

In search of a mechanism to explain electrosensitivity

Research in the UK

by Patty Hemingway RMANM



Patty Hemingway is first and foremost a homeopath but she has also learned to use EFT, muscle testing and NAET (Nambudripad's Allergy Elimination Technique) with the aim of being better able to treat people with ES. She is herself moderately sensitive but has radically changed her lifestyle to halt the progression of this condition. Patty is a member of the European Working Group established by Dr Carlo to advance the diagnosis and treatment of ES. She practises in South West London.

On Sunday, 7 September, an audience of over 100 people suffering symptoms as a result of exposure to electromagnetic radiation (EMR) assembled at The Friars, a tranquil and EMR-free priory in Kent, to hear the results of the first clinical research carried out in the UK.

We sat in the gloom of a rainy autumnal day (all lighting being prohibited because of the extreme sensitivity of some people present) while Dr George Carlo, an epidemiologist working with the Science and Public Policy Institute (SPPI) and Safe Wireless Initiative (SWI) in Washington, took us through what had come to light as a result of his analysis of the 256 UK cases, which made up this study, carried out over the last 12 months. Many of the people present had contributed to this data, and were clearly extremely ill as a result of exposure to EMR, and had come in search of help and treatment for this disease.

Dr Carlo explained why this can indeed be classified as a disease. He had identified key markers which he said defined this condition as a medical disease, rather than a functional impairment caused by environmental pollution. To date, these sufferers have found it difficult to convince medical doctors that they are ill, and what little research has been carried out into this condition (www.powerwatch.org.uk) has focused on proving that these people's symptoms are psychosomatic, brought on by the so-called nocebo effect. This is the opposite of the placebo effect, and an example would be if someone who is told that a mobile phone is

switched on responded by developing symptoms, even if the phone is not emitting any radiation, because they believe that mobile phone radiation is harmful, and can affect their health.

The Swedish government put legislation in place in 2002 which classified this condition as a functional impairment, without waiting for evidence of disease pathology. This means that, although in Sweden people with electrosensitivity (ES) do not have a condition recognised as a medical disease, they do have the same entitlements as disabled people. Their basic human rights have been protected, and they have the right to EMR-free workplaces and accommodation, with provision made for them to move around comfortably on public transport.

No such allowances are made in the UK and the people who managed to travel to the conference at The Friars had spent days and nights travelling from all parts of the country, often with the assistance of friends and fellow sufferers, using back lanes and shielded cars, camping on the way in safe places because so many hotels have wireless internet connections operating. Some had to spend the day wrapped in protective fabric to shield themselves from stray EMR from people passing with their

mobile phones switched on or electrical sources in the room, and the meeting had to be wound up at 6.30pm when it became too dark to see because few could tolerate fluorescent lighting.

Research into electrosensitivity
Dr Carlo drew on research from epidemiological studies, as well as the UK Survey and clinical data from a clinic in Florida where people with ES are being treated. Some scientists might criticise this type of research for not being experimental, but Dr Carlo insisted that

Historically, this is the type of work that has given us the earliest clues in curbing every major public health threat in the modern world, making it a critically important complement to epidemiology and experimentation.

Based on clinical diagnosis, case histories detailing symptoms, and laboratory markers, he has identified a common pathological process at work in several conditions (multiple sclerosis, autism, post-traumatic stress disorder and alcoholism) which he says are triggered by what he has termed membrane sensitivity syndrome, with electrosensitivity being a sub-category.

Membrane sensitivity syndrome
According to Dr Carlo's working definition of MSS the normally permeable cell membrane becomes locked down when the cells' vibrational receptors perceive a threat from unfamiliar, external radio frequencies. When the cell replicates, this ion channel impermeability is passed on to the new daughter cells, leading to epigenetic



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changes (a change to the gene structure) over a relatively short time span. Most soft cells in the body turn over within six months.

The cells remain in sympathetic lock-down and do not revert to parasympathetic mode because the radio wave generated by unnatural electromagnetic fields is a standing wave, and remains in place, unlike most other stressors which come and go, allowing the cell to move between states.

In ES, cell communication is compromised because intercellular communication is not possible if the cell membrane is impermeable. Without the system working as it should, erroneous signals affect parasympathetic monitoring, and the response of the sympathetic nervous system at cellular and organ level.

In addition, waste products build up inside the locked-down cells, including free radicals which cannot be excreted. These congregate round the mitochondria and slow

down energy production until the cell becomes deficient. At this point DNA breaks can occur, and the free radicals are in place to disrupt any attempt at repair, resulting in genetic interference.

