteinizing hormone, and follicle stimulating hormone. Results showed that all hormone levels remained within normal ranges, and no differences were noted among the nine weekly samples in five of the six hormones studied. A significant 21% decrease in the thyrotropin concentration was observed on the seventh sampling. Because this change recovered fully during the post-exposure period, it was concluded that 1 month of intermittent exposures to RF radiation from a cellular telephone do not induce long-lasting or cumulative effects on hormone secretion by the anterior pituitary gland in humans. Nonetheless, we believe results of that study indicate that further studies on other hormones are needed.

V. Traffic Accidents

To explore acute effects of the use of the Motorola GSM 8700 mobile phone on the CNS, Hladky et al.²³ recruited 20 volunteers to participate in two experiments. During speaking (reading a text from daily newspapers for 5 min), the EMFs from the mobile apparatus did not affect visual evoked potentials. Furthermore, a 6-min exposure revealed no effect of EMFs on the results in two tests (memory and attention) performed while speaking into the mobile phone. On the other hand, the phone call itself strongly influenced the performance in a test of switching attention,

which is a good model for driving a car. The speeds of response and decision making were significantly decreased. This supports that even a slight psychological stress involved during making a call while driving may lead to a great risk. Violanti^{24,25} conducted two case-control studies to evaluate the associations between traffic fatalities and the use or presence of a mobile phone. The data were from 223,137 traffic accidents which occurred between 1992 and 1995, and information on collision characteristics and mobile phone involvement for each fatality was compared with the same information for each non-fatality (control). After adjusting for other risk factors (age, gender, alcohol use, speed, inattention, and driving left of center), an approximate 9-fold increased risk for fatality was found with the use of a mobile phone, and an approximate 2-fold increased risk was found for the presence of a mobile phone in the vehicle. Lamble et al.²⁶ investigated a driver's ability to detect a car ahead that is decelerating while performing mobile phone-related tasks. Nineteen participants aged between 20 and 29 years with 2000 to 125,000 km of driving experience drove at 80 km/h, 50 m behind a lead car, on a 30-km section of motorway in normal traffic. During each trial, the lead car began to decelerate at an average of 0.47 m/s^2 while the participant looked at the car in front (as the "control"), continuously dialed a series of three random integers on a numeric keypad (as "divided visual attention"), or performed a memory and addition task (as "non-visual attention"). The results indicated that drivers detection abilities were impaired by about 0.5 s in terms of brake reaction time and almost 1 s in terms of time-to-collision, when they were doing the non-visual task during driving. This impairment was similar to that when drivers were dividing their visual attention between the road ahead and dialing numbers on the keypad. Because "divided visual attention" and "non-visual attention" also occur while using mobile phones with a hands-free option or a voice-conducted interface, the authors concluded that neither a hands-free option nor a voice-controlled interface could remove the safety problems associated with the use of mobile phones in a car. Their sugges-