

In reply: Is out-of-hospital intubation by paramedics valid enough to be continued?

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To the Editor:

As Dr. Morita and his colleagues describe in their Letter to the Editor, many recent studies have shown that out-of-hospital intubation is associated with decreased survival [1–3]. However, there are differences in the medical background of the endotracheal intubation (ETI) performed in these studies and our study.

The incidence of ETI attempted by paramedics in the reported studies was extremely high (>80%) in the USA [1–3], with ETI attempted in patients with a difficult airway or with a Cormack grade of ≥ 2 [2]. In the region covered by our study, ETI is not permitted as a routine procedure for patients with out-of-hospital cardiac arrest (OHCA). In addition, ETI attempts are terminated when the Cormack grade of patient is ≥ 2 .

The etiology of cardiac arrest may have differed between the patients in our study and those of the other studies. In none of the three studies [1–3] did the patients show an etiology of cardiac arrest. Approximately 60–70% of cardiac arrest is related to coronary heart disease in the USA [4]. In our study, we showed that implementation of ETI may worsen the outcomes in OHCA patients with a cardiac etiology, but they may improve the outcomes in OHCA patients without a noncardiac etiology.

Finally, ETI was repeatedly attempted by paramedics in the USA [2]. In our region, only two attempts are made. The interruption of chest compression accompanying the

ETI was set at <30 s prior to November 2006 and at <10 s thereafter.

The Ontario pre-hospital advanced life support (OPALS) respiratory distress study showed that the introduction of an EMS advanced-life-support program significantly reduced the mortality of patients with shortness of breath [5]. Japanese paramedics are allowed to perform ETI immediately after they witness a cardiac arrest. We believe that effectiveness of ETI should be prospectively evaluated in OHCA that occur following the arrival of the paramedic.

In our study, we excluded 124 patients in whom advanced airway management (AAM) was discontinued or failed. Of these 124 patients, 52 were managed by non-certified paramedics and did not include cases of attempted ETI. In the remaining 72 patients, certified paramedics attempted either ETI or another AAM procedure, or both. Therefore, the 124 patients varied widely in terms of AAM procedure and were justifiably excluded from the analysis. The AAM procedure was more frequently attempted by certified paramedics. However, we showed that management by paramedics qualified for ETI was not independent factor associated with sustained return of spontaneous circulation.

More than 50 or 60 intubations may be necessary to achieve a 90% success rate when the ETI is attempted without considering the Cormack. According to a preliminary analysis in our region, after paramedics have had 15 consecutive cases with Cormack grade of 1, the success rate in the following ten cases exceeds 95%. The training programs are considered to be appropriate for the patients with a Cormack grade of 1.

The harm caused by ETI should be minimized by education and continuous quality assurance. In our region, a recertification program for certified paramedics has been

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initiated. This program includes training in the operating room and the evaluation of skills based on an objectively structured clinical examination in an actual clinical setting.

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