In Dr Carlo's words:

... the cell membrane damage leads to a cascade of effects, including

People who suffer from ES would like to see more of these signs.

ES sufferers have found it difficult to convince medical doctors that they are ill

disruption of inter-cellular communication which compromises the functional efficiency of cells, tissues, organs and organ systems; and intracellular build-up of free-radicals including heavy metals which leads to cellular dysfunction, genetic damage and vertically transmitted epigenetic changes. Patients with severe cases become disabled and bedridden.

How electromagnetic fields trigger ES

Living organisms are used to responding and adapting to natural electromagnetic fields (EMFs) and frequencies such as sunlight, cosmic radiation and earth radiation. However, these natural sources of EMFs are of two distinct types: spatially coherent or temporally coherent. Spatially coherent EMFs are three-dimensional and stay coherent as they pass through space. Temporally coherent EMFs have identifiable patterns of frequency, and our bodies have evolved to adapt to these so that they do not trigger a sympathetic reaction.

The new wireless technologies are different from either type of natural EMF because they involve information-carrying radio waves (ICRWs) needed to carry packets of information, and these combine spatial and temporal coherence. It is this combination which the body detects as alien, because there is nothing like it in nature. So, the problem seems to be the ICRWs, which are standing waves. They act as a constant stressor causing the cell membrane to lock-down, and remain in the sympathetic mode. A state of hypersensitivity develops and those who are susceptible can react to other allergens, which is why a diagnosis of ES is often accompanied by multiple chemical sensitivity.

Why some people develop electro-hypersensitivity

Clearly, individual susceptibility determines who becomes ill, and how quickly, as some people are able to move back into parasympathetic mode easily while others become stuck after exposure to ICRWs; so, what induces ES?

Dr Carlo reported that his research so far indicates that:

- 1 The aetiology involves significant exposure to ICRWs.
- 2 There is a precipitating event such as a bacterial or viral infection, post-traumatic stress, severe chemical exposure, an

- automobile accident, snake or insect bite. (Some people pointed out that in their experience other possibilities could include heavy metal toxicity, adrenal exhaustion or burn-out, and systemic candida.)
- 3 ES is more frequent in women than in men, by a ratio of 2:1.
- 4 Older people are more susceptible, so the effect tolerance lowers with age.
- 5 Most sources of electromagnetic radiation, whether natural or manufactured, appear to exacerbate symptoms in those with ES.
- 6 However, not all sources of EMR appear to be causative of ES. Microwave ovens for example, do not appear to be inducers but they can exacerbate ongoing symptoms.
- 7 Ad hoc clinical observations suggest that patients with non-EMR related conditions require higher doses of medication to achieve the desired effect when they are regularly exposed to EMR. For example, medication

There is no single test for ES because the symptoms vary and are often identical with symptoms of other diseases

- given to treat diabetes or hypertension has to be increased.
- 8 Detoxification protocols work better for patients in non-EMR environments, as shown by clinical observations and research into the chelation of heavy metals in autistic children (Mariea and Carlo, 2007).

Diagnosing ES

Dr Carlo claimed that:

The collective post-market surveillance data suggest that cell membrane damage caused by information carrying radio waves that are not spatially and temporally coherent, leads to a progressive illness, beginning with symptom-derived functional impairment and leading to a definable medical diagnosis based on laboratory markers indicative of systemic effects.

He has identified three stages to this progressive medical condition:

Stage 1 – Take the case

In phase I, which involves *functional impairment*, patients

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report symptoms of fatigue, sleep problems, tingling in the extremities, and pain in the head and neck.

If a patient moves into phase II, the *debilitating progression* phase, then they experience headaches, heart palpitations, inability to focus, light-headedness, dizziness, memory loss, poor concentration, sensitivity to noise and light, and alcohol intolerance.

By phase III they are very ill and require *medical intervention*, and symptoms include dry painful and bleeding eyes, excessive sweating at night, extreme irritability, fits of anger, nausea, blood in stool, ringing in ears, skin rashes and bumps, and vision impairment.

Dr Carlo says that data shows that if the ICRWs are removed from the environment while a patient is in phase I or II, then the symptoms will subside. This is something that any practitioner can suggest their patients try (provided they know where the ICRWs are coming from and understand how to shield and protect themselves).

