Sodium Bicarbonate Treatment of Ventricular Arrhythmias during Laparoscopy

To the Editor:—Mean Pa_{CO_2} has been reported as increasing to 44.4–49.2 mm Hg during laparoscopy under halothane anesthesia with spontaneous ventilation.[1] Ventricular arrhythmias may occur, presumably due to insufflation of carbon dioxide. It was decided to monitor a series of patients undergoing laparoscopy and to treat any ventricular arrhythmias with sodium bicarbonate, administered intravenously, to test its efficacy in such cases in which increased Pa_{CO_2} was the most likely cause.

Twenty healthy female patients admitted for laparascopy were studied. Anesthesia was induced with thiopental, the trachea was intubated with the aid of succinylcholine, and anesthesia was maintained with nitrous oxide, 70 per cent, and halothane–ether azeotrope in oxygen. Ventilation was spontaneous via a Magill semiclosed circuit. Electrocardiographic monitoring showed normal tracings in all patients until insufflation of carbon dioxide, when in two patients abnormalities developed: bigeminal rhythm in one and multiple ventricular ectopic beats in the other.

The anesthetic technique was not altered, and after the arrhythmias had been established for at least 5 minutes, 50 mEq sodium bicarbonate in 50 ml was injected intravenously over 2 minutes. In both cases the electrocardiogram reverted to normal within 3 minutes of injection.

That sodium bicarbonate terminated these ventricular arrhythmias appears to be further evidence that insufflation of carbon dioxide was the cause and that controlled ventilation to lower Pa_{CO_2} is wise prophylaxis during laparoscopy.

Sodium bicarbonate injection in no way altered ventricular arrhythmias that followed infiltration of epinephrine solution during plastic surgery using the same anesthetic technique.

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REFERENCE

1. Baratz RA, Karis JH: Blood-gas studies during laparoscopy under general anesthesia. ANESTHESIOLOGY 30:463–4, 1969

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