



# IMAGE AWARENESS WELLNESS INSTITUTE

## *EMF and the Heart*

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## DANGEROUS ELECTRICITY

Man has always been aware of the danger of electricity. The Greeks worshipped Zeus, the god of lightning and thunder, who used his lightning as his most powerful weapon against the mighty titans.

In 1881 a New York dentist named Alfred Southwick conceived the idea of the electric chair as a humane means of execution. The jolt of electricity was supposed to cause ventricular fibrillation and cardiac arrest.

Southwick contacted Thomas Edison, an opponent of capital punishment, to ask what the best type of electricity to use for execution. Edison was invested in direct current while his opponent, George Westinghouse, was invested in alternating current.

Edison saw a marketing opportunity. The primary fear regarding the provision of electricity was its safety. The average man knew little about electricity except for the power of lightning. Edison persuaded Southwick to use his opponent's alternating current to power the electric chair for the first execution by this method in 1890. The message Edison wanted to convey--his opponent's electricity was deadly.

The development of all forms of electricity moved ahead with-

out much thought for the safety of electricity, but there were many who were concerned about the safety of this new technology. This newsletter will focus on the interaction between electromagnetic fields and the heart.

## EARLY RESEARCH

In 1746 Pieter van Musschenbroek of Leyden built up static electricity in a moving glass sphere then grabbed a gun barrel and shocked himself. He would write, "Suddenly my right hand was hit with such force, that my whole body shook as though struck by lightning...my arm and whole body were affected more terribly than I can express...In a word, I thought I was done for."

A one-pint "Leyden jar" delivered a shock about one hundred times less than what is considered dangerous today. The jar entered the world of medicine to treat diseases as electrotherapy, and was widely used with some notable successes prior to the 1900s.

In 1780 Luigi Galvani discovered that an electric spark would make the legs of a dead frog twitch. Alexander von Humboldt became interested in this research and published a book on his work in 1797. In some of his experiments with the hearts of frogs, lizards, and toads he found that he could increase the pulse rate of a dissected heart by exposing

it to electricity, in some instances doubling the pulse rate. He was not alone in this observation that electricity could alter the pulse rate, usually increasing it.

Electrification of medical patients became a common practice after the discovery of the Leyden jar. The treatment produced undesirable side-effects for many including dizziness, confusion, headaches, nausea, weakness, fatigue, and heart palpitations. The electricity was noted to increase blood flow, slow blood clotting and sometimes trigger nosebleeds.

Benjamin Wilson experimented on his servant who volunteered to be electrified in 1748. On the fourth experiment, his pulse increased and he felt a violent pressure at his heart which lasted for about four hours. He felt pain in the heart, eyes, and joints.

By 1869 electric wires had been spread along telegraph and railroad lines throughout and between major cities. In that same year George Miller Beard, a physician described a new disease which he named "neurasthenia" which means weak nerves. The disease had actually been described in a medical textbook by Austin Flint in 1866. It was characterized by fatigue, aching limbs, and mental depression.

Neurasthenia became a common diagnosis. Margaret Cleaves,

a physician, who suffered with the condition much of her life, published the *Autobiography of a Neurasthene* in 1910. She suffered with the common symptoms characteristic of the disorder called neurasthenia including heart palpitations, chronic fatigue, poor digestion, headaches, and sensitivity to loud noises.

Cleaves was a founding and active officer of the American Electro-Therapeutic Association. She exposed herself constantly to electricity and radiation which she used routinely in her therapies.

In 1885 German physician Rudolf Arndt connected neurasthenia to electricity. In 1894 Sigmund Freud reclassified neurasthenia as an anxiety neurosis rather than a physical problem. The symptoms included those associated with neurasthenia including irritability, heart palpitations, arrhythmias, and chest pain.

