■ CORRESPONDENCE

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Diltiazem for Ventricular Fibrillation

To the Editor: — Diltiazem, a calcium blocker, suppresses ventricular fibrillation induced by myocardial ischemia and improves resuscitability in animal experiments.[1-3,*] Inhibition of the Ca^{++} influx into the myocardial cell,* reduction of the heart rate,[2,3] and enhancement of the electrical stability[3] may contribute to the improved resuscitation rate by diltiazem. Despite these encouraging results in animal experiments, there has been no clinical evaluation of the effects of diltiazem on ventricular fibrillation as of yet. We report a case of successful resuscitation by diltiazem from ventricular fibrillation, which resulted from acute myocardial infarction and was refractory to standard therapy.[4]

The patient was a 75-year-old man. He had a percutaneous transluminal coronary recanalization for acute myocardial infarction of the right coronary artery 2 yr ago from this April, but he has been well since then. On admission to the emergency room because of chest pain in this May, his consciousness was clear but ECG showed a complete AV block and ST segment elevations at II, III, and aVf leads. The patient suddenly developed ventricular fibrillation. After the endotracheal intubation and the initiation of external chest compression cardiac massage, defibrillation was sequentially attempted at 5 times with the energy of 200 J. Each defibrillation resulted in transient sinus tachycardia (heart rate was 100–120 beats/min), which lasted only for less than 1 min and ventricular fibrillation recurred (fig. 1). Because of tachycardia, epinephrine was withheld. Lidocaine, 50–100 mg, was administered intravenously before the last three defibrillation attempts (total dose of lidocaine was 200 mg). Then, diltiazem, 5 mg, was administered intravenously before the sixth defibrillation at 200 J. Ventricular fibrillation disappeared immediately after defibrillation (sinus rhythm with AV block; fig.2). He recovered without any complications after the treatment with temporal ventricular pacing and tissue-type plasminogen activator. Although administration of diltiazem to a patient in complete AV block may be controversial, we administered diltiazem to a patient who was already in ventricular fibrillation. It is assumed that restoration of any type of sinus rhythm is of paramount importance. Although restoration of sinus rhythm might have been due to the doses of lidocaine, we assume that successful resuscitation was due to diltiazem because of the previous failure of the lidocaine alone. The dramatic response to diltiazem after unsuccessful efforts with lidocaine and defibrillation suggests that diltiazem might be worth trying in resuscitation from recurrent ventricular fibrillation.

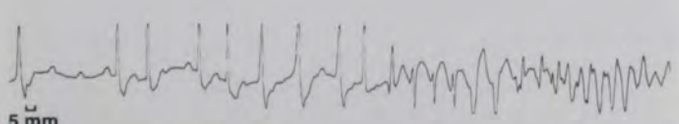

Fig. 1 ECG strip after defibrillation with lidocaine. Transient restoration of sinus tachycardia and subsequent recurrence of ventricular fibrillation.

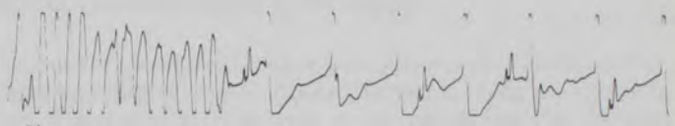

Fig. 2 ECG strip after defibrillation with diltiazem. Restoration of sinus rhythm with AV block.

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