Stage 2 – Clinical examination

People affected by ES will have some or all of the following symptoms:

- cervical inflammation and tenderness when examined – especially to the left of C2/C3 (2nd and 3rd cervical vertebrae), where there is a palpable tender spot
- extremely tight shoulder muscles
- irregular heart rhythms as shown by ECG
- deficits in short term memory and focus as demonstrated by cognitive testing
- changes to hearing and vision
- loss of blood pressure adaptive variability if they are in sympathetic stress, i.e. blood pressure remains high
- responses to applied muscle testing or kinesiology, when tested for allergy to EMFs.

Stage 3 – Laboratory tests

These tests are still being developed and their usefulness in diagnosis is still being assessed. There is no single test for ES because the symptoms vary and are often identical with symptoms of other diseases,

so it is useful to carry out a series of tests:

- TBARS (thio-barbiturate reactive substances) is a serum blood test looking for malondialdehyde as the strongest marker for cell membrane oxidative stress, and ROS, RNS lipid peroxidise reaction. This test is currently being developed by a laboratory in the US.
- Blood serum test for total anti-oxidants (including glutathione) to measure the free radical load in interstitial space: ecto-membrane stressors.
- Saliva test for DHEA as a marker of oxidative stress induced inflammation.
- Saliva test for cortisol as a marker of systemic stress response.

ES can be triggered by excessive mobile phone use over many years.



- Tests to assess the degree of functional ion-channel permeability using the ratio between interstitial and intracellular metals as an indication. If the tests on hair, faeces and urine are repeated at intervals, the amount of toxic metals should increase with treatment as cell membranes relax and allow toxins to be released.
- A blood serum test to show neuro-transmitter panel (monoamines: norepinephrine, dopamine, serotonin) can be useful as a marker of gap junction intercellular communication function.

Treatment for MSS-ES

Dr Carlo explained that his team ‘have worked out differential diagnosis protocols and some treatment strategies that are showing great promise,’ and shared with us the protocol being introduced in clinics in the US associated with this research.

Dr Carlo stressed the importance of the patient remaining in an EMR free environment at all times during treatment, and that only the treatments listed should be used, and the sequence adhered to. Other supplements would be counterproductive, he explained, because the ion-channels

needed to be kept clear to allow cellular detoxing. Average time scales are given for each part of the treatment, and regular checks and tests determine when a patient is ready to move to the next stage.

1. Neurological re-balancing (weeks 1 – 3)

The aim is to stabilise DHEA and cortisol (hormones produced by the adrenal glands and considered to be markers of systemic stress). Treatments in this phase include yoga, massage, meditation, and therapies such as Network Spinal Analysis to calm and balance the central nervous system. During this phase the patient stops taking all supplements.

2. Ion-channel opening (weeks 2 – 6)

A form of supplemental magnesium chelated with amino acids >

- is given to energise the mitochondria and encourage the ion-channels to re-open.
3. **Mitochondrial enhancement (weeks 3 – 6)**
Mitochondrial function needs to be enhanced at this stage or more toxins will enter the cells through the newly opened ion-channels.
 4. **Interstitial cleansing (weeks 6 – 8)**
Once the ion-channels are open and the mitochondria are healthy, then the toxins in the interstitial space can be cleared.
 5. **Intracellular detoxification (weeks 8 – 12)**
Now it is safe to allow the release of toxins from within the cells.
 6. **Cell membrane re-building (months 3 – 18)**
Symptoms will have subsided by this point, but an extended period of repair is necessary to re-build cell membranes, using supplements and nutrition, and keeping the patient free from EMR.

If all organisms respond to EMR, then it is only a matter of time before greater numbers of us fall ill

Dr G Carlo

Dr George L Carlo is a medical scientist, author and lawyer, and presently the chairman of the non-profit Science and Public Policy Institute (www.sppionline.org) in Washington DC. He is a fellow of the American College of Epidemiology. His current work addresses the dangers of wireless technology and the implementation of appropriate corrective interventions (www.safewireless.org).

Dr Carlo stressed that clinical evaluation of this treatment protocol continues, and said that:

... we are now sharing and studying variations on this protocol from those within our network of clinicians, here and in the US as this research continues.

The experience of UK practitioners

Once Dr Carlo had delivered his research results, those present had an opportunity to discuss their health issues with a range of practitioners (see box on page 43) who all have experience of treating ES and allergies.

As I listened to people's case histories I realised the depth of their despair at the lack of treatment generally available. Some had tried detoxification protocols, homeopathy, supplements, kinesiology and other CAM treatments, with varying success, but none had provided a cure. This may have been due to the fact that they could not escape from EMR, the maintaining cause.