Today there is a great deal of overlap between PTSD, chronic fatigue syndrome, and anxiety disorders. Freud ended the search for a physical cause of these symptoms and set the stage for the use of medications to treat the symptoms. The Russians rejected Freud's redefinition of neurasthenia and instead identified it with toxic exposures including electricity and electromagnetic radiation.

A new name for the symptoms did not do away with the condition. The advent of the telegraph was accompanied with sickness. In 1903 Dr. E. Cronbach reported on 17 of his patients with the disease. Among many other symptoms three suffered with irregular heartbeats.

Telegraph illness was followed by a cluster of symptoms associated with telephone operators. These people often suffered with weakness and exhaustion, difficulty sleeping and inability to concentrate. They often had ear and eye problems and experienced racing pulse, palpi-

tions, and pains in the region of the heart and pressure in the chest.

Railroads were often bounded on either side by telegraph and electrical lines. Railroad workers and passengers often experienced "rapid heartbeat, bounding pulse, facial flushing, chest pains, depression and sexual dysfunction."

#### REFERENCE:

Firstenberg, Arthur, *The Invisible Rainbow*, London, UK: Chelsea Green Publishing, 2020, 7, 23-25, 35, 51-65.

## RADIO AND ILLNESS

Giuglielmo Marconi built a radio tower in 1897 that was about 12 stories high on the Isle of Wight. This was the first permanent radio station and it vibrated close to one million cycles a second. The early radio stations were huge with aerials that covered acres and multiple towers that stretched high into the sky.

Marconi began to experience health problems early in his work with electricity. While on honeymoon with his second wife in 1927 he collapsed with chest pains and was diagnosed with a severe heart condition. Between 1934 and 1937 he had nine heart attacks. The last one was fatal. He was 63 years old.

Thomas Edison died of complications of diabetes at 84. The light bulb may have altered his melatonin decreasing his sleep (no more than four hours at a time) and contributing to the diabetes.

Nicolai Tesla suffered a nervous breakdown while working at his first job at the American Telephone Company in Budapest in 1880. He experienced hypersensitivity of perception and later obsessive compulsive disorder and may have had Alzheimer's when he died at 86 years of age.

Vast networks of radio stations were built during World War I. Many of these were activated near the end of the war or shortly after. Activation of all this radio and signaling equip-

ment coincided with the outbreak of the Spanish flu which killed far more people than the bloody war had.

Some of the worst cases of the flu were characterized by bleeding through the nose, eyes, ears and skin. This could have been due to scurvy or the effects of electricity which tends to prolong bleeding time.

#### REFERENCE:

Firstenberg, Arthur, *The Invisible Rainbow*, London, UK: Chelsea Green Publishing, 2020, 99-105.

## HISTORY OF RESEARCH

Magda Havas has been researching electromagnetic fields for decades. In one study she demonstrated heart rate variability provoked by proximity to a 2.4 GHz cordless phone. She concluded, "...our results demonstrate that pulsed microwave radiation...affects the autonomic nervous system and may put some individuals with pre-existing heart conditions at risk when exposed to electromagnetic frequencies to which they are sensitive."

Elsewhere Havas notes the symptoms of sensitivity: "Some people who are electrically hypersensitive complain of pain or pressure in the chest area, heart palpitations, and/or an irregular heartbeat, accompanied by feelings of anxiety that develop rapidly. The symptoms resemble a heart attack and thus contribute to even more anxiety."

Mohamed and associates studied the effects of electromagnetic fields from the cell phone on 110 adult albino rats. The researchers concluded, "...long term exposure to cell phone EMF increases the liability for hypertension reflected on the ECG and cardiac weights which is accompanied by histopathological changes in the myocardium. In addition, an interaction of EMF with biological functions was achieved in the form of increased PRA (plasma renin activity), decreased plasma

total antioxidant capacity, and hypocalcemia." High PRA in humans is a predictor of mortality from heart disease. The decreased antioxidant capacity of the blood is not healthy and the hypocalcemia may contribute to delayed clotting and excessive bleeding when wounded.

