Medical Xpress

Damping the odds that fireworks will spark seizures

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Bright light that flickers frequently or rapidly, like a strobe light, can trigger seizures in some people – a phenomenon documented in nearly 700 children who were hospitalized in Japan 10 years ago after watching a Pokemon cartoon. The condition is much on the mind of a neurologist specializing in seizure disorders as the 4th of July holiday with all its fireworks approaches.

While Giuseppe Erba, M.D., is not aware of any instance where fireworks have actually caused a person to have a seizure, the physician at the University of Rochester Medical Center says that a few people who are extremely sensitive to flashing light might be at risk during holiday celebrations this week, and he recommends a few precautions.

Like many seizure specialists, Erba treats patients with photosensitivity – an extreme sensitivity to bright, rapidly flickering light that is experienced by some patients with epilepsy and a few otherwise healthy people. In 2004 he led an international committee on behalf of the Epilepsy Foundation that established standards for the video gaming industry to help prevent seizures among gamers, and recently he explained how an animation of a diver used last month to publicize the upcoming 2012 Olympic games in London can cause seizures.

In most people, the brain is able to handle the flood of visual information presented by rapidly flashing lights and repeating patterns. But in some people, the extra stimulation floods the brain and sends cells called neurons into a frenzy in which they fire uncontrollably, causing

seizures. The phenomenon can occur when people watch TV, play video games, dance at a concert or club, or even ride in a car, when they are exposed to rapidly flickering light coming through the trees as the car moves along.

Those at risk include people with epilepsy and relatives of people who have been diagnosed by a doctor as being photosensitive. Erba said that the phenomenon tends to run in families, and children in such families are most vulnerable. Doctors estimate that about three to five percent of people with epilepsy may be photosensitive, although they may never have a seizure caused by lights unless they are exposed to strong, provocative stimuli. As a result, many are at risk without knowing it, Erba said.

For the Fourth of July holiday, Erba offers these tips for high-risk people:

-- Cover one eye during the final barrage of fireworks. That reduces the amount of visual information flooding the brain and is usually enough to prevent seizures among photosensitive patients, while still allowing them to enjoy the fireworks.
-- Don’t get too close to a big fireworks display. People who are sensitive to light should keep bright flickering lights like fireworks to less than half of what their eyes see at any one moment.
-- Get your sleep. Fatigue and sleep deprivation can make people more susceptible.
-- Patients with epilepsy should be sure to take their medication on schedule before viewing fireworks. One common medication, divalproex sodium, also known as Depakote and available in generic form as well, reduces photosensitivity in people with epilepsy very effectively, Erba said. Among people with epilepsy, photosensitivity is most common in adolescents with a form known as juvenile myoclonic epilepsy.
-- Anyone who begins to feel their body jerking while watching

fireworks should cover both eyes immediately. Unlike most seizures, Erba said, those caused by photosensitivity can be stopped once they've begun by cutting off the visual input within one or two seconds.

"The message certainly is not to discourage people from watching fireworks and enjoying the displays," said Erba, a professor of Neurology and of Pediatrics who treats seizure patients at Strong Memorial Hospital and at Golisano Children's Hospital at Strong. "But people at risk should take proper precautions. Children are much more photosensitive, so parents of children in families who have relatives that have had seizures or epilepsy should be extra vigilant."

Source: University of Rochester Medical Center

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