Wireless Radiation Acts as a Biologic Toxin to the Nervous System

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Abstract:

Wireless Technology has rapidly expanded into our culture giving us immediate access to information, communications for emergencies, personal connection and the ability to purchase items instantaneously. Most uses for wireless technology are being developed in schools, the workplace and in medicine. Cell tower expansion is being rapidly deployed in cities, schools and hospitals.

The population is now experiencing higher and more constant exposures, now beginning in utero for the youngest generations. See Figure 3.

Current standards for radiofrequency radiation emitted from wireless devices and cell towers is based only on heat effects, despite numerous studies showing harmful biological effects at much lower non-thermal levels. Adverse effects on the intact immune system, nervous system and reproductive systems are being demonstrated in the laboratory and clinically. (Pal 2018) For children, evidence is accumulating that digital technology may hamper learning, behavior and memory as well as contributing to many other disease states. (Leach 2018)

Figure 3. Are observed cognitive effects psychosocial due to overexposure or is non-ionizing wireless radiation causing direct injury to neurologic processes, with long term exposure and/or at critical windows of development?

Adverse Biologic Effects of Digital Technology on Memory and Learning in Children

Brain development begins in the womb and continues through the early adult years. The complex biology of neurodevelopment can be easily disrupted by toxic exposures depending on the type of substances, the level of exposure, the duration of exposure, and most critically, on the timing of the exposure during the developmental process. Genetics are also a factor. Toxic influence can alter the foundational structures of the brain, resulting in lifelong impairment of learning, behavior, and general health as the nervous system, immune system and reproductive systems are interrelated in development and function. (Khangyg 1999)

Absorption of Radiofrequency Radiation is Higher in Children

Children have thinner skulls and higher brain water content, thus the brain is more sensitive to radiofrequency radiation. (Khan 2016; Longo 2014) The study shows that children absorb much more radiofrequency radiation in the presence of wireless devices.

Direct Cellular Harm to the Nervous System From Radiofrequency Radiation

The brain and nervous system are considered to be the most sensitive targets organs for radiofrequency radiation. Recommendations have shown direct harm to cellular processes from non-thermal exposures to wireless radiofrequency radiation. These include:

- Damage to hippocampal neural networks. (Douaud 2018; Papanicolaou 2018; Taha 2015)
- Decreased neurotransmitter concentrations (mood: (Farooq 2015; Absolam 2013)
- Demethylatization (white matter) (Kim 2017)
- Oxidative stress and inflammation (headache, sleep disturbance, fatigue, memory) (Valko 2016; Nakao et al 2015; Saint-Louis 2012)
- DNA Damage (Deshmukh 2015; Luck & Logan 1996)
- Apoptosis (apoptosis) in neuron (Gopinath 2016; Kar 2015; Vazquez 2018)

Neurobehavioral Effects of Radiofrequency Radiation

Scientists have observed a variety of adverse neurologic effects with exposure to wireless technology including:

- Cognitive impairment (Deshmukh 2015; Desmett 2016; Hranilovic 2017; Magia 2012)
- Memory (Brenner 2018; Schubart 2013)
- Learning (Shahal 2018; Wang 2009)
- Depression (Pal 2015)
- Social behavior/ADHD (Elton 2012)
- Ill health/fatigue/sleep (Scherm 2017; Shafa 2016; Pal 2015)
- Prenatal effects (Beke 2017; Oduham 2017; Zour 2015; Allday 2015)

Health and Electrosensitivity Near Cell Towers

A variety of reports show general health symptoms including headache, insomnia, memory loss, fatigue, dizziness, nausea and irritability when a cell tower, emitting constant radiofrequency radiation exposure, is placed within about 1200 feet of a residence. These are typical symptoms experienced by those with electrosensitivity when in the presence of wireless devices.

- Bogan RP (2018)
- Bockenefsky A (2013)
- Mari C and Mari M (2014)
- Santama et al (2005)
- Kokodynska 1996
- Ghandi 2018
- Siddoo 2018

Conclusions:

1. Multiple studies indicate that wireless radiofrequency radiation acts as a biologic toxin with an oxidative mechanism similar to other environmental toxins. It can cause direct damage to cells and processes in the nervous system that are associated with memory, learning and behavior and can affect all living organisms. (Siddoo-Arwal 2018)

2. Wireless radiation can have cumulative long term effects including cancer and neurodevelopmental harms

3. Wireless radiation can cause acute and chronic symptoms of electrosensitivity in a population of people who live near cell towers or who use wireless devices.

4. EMR exposure can be considered a Modifiable Risk Factor for neurologic as well as psychosocial health and well-being.

Recommendations:

Precaution in individual and community exposure to wireless radiation is indicated.

1. Follow 2017 California Department of Public Health Guidelines on Cell Phones; advising adults and children to limit their exposure to wireless radiation (CDPH 2017)

2. Strengthen American Academy of Pediatrics recommendations for digital use to include reducing exposure to wireless radiation. (AAP 2016)


4. Educate the public about limiting exposure to wireless devices in children and adults, including cell phones, tablets, laptop computers, WiFi routers, smart meters, cordless phones, IoT devices

5. Use best practices in schools to limit wireless use, including placing wired or fiber optic connections in preference to wireless systems

6. Do not place cell towers near schools, homes or hospitals.

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Full list of references available at MDSafeTech.org