Borkiewicz and associates in Poland found heart abnormalities among workers exposed to radio frequency EMF. They wrote, "The changes in resting and/or 24-h ECG records varied in type and influence on cardiac function--from impairments of ventricular conduction to dangerous heart rhythm disturbances."

A study by Savitz in 1999 of almost 139,000 electric utility workers found that "Indices of magnetic field exposure were consistently related to mortality from arrhythmia and acute myocardial infarction, with mortality rate ratios of 1.5-3.3 in the uppermost categories."

A utility industry funded study by Johansen and associates in 2002 argued that male utility workers did not have increased implants of pacemakers. The paper notes that a paper by Sahl and associates "observed significantly greater rates of mortality from major cardiovascular diseases (rate ratios were 1.3-1.8) in all groups likely to have been exposed to electromagnetic fields than among administrative employees."

Sastre and associates exposed sleeping volunteers to an intermittent 60-Hz magnetic field. They noted, "The changes seen as a function of intermittent magnetic field exposure are similar, but not identical, to those reported as predictive of cardiovascular morbidity and mortality."

Jakus and associates conducted a study in 2020 on the effects of electromagnetic field upon the heart rate variability of rabbits. The researchers concluded, "the higher vagal activity

could be associated with increased risk of cardiac arrhythmias leading to sudden death, therefore, this issue seems to be very important."

A study by Azab and associates in 2017 found that exposure to electromagnetic fields induces oxidative stress in the cardiovascular system. The researchers concluded, "It can be concluded that exposure of human and experimental animals to EMFs have been a negative effect on the heart and blood vessels by causing a histopathological changes and disturbances in the functions of the organs of the cardiovascular system." In this study lipid peroxidation and depletion of antioxidants like vitamin E was achieved with exposure to cell phone radiation for varying periods of time.

#### REFERENCE:

Havas, Magda, Replication of heart rate variability (HRV) provocation study with 2.4 GHz cordless phone, *Proceedings - 7th International Workshop on Biological Effects of EMF, Oct. 2012 (Malta)*. ISBN 978-99957-0

Havas, Magda, Radiation from wireless technology affects the blood, the heart, and the autonomic nervous system, *Reviews on Environmental Health*, Nov 6, 2013;28(2-3):76-84.

Mohamed, Fatma A., et al., Study of the cardiovascular effects of exposure to electromagnetic field, *Life Science Journal*, 2011;8(!):260-274.

Bortkiewicz, A., et al., Risk of cardiovascular disturbances in relation to exposure to electromagnetic fields, Nofer Institute of Occupational Medicine, 90-950 Lodz, Poland.

Savitz, D.A., et al., Magnetic field exposure and cardiovascular disease mortality among electric utility workers, *Am J of Epidemiology*, 1999;149(2):135-142.

Johansen, Christopher, et al., Risk of severe cardiac arrhythmia in male utility workers: A nationwide Danish cohort study, *American Journal of Epidemiology*, Nov. 2002;156(9):857-61.

Sastre, A., et al., Nocturnal exposure to intermittent 60-Hz magnetic fields alters human cardiac rhythm, *Bioelectromagnetics*, 1998;19:98-106.

Jakus, Jan, et al., Radiofrequency Electromagnetic Field Affects Heart Rate Variability in Rabbits, *Physiol. Res.* 69: 633-643, 2020.

Azab, A.E., et al., Exposure to electromagnetic fields induces oxidative stress and pathophysiological changes in the cardiovascular system, *J Appl Biotechnol Bioeng*, 2017;4(2):00096.

## PORPHYRIA AND EMF

Those with porphyria may have

increased sensitivity to electromagnetic fields due to their oxidative potential. Porphyria is a metabolic disorder where the body can not properly make haem (or heme), but instead churns out toxic porphyrin molecules, some of which have a purple color. Porphyria is derived from the Greek word for purple. The urine of people with this disorder is often dark or reddish in color when the disease is active, darkening further after exposure to light.

