

Reported functional impairments of electrohypersensitive Japanese: A questionnaire survey

Yasuko Kato^{a,*}, Olle Johansson^b

^a VOC-EMF Measures Research Association, Sapporo, Japan

^b The Experimental Dermatology Unit, Department of Neuroscience, Karolinska Institute, Stockholm, Sweden

Received 17 November 2011; received in revised form 13 January 2012; accepted 19 February 2012

Abstract

An increasing number of people worldwide complain that they have become electromagnetic hypersensitive (EHS). We conducted a questionnaire survey of EHS persons in Japan. The aim was to identify electromagnetic fields (EMF) and plausible EMF sources that caused their symptoms. Postal questionnaires were distributed via a self-help group, and 75 participants (95% women) responded. Reported major complaints were “fatigue/tiredness” (85%), “headache”, “concentration, memory, and thinking” difficulty (81%, respectively). Seventy-two per cent used some form of complementary/alternative therapy. The most plausible trigger of EHS onset was a mobile phone base station or personal handy-phone system (37%). Sixty-five percent experienced health problems to be due to the radiation from other passengers’ mobile phones in trains or buses, and 12% reported that they could not use public transportation at all. Fifty-three percent had a job before the onset, but most had lost their work and/or experienced a decrease in income. Moreover, 85.3% had to take measures to protect themselves from EMF, such as moving to low EMF areas, or buying low EMF electric appliances. EHS persons were suffering not only from their symptoms, but also from economical and social problems.

© 2012 Elsevier Ireland Ltd. All rights reserved.

Keywords: Electrohypersensitivity (EHS); Electromagnetic fields (EMF); Mobile phone base stations; Cell phones; Multiple chemical sensitivity (MCS)

1. Introduction

Use of wireless devices, such as mobile phones and WiFi, have spread remarkably during the last few decades. They have made life more convenient, but now many persons complain of various symptoms attributed to exposures to electromagnetic fields (EMF). Major symptoms include skin irritation, neurological and cardiac problems as well as digestive difficulties [1]. The World Health Organization (WHO) officially recognizes the existence of these people and electrohypersensitivity (EHS) as a new syndrome, but it denies the causal relationship between EHS and EMF [2].

People who self-report sensitivity to EMF have been described in western countries. In Sweden, the prevalence of EHS was initially estimated at 1.5% [3], but another newer

estimation indicates that 230,000–290,000 (2.6–3.2%) report EMF sensitivity [4]. In Austria, the prevalence was estimated at less than 2% in 1994, but in 2001 it had increased to 3.5% [5]. In Switzerland, 5% of the population has been estimated as EHS [6]. In California, the prevalence of self-reported sensitivity to EMF was 3.2%, with 24.4% of those surveyed reporting sensitivity to chemicals [7].

There have been no estimations of EHS prevalence in Asian countries. Although there is no clear consensus for EHS diagnosis, seven EHS cases (6 women) were diagnosed, by a specialist of environmental medicine at Kitazato University Hospital in Japan, employing neurophysiological function tests, such as vegetative nerve function test by pupillary light reflex, smooth pursuit eye movement test, and brain oxygen content by EMF loading test. In the EMF loading test, a coil connected to an EMF generator was placed around the patient’s neck, and oxygen contents on the brain surface were monitored using near-infrared spectroscopy (Hamamatsu Photonics Co. Ltd., Japan), by EMF exposure of 10 kHz, 100 kHz and 1 MHz [8]. One man and

* Corresponding author at: VOC-EMF Measures Research Association, 471, Bankei, Chuou-ku, Sapporo, Hokkaido, 064-0945, Japan. Tel.: +81 11 613 1984; fax: +81 11 613 1984.

E-mail address: yas-kato20@nifty.com (Y. Kato).

two of the women were also diagnosed with multiple chemical sensitivity (MCS). They exhibited a variety of symptoms, such as headache, tiredness, palpitation, dizziness and nausea. They reported that major EMF sources that caused their symptoms included mobile phones and their base stations, personal computers, power lines, fluorescent lights and electric appliances in homes. The persons were advised to avoid EMF exposures, to take antioxidants, and to try diet therapy, such as reducing sweeteners and increasing vegetables.

The prevalence of EHS in Japan, however, remains to be clarified along with major complaints and plausible EMF sources that cause subjective symptoms.

