

OF NOTE

SCIENCE AND SOCIETY

Lethal injection is inhumane, say researchers

Prisoners killed by lethal injection may be conscious and may experience excruciating pain and burning sensations while they asphyxiate, according to a new report.

“The design of the lethal-drug scheme itself is flawed,” say Leonidas Koniaris of the University of Miami and his colleagues in the April *PLoS Medicine*.

The researchers point to low post-mortem blood concentrations of sedatives and several reports of prisoners who required a second round of injections.

No ethical board or oversight group has ever evaluated the three-drug cocktail used by the federal government and by most of the 37 states that execute prisoners, say the researchers.

The cocktail includes the barbiturate sodium thiopental, the paralytic pancuronium bromide, and potassium chloride to stop the heart. Oklahoma’s state medical examiner concocted the mix in 1977 as a more humane alternative to electrocution.

But insufficient sodium thiopental might leave the prisoner aware as the other two drugs take effect, the researchers say, violating the United States Constitution’s Eighth Amendment prohibiting cruel punishment.

The authors based their report on information from North Carolina and California. The two states that execute the most prisoners, Texas and Virginia, refused to participate in the research.

Since the reinstatement of capital punishment in 1976, 891 prisoners have been executed by lethal injection. —B.V.

ZOOLOGY

Sex—perhaps a good idea after all

A family of beetle mites may be the first animal lineage to have abandoned sexual reproduction and then reevolved it.

That’s the conclusion of a study of the mites’ evolutionary history as determined by DNA analysis, says Roy Norton of the State University of New York in Syracuse.

The Crotoniidae mites perpetuate their species through the usual joint efforts of males and females. Yet when Norton and researchers from Darmstadt Technical University in Germany studied DNA to trace a family tree for certain mites, the Crotoniidae ended up as a relatively recent twig on a bigger branch bristling with asexual lineages. Analyzing the physical structures of the mites leads to the same conclusion, says Norton.

The tidiest way to explain the tree’s pattern is that Crotoniidae sex disappeared long ago and then somehow reemerged, he and his colleagues say in a paper published in the April 24 *Proceedings of the National Academy of Sciences*.

The team concludes that the mites represent “a spectacular case” of breaking a supposed law of evolution that says that when complex traits disappear, they’re gone forever. However, researchers have claimed other exceptions. Another team reported the reemergence of sex in a plant—a hawkweed (*Hieracium pilosella*).

Norton, Darmstadt’s Katja Domes, and their colleagues analyzed three genetic sequences from each of 30 species of beetle mites. The study focused on the Desmonomata group, including Crotoniidae and large clusters of asexual species. In the asexual mites, mothers have daughters almost exclusively. The males that occasionally turn up don’t participate in procreation. —S.M.

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