INTRODUCTION

Althesin is a steroid anesthetic agent for intravenous use. In this study, Althesin was used in combination for induction and maintenance of anesthesia for neurosurgical procedures. In addition the patient received sodium nitroprusside for a limited period of controlled hypotension. The particular advantage of Althesin for use with neurosurgical patients is its moderate hypotensive effect together with a major decrease of intracranial pressure. The study of Takashi et al. (1973) on all normal persons demonstrated a decrease of the cerebrospinal fluid pressure by 45% after administration of Althesin. The decrease of intracranial pressure may be due to the decrease of intracerebral blood volume. Pickerodt et al. (1972) observed a 21% carotid blood flow reduction in monkeys after induction of anesthesia with 50 μl/kg Althesin; the CMRO₂ of the gray brain matter decreased by 40%. The value of Nitropresside for a safe reduction in blood pressure is well documented in the literature (Huse 1977, Adams 1973, Page 1955). The special aim of the present study was to document the response of heart rate in neuroleptanaesthesia with concomitant continuous medication of Althesin and controlled hypotension with sodium nitroprusside. Instantaneous heart rate was determined because it is well suited to demonstrate the pharmacological effects of different drugs on the heart rate.

METHODS

Patients and Clinical Procedure

12 neurosurgical patients were examined. The mean age was 44±6 (range 25-55), the average height was 172±10, weight 77±16 kg. The
patients were premedicated with 0.5 mg Scopolamine, 2.5-5 mg Droperidol and 25-50 mg Pentobarbital. After arrival in the operating room, anesthesia was induced with Althesin (50 μl/kg) and maintained with N₂/O₂ and Fentanyl (average total dose 1.74 ± 0.745 mg). In addition the patients received Althesin (average dose: 59.7 ± 43 ml) via continuous infusion of 10-30 ml/h. Controlled hypotension for a limited time was induced with sodium nitroprusside.

EXPERIMENTAL PROCEDURE

The RR intervals were measured, stored and retrieved by a small, modular PDP 11 computer system. The configuration is demonstrated in Figure 1. It consists of a Plessey Peripherals Micro One which is a DEC LSI 11/02 processor equipped with 64 kbytes of memory,

Fig. 1. System configuration. Right side: computer room with DEC LSI 11 Computer, Camac process interface and graphical display unit. Left side: operating room, physiological monitor for ECG monitoring, function key board for event marking. Analog data transmission via isolation amplifier.