Haem proteins are critical for the hemoglobin of the red blood cells which carries oxygen throughout the body. It is also essential for the functioning of the cytochrome P450 enzymes which is how a great deal of detoxification takes place in the human body. The enzymes got their name because they react to 450 nanometer wavelength light when bound to carbon monoxide. Thus it was designated Chrome Pigment-450 nm. Chrome is a blue color. The "cyto" simply refers to the fact that the pigment is found in cell walls.

This is a pigment which interacts with a narrow band of the electromagnetic spectrum. It is entirely possible that other parts of "the invisible rainbow" also interact with haem and porphyria.

Rochlitz writes, "Official symptoms of a classical acute porphyria attack can include abdominal pain or other pain, anxiety/panic, nausea, constipation, rapid heart rate, hypertension, confusion and breathing difficulty." He writes, "The porphyria attack often seems like an anxiety attack to all too many medical personnel."

Blom and associates wrote, "Our findings indicate a parasympathetic dysfunction in patients with intermittent porphyria. This may be causally related to sudden cardiac death and the life-threatening arrhythmias which have been observed in this



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disorder.”

The oxidative stress associated with strong electromagnetic fields runs the risk of those with a tendency toward porphyria to suffer active symptoms. Rochlitz suggests that a risk of porphyria may include as much as 10-20% of the population.

Zahlten noted that “The pulse rate has been found to be a good indicator for judging activity of the disease.” He lists abdominal pain (90%) and tachycardia (83%) as two of the most common symptoms indicative of an active attack of porphyria.

Since there is a good deal of nervous tissue in the gut, it is possible that there is heavy involvement of neural tissue in both the digestive tract and the heart (see Michael Gershon’s book *The Second Brain*). Since others have linked EMF to cognitive impairment this would not be a far stretch.

### REFERENCES:

Rochlitz, Steven, Porphyria: A cause of chronic illness, *Nexus Magazine*, Dec. 2010-Jan. 2011: 31-36, 78.

Shazia Tanvir, et al.. Effects of 3G cell phone exposure on the structure and function of the human cytochrome P450 reductase. *Bioelectrochemistry*, Elsevier, 2016, 111, pp.62-69. [ff10.1016/j.bioelechem.2016.05.005](https://doi.org/10.1016/j.bioelechem.2016.05.005) [ff.fhal-01336812](https://doi.org/10.1016/j.bioelechem.2016.05.005)

Blom, H., et al., Assessment of autonomic nerve function in acute intermittent porphyria, a study based on spectral analysis of heart rate variability, *Journal of Internal Medicine*, August 1996;240(2):73-79.

Zahlten, Rainer N., Hepatic Porphyrias and Heme Metabolism, *Medical Grand Rounds*, University of Texas Southwestern Medical School of Dallas, June 4, 1981.

## CONCLUSIONS

The evidence that electromagnetic fields may be contributing to cardiovascular problems including atrial fibrillation, arrhythmias, and tachycardia is pretty strong.

Among the worst exposures to EMF are cell phones and cordless phones, cell phone antennas, Wi-Fi routers, fluorescent lights, electric blankets, smart meters, and dirty electricity in the wiring of the home.

If cell phones can interfere with mechanical pacemakers (and they can) it should not be surprising that they could interfere with our natural pacemaker in the heart. Once research group concluded, “Although the electromagnetic interference interactions of cellular phones on pacemaker function were observed in relatively small number of our patients, we were of the opinion that pacemaker-dependent patients

should avoid the use of cellular phones.”

### REFERENCES:

Raden G, Pavlović P, Vucinić Z, et al. [The effect of cell phones on pacemaker function]. *Vojnosanitetski Pregled*. 1999 Sep-Oct;56(5):491-497. PMID: 10645153.

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