

Prehospital Intranasal versus Intravenous Administration of Naloxone for Narcotic Overdose

Tania Robertson, MD, Gregory W. Hendey, MD, Geoff Stroh, MD and Marc Shalit, MD; UCSF Fresno Medical Education Program, Fresno, CA

OBJECTIVE

- Naloxone can be a life saving intervention for suspected narcotic overdose in the prehospital setting. IV access in these patients can at times be difficult to obtain and put the provider at risk
- Our objective was to compare the prehospital time intervals from patient contact and medication administration to clinical response for intravenous (IV) versus intranasal (IN) naloxone in patients with suspected narcotic overdose

METHODS

DESIGN: Retrospective review of EMS and hospital records, before and after implementation of intranasal naloxone by the EMS system.

PATIENT POPULATION: Included patients with suspected narcotic overdose treated in the prehospital setting. Paramedics documented dose, administration, and response times using an electronic record.

STUDY PERIOD: March 2003 to July 2004

DEFINITIONS: Clinical response was defined as an increase in respiratory rate or Glasgow Coma Scale of at least 6.

OUTCOME VARIABLES:

Main: Time from medication to clinical response, and time from patient contact to clinical response.

Secondary: Number of doses administered and rescue doses given by alternate route.

STATISTICS: Between-groups comparisons were accomplished using t-tests and chi-square tests as appropriate.

RESULTS

- 154 patients met inclusion criteria during the study period
- 104 were treated with IV naloxone, and 50 were treated with IN naloxone
- Clinical response was noted in 58 (58%) of the IV group, and 33 (66%) of the IN group. ($p=.3$). More patients in the IN group received 2 doses of naloxone (18% vs 34%, $p=.05$), and 3 patients in the IN group received a subsequent dose of IV or IM naloxone (see figure 1)
- The mean time between naloxone administration and clinical response was longer for the IN group versus the IV group. (12.9 vs 8.1 mins, $p=.02$). However, the mean time from patient contact to clinical response was not significantly different between the IV and IN groups (20.3 vs 20.7 mins, $p=.9$) (see figure 2)

Figure 1

Clinical Response to Naloxone

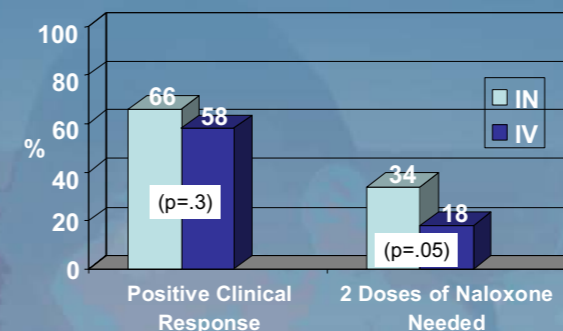
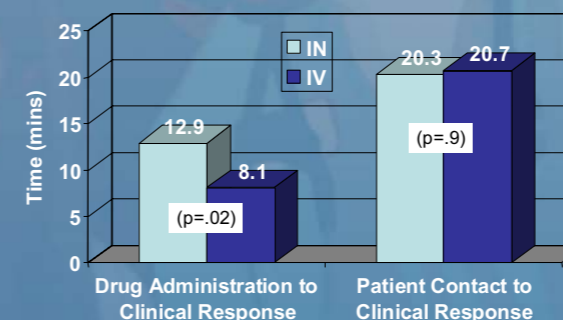


Figure 2

Clinical Response Times



CONCLUSIONS

- The dose to clinical response time for naloxone was longer for the IN route, but the overall time from patient contact to response was the same for the IV and IN routes
- Given the difficulty and potential hazards in obtaining IV access in some patients with narcotic overdose, IN naloxone appears to be a useful alternative

LIMITATIONS

- Retrospective case review
 - Relied on accurate documentation of times and events by prehospital providers
- It is likely that some cases were not pure narcotic overdoses, and responses/times may therefore have been inaccurate
- Included only patients with electronic record, therefore creating a selection bias of urban patients
- No review of hospital records to investigate final diagnoses, or other outcome variables