TECHNICAL PAPERS

The Prevention and Treatment of Motion Sickness I. Seasickness[1]

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During the year 1947, Dramamine (β-dimethylaminoethyl benzohydryl ether 8-chlorotheophyllinate) was sent by the manufacturer to the Allergy Clinic of the Johns Hopkins University and Hospital for experimental investigation of its value in the control of the symptoms of hay fever and urticaria. The drug was administered to a pregnant woman who complained of urticaria and who incidentally has suffered all her life from car sickness. Unexpectedly, the car sickness was relieved as well as the urticaria. It was possible to control the car sickness of this patient at will. A placebo failed repeatedly, but the drug Dramamine gave her complete relief if she took 50 mg a few minutes before she boarded the streetcar.

A study of seasickness was planned and executed on the U. S. A. T. "General Ballou." This transport carried 1,366 soldiers to Bremerhaven, Germany. The voyage began on November 27, 1948 and, after a rough passage, terminated on December 7, 1948. Complete cooperation was given by the Surgeon General's office and by the Transport Command. Four adjacent compartments on the transport were set aside for the controlled study of the 485 men who were assigned to them and subjected to the same motion of the sea. Treatment was planned so that half the men were given Dramamine or a placebo of lactose at the time of departure from New York Harbor; the other half were given Dramamine or a placebo 2–12 hr after the onset of symptoms of seasickness. Adequate control groups were given a placebo. The dose of Dramamine was 100 mg every 5 hr and before retiring. Dramamine prevented seasickness in all but two of the 134 men who occupied compartment 3-E; a placebo failed to relieve the symptoms in all controls who developed true seasickness in compartment 3-F. However, the control group (34 men) obtained complete relief of symptoms within 1 hr after the first dose of Dramamine was administered. The drug gave complete relief to 14 men in compartment 4-E who developed symptoms 3 hr or more after the transport left New York. A placebo failed to relieve 14 men in compartment 4-F, but these men obtained complete relief ½ hr after Dramamine was substituted for a placebo. Nineteen men who developed symptoms (nausea and dizziness) 3 hr or more after the transport left New York were relieved by a placebo. These men required no medication during the last seven days of the voyage to Bremerhaven. Among 881 men who occupied other compartments on the transport, 195 cases of severe seasickness developed. Of these, 187 derived complete relief ½ hr after the administration of Dramamine. Relapses were induced by the substitution of a placebo, but these symptoms were relieved within ½ hr after the administration of Dramamine. During a period of 10 days, Dramamine was given to 389 cases of seasickness. Of this number, 372 were completely relieved of symptoms within 1 hr after the first dose of 100 mg. Seventeen cases derived only partial or no relief. A dose of 100 mg prescribed every 5 hr and before retiring was adequate to control the most distressing symptoms. When the patient was unable to retain a capsule administered orally, he did retain and absorb the drug given rectally. The benefit derived by this method was as rapid and as complete as that derived by the oral method. No reaction to Dramamine was encountered by any soldier to whom it was administered during the period of 10 days.

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The Effectiveness of Dramamine in the Prevention of Airsickness

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The recent report by Gay and Carliner (*2*) on the effect of the new antihistaminic drug, Dramamine (β-dimethylaminoethyl benzohydryl ether 8-chlorotheophyllinate), as a preventive and treatment for seasickness has attracted widespread attention. Investigations on motion sickness in the past have shown a paucity of controlled studies carried out on shipboard or on aircraft. The methodology utilized by Gay and Carliner is strikingly provocative in that practical studies on motion sickness under actual precipitating conditions were subjected to controlled scientific scrutiny.

Armstrong (*1*) has pointed out the dearth of comprehensive reports in the literature on the subject of motion sickness caused by aircraft in flight. This form of motion sickness is well known and is encountered often enough to be considered a major problem of aviation medicine. Air sickness is one of the most frequent