A RELIABLE METHOD OF INDUCING PLACEBO ANALGESIA IN VOLUNTEERS

Jane E Sarginson and J M H Rees, Department of Pharmacology, University of Manchester, Manchester M13 9PT

A method has been developed in undergraduate practical classes of inducing analgesia following placebo which culminated in the following attempt to study the effects of naloxone on it. The consent of the University Ethical Committee was obtained. Student volunteers were led to believe that they were participating in a trial of a new analgesic intended for over-the-counter availability. Its pharmacology was conveyed to them as if it were pentazocine-like lacking the latter's psychotomimetic activity.

32 Male and female volunteers were selected from applicants following elimination of those on current medication or those with a diastolic blood pressure above 90 mm Hg. Pain threshold was determined by immersion of a hand in iced water and identifying the time at which the sensation ceased to be perceived as cold and became pain (cf pain tolerance). Students worked in pairs and were told that one of them would have drug the other placebo but they did not know which was which. Two control readings were taken following familiarisation with the method. The "drug" and placebo were presented as brightly coloured capsules identical in outward appearance (and inward content). Following ingestion, pain threshold was determined at 10 min intervals for one hour. During this time measurements were surreptitiously monitored and in all but 3 volunteer pairs, one student responded with a clear increase in reaction time whilst in the other it remained constant. Subsequently the students were divided into two groups - the "reactors" and the "non-reactors", the results of the three pairs which did not show any differentiation being dropped from the analysis. The results in the remaining 13 pairs are shown in Fig 1. At time 60 min half the "reactors" were given an intravenous injection of 0.4 mg naloxone and the other half saline randomly assigned. Pain threshold rapidly returned to normal following injection of either naloxone or saline.

The degree of analgesia is substantial. In our experience using the same iced water method, the degree of analgesia at time 60 min is of the same order as that afforded by 40% nitrous oxide.

The method described provides a reliable means of inducing placebo analgesia suitable for psychological or biochemical study and more importantly provides a suitable teaching exercise identifying one of the major problems in the design of trials for analgesic drugs.

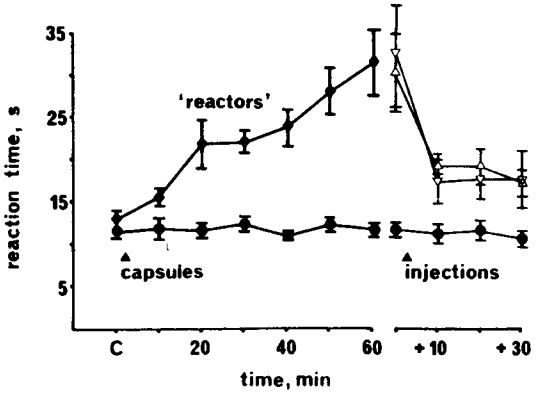

Fig 1. Pain threshold (reaction time) following placebo in "reactors" (◆) and "non-reactors" (●) (n=13 ± sem). At 60 min half the reactors received 0.4mg naloxone (▽) the other half saline (△).

We wish to thank Du Pont (UK) Limited for financial support.