
Anxiety and pain over Valium, Darvon

In a nation of prolific drug-takers, incidents of bad side-effects and even death may be expected to occur occasionally. But the often-elusive point at which a drug's benefits outweigh its risks, and vice versa, continues to fuel arguments among scientists, consumers and certain drug manufacturers. Hanging in the balance of such debates may be the health and safety — perhaps the lives — of hundreds of thousands of people.

Two prescription drugs that currently occupy the spotlight of controversy are Valium (diazepam) and Darvon (propoxyphene). The effectiveness and potential dangers of Darvon as a pain-killer are under investigation by both the Senate and the Food and Drug Administration. And the possibly addicting properties of Valium—generally considered non-addictive, physically, in the past—are being suggested by a growing number of researchers, at least one of whom is calling for severe restriction in the use of the drug.

The problems with Valium are particularly disturbing for two reasons: Researchers and clinicians have failed to recognize its apparent addiction capabilities until now—16 years after its first clinical use; and even though its use has declined in recent years, Valium is still believed to be the most frequently prescribed drug in the United States. Valium, along with Librium, accounted for the bulk of the 128 million prescriptions filled for "sedative-hypnotics" in 1976 (SN: 2/25/78, p. 119).

If Valium is indeed addictive, it does not represent an unprecedented case. "Amphetamine, introduced clinically in 1935, was not realized to be addictive until about 1958," notes Mark L. DeBard, director of emergency services at Greene Memorial Hospital in Xenia, Ohio. Phenobarbital was also thought to be non-addictive until many years after its first use, he says.

In the January *AMERICAN JOURNAL OF PSYCHIATRY*, DeBard describes an apparent case of "diazepam withdrawal syndrome." He tells of a 56-year-old man who, each time he was taken off Valium over a several-year period, developed hallucinations and seizures before lapsing into coma. DeBard concludes that "a physical dependence seems to develop in some patients who use the drug on a chronic basis. More severe withdrawal symptoms seem to be associated with a longer period of use and higher doses, but there is marked individual variation."

However, there is also growing evidence of a low-dose Valium withdrawal syndrome. In a clinical survey of patients taking 15 milligrams to 40 milligrams of Valium a day (DeBard's patient was on 80 milligrams a day), David E. Smith reports

that he found 50 persons who exhibited withdrawal symptoms. "Interestingly, 45 of these patients had a history of alcoholism, although they were not using alcohol at the time of their diazepam withdrawal," Smith, medical director of the Haight-Ashbury Free Medical Clinic in San Francisco, writes in *The Journal* (Jan. 1), a drug and alcohol publication based in Toronto.

Smith and his colleagues "recommend periodic, therapeutic holidays at a reduced or zero dosage level for approximately five days" for long-term Valium takers. DeBard, though, wants even more stringent limitations. No outpatient should take the drug for longer than one month, he says, and doctors should not abruptly discontinue Valium treatment for long-term and/or high-dose patients.

Darvon's narcotic-like potentials have long been known; the questions surround its safety and effectiveness—and the answers are conflicting. Estimates by some witnesses before a Senate committee have ranged from 1,200 to 4,000 Darvon-related deaths per year. Manufacturer Eli Lilly & Co., however, says the drug causes no problems when taken by itself in proper dosages. FDA officials say they know of no deaths caused solely by regulation doses of Darvon but add they have begun a review of the drug's properties. □

Skylab: Can the end be controlled?

The National Aeronautics and Space Administration concedes that it will have no way to direct the Skylab orbiting workshop to a specific spot or swath on the earth when the massive object reenters the atmosphere a few months from now. The agency's only present hope—and it is a slim one—is that it may be possible to make the object reenter a few orbits earlier or later, thus perhaps yielding a final descent over a minimum of populated land area (SN: 2/3/79, p. 71). Even that is a touchy business, relying on the proper functioning of key elements in Skylab's attitude-control system, and NASA is not sure it will try the idea even if it looks feasible from advance studies.

One non-NASA researcher, however, believes that there may be a better way to influence the final orbit than by the space agency's currently envisioned method. In fact, says Marshall H. Kaplan, professor of aerospace engineering at the Pennsylvania State University, it may even be possible to make slight shifts in the general descent route with as little as an hour to go—during the final orbit itself.

The agency plan, now being studied at NASA's Marshall Space Flight Center in Alabama and Johnson Space Center in Texas, would use Skylab's attitude-control system (ACS)—gyroscopes and small gas jets—to shift the object into a position with minimum atmospheric drag a few days be-

fore the final descent and hold it that way for several orbits. The idea is that the more time spent in the low-drag position, the more orbits Skylab could complete before descending to an altitude where the denser atmosphere would finally pull it down. The possible gain comes from the fact that, since the orbits are tilted relative to the equator, Skylab follows a sine-wave pattern over the earth's surface, with each wave pattern displaced slightly from the one before. A delay of several orbits would thus place different portions of the earth along the "ground track" below.

A problem is that the object may well start tumbling more strongly than the ACS can handle (if, for example, one or more of the gyros run out of room to turn in a given direction) at an altitude of about 130 miles, several orbits before final reentry begins. This could leave such large uncertainties in estimates of the final descent path as to make the effort pointless.

Kaplan believes that it may be possible to influence Skylab's behavior at a lower altitude, and without using the gyros. Despite the workshop's asymmetrical shape, Kaplan thinks that it may reach a position of aerodynamic equilibrium—and thus stop tumbling on its own—less than 100 miles above the ground. If so, a few "tweaks" of the ACS gas jets might reveal how Skylab would respond as it descended further, giving a chance to apply the life-prolonging low-drag technique at lower altitudes with proportionally smaller uncertainties, perhaps even in the final orbit. Each minute of change in the impact time, says Kaplan, would shift the impact point about 300 miles along the ground track.

Such low-altitude maneuvers would involve hurried calculations that some NASA engineers doubt are even possible, but Kaplan is developing the idea under a six-month, \$35,000 NASA contract. In the end, help may come from either idea, or neither, or both. □

DSDP gets to the core—longest ever

Like children exclaiming over a new toy, scientists at the Scripps Institution of Oceanography recently announced the successful testing of a new piston coring technique that has recovered "the world's longest undisturbed piston core."

The new equipment, tested in the Gulf of California during Leg 64 of the Deep Sea Drilling Project, is much more than just a toy to be forgotten after a few weeks. It will allow scientists to examine the climate-related physical properties and stratigraphy of the hundreds of thousands of years' worth of soft sediments covering the ocean floor. Such studies were impossible with the jumbled samples obtained by routine drilling and limited by conventional piston coring techniques.