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Advisors and practitioners at The Friars

Sarah Dacre, trustee of ES-UK, a charity offering support to people with ES. www.es-uk.info or BM Box ES-UK, London, WC1N 3XX

Dr David Dowson, ex-GP specialising in complementary medicine

Patty Hemingway, registered homeopath, www.pattyhemingway.co.uk

Glynn Hughes, advises on products for detection and shielding of EMR, www.wireless-protection.org

Gary Johnson, cellular vibrational therapist, designs and produces protection devices, www.subtlefieldtechnologies.com

Roger Moller, offers electromagnetic surveys and runs workshops on how to protect yourself, www.electricforester.co.uk

Elizabeth Oliver, nutritional therapist and homeopath

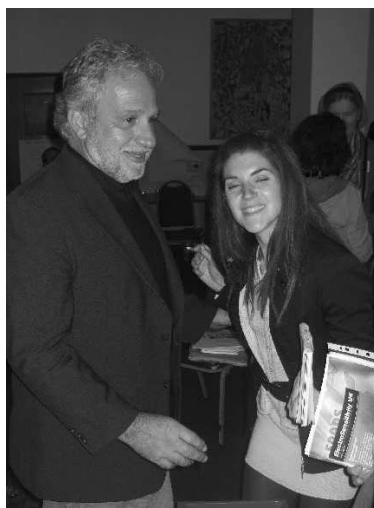
Alfred Riggs, geo-biologist, www.alfredriggs.com or 01233 620036, advises on surveys to detect sources of radiation, and how to avoid it.

It is expensive to screen your environment completely or move to a safer area. Most had been unable to work for some time, as workplaces were unsafe and made symptoms worse, so paying for any complementary healthcare or shielding was extremely difficult.

Many were confused about how to help themselves, or even where to start with so many different non-specific treatments on offer. I spoke to one young man who was prepared to pay thousands of pounds to have his amalgam fillings removed in one operation (no alternative therapist would ever advise such a traumatic procedure), when his priority seemed to me to deal with the candida that was weakening his system, but first he had to overcome his addiction to alcohol. His ES was merely the latest layer of disease. I was the first alternative practitioner he had spoken to.

Dr Carlo's research provided answers to some of the questions that those of us who regularly see people affected by EMR had been asking, but it also raised new questions about approaches to treatment. What happens after someone has completed Dr Carlo's programme? Surely the original susceptibility remains unless that too is treated. Given that pollution from e-smog is set to become denser, then a fresh round of ES could be triggered.

Dr Carlo has given a much needed boost to the campaign in the UK for ES to be treated as a medical disease, but research alone cannot determine the future for those who need help. It needs the



Dr Carlo with a participant during a break at the SWI conference.

political will to recognise that the radiation from wireless communications causes injury, and stricter regulations for its deployment are needed, as are medical treatment for people already affected, and protected environments for recovery. If, as Dr Carlo asserts, all organisms respond to this EMR, then it is only a matter of time before greater numbers of us fall ill.

Finally, I want to share with you something astounding that I learned as a result of research carried out by Dr Carlo's team, who continues to test new mobile phones and other devices for safety – something that the manufacturers are not required to do before bringing a product to market, although they do have to remain within the SAR (specific absorption rate) guidelines, which is simply a measure of the power needed to heat tissue. It seems that the iPhone, which was launched two

years ago, works as a 'repeater phone'. This means that in order to send or receive messages it bounces the signal to the next nearest iPhone and continues to send it from phone to phone until it reaches a mast. Even if the iPhone in your pocket is switched off it is still enabled to work as a repeater phone for other iPhones in the area, turning anyone in contact with the iPhone into a human base-station or mast for other phone users. As Dr Carlo puts it:

SPPI and our partners continually monitor technology as part of our post-market surveillance work. We have noted measurable ICRW from iPhones that are in the 'off' position. In the 'airplane mode' the fields are not measurable. The field work indicates that the iPhone has a repeater function. Most recently, Steven Jobs, Apple's chief, admitted publicly that the iPhone can be tapped into from a central location for the purpose of removing and modifying software within the iPhone. That is another characteristic that has not before been reported with mobile phones: the ability of the carrier to tap into the phone and modify data. For this to happen, there would need to be a continuous access mode as well.

This information does not feature on the packaging, but now that the secret is out, other manufacturers who had wondered how an iPhone could provide so many functions with such a low SAR of only 1.6w/kg, might be using a similar system in future, exposing phone users to even more radiation, and risks to health.

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