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ABSTRACTS

PRESIDENTIAL ADDRESS

Chair: *Maxine L. Stitzer*, The Johns Hopkins School of Medicine, Baltimore, MD.

A BEHAVIORAL TOOL FOR SCREENING ANTIDEPRESSANT DRUGS AND NEUROCHEMICAL MECHANISMS. Lewis S. Seiden. University of Chicago, Chicago, IL.

The differential reinforcement of low rate responding 72 seconds (DRL 72) has been a useful tool in the evaluation of and differentiation of different classes of psychoactive agents. The most intensive use of this screen is for evaluating potential antidepressant-agents because the screen has a low false positive rate as well as a low false negative rate. The evaluation of potential antidepressive agents is important because of the prevalence of depression. The screen also provides an opportunity to examine the interactions between the known antidepressive agents and brain biochemical mechanisms by which they operate on the DRL 72 schedule, and provides useful information for future drugs and clues concerning the causes of depression. In addition the schedule allows for the analysis of crucial environmental, behavioral, and intervening constructs such as timing behavior which operate on this schedule. In this talk we will present data that identifies norepinephrine and 5-hydroxytrptamine as important transmitters involved with DRL performance. We examined factors involved in the processing of the stimulus and response and have tentative evidence that timing is not involved in the response to antidepressant agents, but that the ability to with hold a response may be important. The value of this screen as a tool for determining psychological and neurochemical factors involved with depressive states will be discussed. (This research was supported by RSA MH-10562 and MH-11191)

SOLVAY-DUPHAR AWARDEE ADDRESS

Chair: *Larry D. Byrd*, Emory University, Atlanta, GA and *Berend Olivier*, Solvay-Duphar, The Netherlands.

ANXIOLYTIC ABUSE AND DEPENDENCE: EXPERIMENTAL ANALYSIS IN ANIMALS AND HUMANS. Roland R. Griffiths. Johns Hopkins University School of Medicine, Baltimore, MD.

Although the nonmedical use of anxiolytics is modest relative to their widespread medical use, the nonmedical abuse of these compounds is by no means a trivial problem, particularly among methadone maintenance patients and alcoholics. There is also growing concern about inappropriate long-term use of anxiolytics—a recent U.S. survey showed that one-fourth of anxiolytic users had used these drugs for 12 months or longer. This paper will summarize research conducted in laboratory animals and in humans which has examined the reinforcing, discriminative stimulus, and physical dependence-producing effects of anxiolytics, and has permitted differentiation of classic benzodiazepine anxiolytics from novel compounds acting at 5-HT_{1a} (buspirone, tandospirone) and GABA-benzodiazepine (abecarnil) molecular recognition sites.

YOUNG PSYCHOPHARMACOLOGIST AWARDEE ADDRESS

Chair: *Larry D. Byrd*, Emery University, Atlanta, GA.

THE RELATIONSHIP BETWEEN OPIOID TOLERANCE AND PHYSICAL DEPENDENCE. Jill U. Adams, Temple U. School of Medicine, Philadelphia, PA.

Chronic administration of opioids results in the development of tolerance and physical dependence. Several factors, which will be discussed herein, can differentially influence the degree of tolerance and dependence observed and may account for the often reported dissociation of the two processes. First, experimental methods used to measure tolerance are often qualitatively different than those typically used to measure dependence. Frequently, tolerance to morphine-induced analgesia is compared to a naloxone-induced syndrome of gross behavioral signs indicative of withdrawal. One paradigm that provides a single behavioral baseline with which to measure both effects is operant responding. A fundamental difference in measurement still remains; that is, tolerance requires the presence of the agonist to be measured whereas dependence requires its absence. Second, depending on the sensitivity of the assays, the magnitude of tolerance and dependence may differ and this may account for one effect persisting in the apparent absence of the other. In rats responding on a schedule of food reinforcement and receiving morphine chronically (10 mg/kg/day), tolerance is characterized by a 5-fold decrease in sensitivity to morphine and dependence is characterized by a 5000-fold increase in sensitivity to naltrexone. When rats are acutely treated with 10 mg/kg morphine, a 10-fold increase in sensitivity to naltrexone is observed in the absence of any change in sensitivity to morphine. Given the relatively small degree of tolerance in the chronically treated rats, it is not surprising that any reduced degree of tolerance was undetectable in the acutely treated rats. Third, behavioral conditioning may differentially alter the expression of tolerance and dependence. In the acute study described above, repeated (weekly) testing enhanced the morphine-induced ef-