The aim of this survey was to study the subjective symptoms reported by Japanese persons complaining of sensitivity to EMF, plausible EMF sources that cause their symptoms and EHS onset, used medical care as well as complementary alternative medicine (CAM) therapies, and economical/social problems related to their health problems.

2. Subjects and methods

Postal questionnaires were distributed via a website and a bulletin of a self-help group for EHS and MCS people in Japan from June to October in 2009. The membership count of the group was about 200 and they were living throughout Japan. We received 83 responses, but eight responses were incompletely filed, thus the valid responses totaled 75 (71 females and 4 males) out of the population of 200 and their average age was 51.2 (19–81) years (40–49 years old 36.0%, 50–59 years 30.7%, and 60–69 years 18.7%). The medically diagnosed EHS was reported by 45.3% while 49.3% were self-diagnosed as EHS, and 5.3% considered themselves sensitive to EMF but not to be EHS (Table 1).

In the questionnaire, we asked their subjective symptoms attributed to EMF, suspected EMF sources that caused symptoms, and plausible EMF sources related to the onset. Furthermore the responders reported their therapies, CAM included and their satisfaction, costs of EMF measures, and concerns related to EMF, especially utilization of public transportation and the problems caused by other passengers' mobile phones.

To survey their subjective symptoms, a list of 43 types of symptoms including skin problems, neurological symptoms, and digestive difficulties was prepared by referring to symptoms in previous studies [8,9]. Participants checked all items

that applied to themselves. However, we did not ask about the frequency or the strength of these symptoms.

As plausible EMF sources that caused subjective symptoms, 39 EMF sources, such as mobile phones, personal computers and power lines were listed. Regarding suspected EMF source that cause EHS onset, we asked the participants to fill in EMF sources that they regarded the most plausible. Often the EMF sources that caused complaints (daily triggers) differed from the suspected EMF sources related to the onset (initial triggers). Many people complained that environmental EMF sources had gradually increased in number and their health condition had become worse. Our aim, however, was to investigate what EMF sources were attributed to by the participants, not to prove a causal relationship between EMF exposure and symptoms.

Participants were asked what CAM they used, and how satisfied they were with it. CAM items included dietary therapy, acupuncture/moxibustion, aromatherapy, balneotherapy, chiropractic, energy healing, flower essence, herbs, homeopathy, Japanese herbal medicine, kinesiology, osteopathy, qigong, supplements and yoga. Acupuncture, moxibustion, and Japanese herbal medicine are covered by the public health insurance in Japan. Because these therapies are classified as CAM in western countries, we added them as CAM in this study. Participants' satisfaction was rated on a scale of 0–3. The questionnaire choice was scored as “none” or “unknown”=0, “little good”=1, “so-so good”=2, and “very good”=3.

Previous studies have noted that people who complained of sensitivity to EMF had reduced income or were incapacitated for work due to their complaints [3,7,10]. The participants were asked about changes in monthly income, as well as the costs and kinds of EMF-reducing measures they had employed.

We also asked the participants about their daily problems attributed to EMF, such as experiences of bad health condition aboard public transportation due to other passengers' mobile phone radiation, and concerns about the construction of mobile phone base stations.

The Statistical Package for Biosciences (SPBS) was used for analysis. The results have been presented as means and S.D. Differences among groups were determined by the Scheffe test.

3. Results

Every second responder had medically diagnosed MCS (49.3%) and self-diagnosed MCS had 26.7%. Those who were not MCS, but considered themselves sensitive to chemicals were 14.7%, and those reporting “not to be MCS” were only 9.3%. When the numbers in the “diagnosed as MCS” and “self-diagnosed as MCS” were compared with the corresponding EHS groups, 76.0% were found in both categories.

When asked who of the responders had self-diagnosed as EHS, why they did not seek hospital treatment, the reasons

Table 1
Proportion of electromagnetically hypersensitive (EHS) and multiple chemical sensitive (MCS) Japanese persons studied ($n = 75$).

	EHS	MCS
Diagnosed	34 (45.3%)	37 (49.3%)
Concerned	37 (49.3%)	20 (26.7%)
Sensitive to EMF/chemical	4 (5.3%)	11 (14.7%)
Not to be MCS	–	7 (9.3%)
Total	75	75

Download English Version:

<https://daneshyari.com/en/article/4137210>

Download Persian Version:

<https://daneshyari.com/article/4137210>

[Daneshyari.com](https://daneshyari.com)