histories of chronic illness and disability such as back pain might be anticipated. Both the alcohol-drug and chronic disability groups are at high risk for drug-related deaths in our experience.

(5) *Source of Drugs.* The source of the propoxyphene was the victim's own prescription in the majority of the cases. We were impressed with the frequency with which the fatal overdose closely followed a prescription refill. A relative or friend's prescription was the source for several deaths. Instances of theft or other illicit sources were rare. Sturner and Garriott[7] reported that in at least 31 of their 41 propoxyphene-involved deaths the source was the victim's prescription.

Prescription size was reported to us in less than one third of the cases. The smallest was twenty 65 mg capsules, the largest 240 (about 20 times the lethal dose). The majority were for 40 or more; 100 or greater was common. Several patients had a refill or a second propoxyphene prescription in addition to part of the original prescription. The prescription of 120 or more dose forms was most frequent at Veterans Administration Hospitals.

(6) *Popularity and Efficacy.* Propoxyphene has been number one among prescriptions dispensed in retail pharmacies in the US since the late 1960s.[15] As Darvon and Darvon-N individually, and with their various additives, propoxyphene has even surpassed diazepam (Valium) in prescription popularity. The drug has been vigorously promoted as safe through advertising and detailing. Its trade name seems pleasant and easy to remember; the capsules and compressed tablet forms are relatively attractive. Prescribing physicians and pharmacists inform us that public and private third-party compensation pays for propoxyphene but not for aspirin. Presently classified as an uncontrolled substance, propoxyphene is obviously easier to prescribe than controlled analgesics. Further enhancing its usage is the reaction of the patient who thinks that he is getting more attention if he receives attractive capsules or colored compressed tablets rather than soft, white tablets he knows are aspirin purchasable without prescription. One major review noted, "It appears that factors other than intrinsic therapeutic value are responsible for the commercial success of propoxyphene."[16]

In support of propoxyphene's usage, a manufacturer's representative wrote, "Darvon products have won a remarkable acceptance by patients and physicians since their introduction."[17] Investigators of analgesic effectiveness rebutted: "The implication that general acceptance of a therapeutic procedure by physicians in a given era constitutes obligate proof for effectiveness is not tenable. If this were true, we would still be bound to the mummy dust, unicorn's horn, leeching, purgatives, blood letting, and mustard plasters universally endorsed by our forebears. We must constantly offer challenge to all our sacred cows, so that our patients may be afforded the highest care at the most reasonable cost."[18]

Clinical reviews of the drug and evaluations of analgesics indicate inferiority to aspirin and other less toxic analgesics, and questionable advantage over placebos.[19] The 1973 BNDD report concluded, "Currently propoxyphene is being used clinically, (1) in place of codeine in the belief that it is equally effective and less toxic, and (2) in place of aspirin in the belief that it is more effective with no increased toxicity. In contrast, the human pharmacologic and toxicologic evidence clearly indicates that this rationale for clinical use is incorrect."[2]

CONCLUSIONS AND RECOMMENDATIONS

We have documented a rapidly rising rate and number of propoxyphene deaths and anticipate over 1,000 propoxyphene deaths this year in the United States. Most will be suicides. Probably some of these victims would take their own lives were the propoxyphene not available. However, as a large proportion of suicide attempts are impulsive rather than planned, ready availability of an effective agent enhances chances of successful completion of the self-destructive act. Many factors that have little to do with any intrinsic effectiveness of the drug cause it to be readily available in large quantity to a vast number of people. Propoxyphene's meager therapeutic effectiveness adds irony to tragedy. Our studies and interviews have revealed repeatedly that many physicians regard the drug to be relatively innocuous, to be prescribed with impunity.

Our recommendations include the following: (1) education through standard medical channels concerning propoxyphene's analgesic and toxic effects; (2) physicians' voluntary reduction in average prescription size; (3) establishment of the same third-party payment standards for analgesics such as aspirin and acetaminophen as for propoxyphene; (4) enhanced patient warning of the hazards of combining alcohol and "pain killers" and other mood affecting drugs; and (5) placement of propoxyphene in Schedule II of the "Controlled Substances Act" of Public Law 91-513.

More discriminating prescription writing and reduced drug availability could diminish not only propoxyphene poisonings but also the total suicides and drug-related accidents.

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