clonic jerks from nodding heads. Imparting knowledge is my second objective, which I hope parallels the lack of nodding heads. I am unsure if "imparting knowledge" is an acceptable objective.

– Joseph H. Friedman, MD

Disclosure of Financial Interests

Joseph Friedman, MD, and spouse/significant other. Consultant: Acadia Pharmacy, Ovation, Transoral; Grant Research Support: Cephalon, Teva, Novartis, Boehringer-Ingelheim, Sepracor, Glaxo; Speakers' Bureau: Astra Zeneca, Teva, Novartis, Boehringer-Ingelheim, GlaxoAcadia, Sepracor, Glaxo Smith Kline, Neurogen, and EMD Serono.

Conflicts: In addition to the potential conflicts posed by my ties to industry that are listed, during the years 2001-2009 I was a paid consultant for: Eli Lilly, Bristol Myers Squibb, Janssen, Ovation, Pfizer, makers of each of the atypicals in use or being tested.

Superstition, Seizures and Science

When facing a terrible sickness, despairing therapies have always been society's response to the plea, "Do something!" But if you don't know your destination, the likelihood of getting there becomes remote. Similarly, if the underlying mechanism of a disease such as epilepsy remains elusive, the chance of finding an effective therapy becomes equally remote.

The history of the search for a meaningful therapy for those burdened by repeated convulsions has been a painful voyage through strange territories, a tale of failed interventions, desperate treatments and irrational measures. Indeed, most of those treatments resembled more the art of the fugue than exercises in intelligent reasoning.

Despite the secular teachings of Hippocrates, the dominant thinking in the Classical Era had been that epilepsy resulted from supernatural, evil forces. Indeed, its very name, epilepsy, is a Greek word defining the condition of being seized, captured or overcome, with the implication that the grasping was undertaken by a nameless, outside entity.

Effective therapy could only be achieved, then, by resorting to interventions that could overcome those unworldly, shadowy forces, forces that inevitably must have been evil. Thus appeals were made to such personages as St. Ignatius, who had driven the devils from many epileptic victims, St. Valentine (whose priory in Alsace was the goal of many pilgrimages undertaken by victims of epilepsy) and, of course, St. Vitus, whose very name defined a class of abnormal movement disorders in helpless humans. In general, people believed that evil could be vanquished solely by spiritual rather than material talent; therefore therapy, rendered with contriteness and humility, must be confined to prayer, instruction and fasting.

Alternatively, there were those, particularly in primitive cultures, who believed that the roots of epilepsy lay in the victim's head rather than in his spirit. Some early treatments were directed therefore to the victim's head, through cauterization of the scalp and even by boring holes (trephining) in the living skull. Indeed, many a prehistoric skull shows evidence of trephination.

If, on the other hand, epilepsy was caused by some ill-defined poison, a toxin perhaps, then efforts would be directed toward a search for some counteractive chemical. During the Middle Ages - and beyond the customary measures employed for the care of epileptics such as blood-letting, purging and the use of emetic agents - four botanicals were routinely prescribed in the vain treatment for epilepsy: mistletoe, garlic, peony and elderberries. The Scottish anthropologist J. G. Frazer (1854 – 1941) stated that many healers affirmed the value of mistletoe because it clung so resolutely to the branches of sturdy oak trees, did not fall to the ground and hence should obviously be used in epilepsy, the falling sickness. (Medieval therapies were often identified by seeking analogies in nature.)

Other known substances to combat the unnamed toxins with the epileptic have included boar's gall, powdered human skull, dragon's blood and the intestinal stones of hawks.

And when all else failed, there was always fresh human blood as a treatment. The blood of slain gladiators in the Coliseum of ancient Rome was routinely fed to epileptic children. Hans Christian Anderson, in his memoirs, recalled witnessing state executions in Copenhagen with parents making their epileptic children drink the shed blood.

By 1850 epilepsy had been consigned to the category of those diseases which, in the words of one contemporary neurologist, were "cryptogenic, inscrutable, and alas, incurable." In 1857, Dr. Charles Locock, obstetrician to Queen Victoria, published a brief commentary describing a trial with bromides that seemed to have suppressed the seizures in a group of young, epileptic women. And thus, gradually from an arena of vast ignorance, did earnest investigators gradually improvise effective, rational treatments for a disease previously thought to be incurable.

In 1920, the German scientist Hans Berger (1873 – 1941) devised the electroencephalograph (EEG), which detected brain waves emanating from the living brain. These electrical waves were captured by electrodes placed on the scalp, conveyed the intracranial impulses by wires to the instrument and expressed as oscillating waves on strips of moving paper. By inspecting these EEG-generated squiggles one can arrive at an objective diagnosis of epilepsy since, by the 20th Century, epilepsy was finally recognized as the systemic manifestations of abnormally discharging, anarchic, nerve cells. In the words of one neurologist, "What is greater magic than for the brain to write its own confession of wrongdoing on a sheet of moving paper?"

Most patients with epilepsy today have their convulsions safely controlled by medications and can lead normal, productive lives unencumbered by social isolation, superstition, ignorant bias, dangerous medicines or societal fear.

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Disclosure of Financial Interests

Stanley M. Aronson, MD, and spouse/significant other have no financial interests to disclose.

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