Should anaesthetists be involved in prehospital care?

Across the world, there are basically two types of prehospital emergency medical service systems. In Anglo-American countries, acute out-of-hospital care for critically ill patients is provided by paramedics, while in most European countries, this role is filled by anaesthetists or emergency specialists. Intuitively, prehospital anaesthetists seem to be a useful adjunct for improved patient outcome but at greater expense. Which system provides the best medical care for critically ill patients in the prehospital setting? Is it purely an economic issue?

Prehospital physician is unnecessary

Anglo-American prehospital emergency medical services rely on paramedics and the 'scoop and run' approach. Paramedics can provide basic life support (bag–mask ventilation, chest compressions). They should be able to perform invasive procedures (e.g. endotracheal intubations, intravenous line and needle decompression) and run diagnostic tests (e.g. electrocardiogram). Their diagnostic and therapeutic concepts are based primarily on guidelines and standard operating procedures.

Well-trained paramedics arrive promptly on the scene, provide basic life support and rapidly transport a potentially unstable patient to the closest hospital. After evaluation and initial treatment by a physician at this hospital, the patient may be referred to a more specific hospital if required. Short on-scene time is one of the characteristics of this system. For clinical scenarios such as uncontrolled haemorrhage where only a surgeon can establish haemodynamic stability, the scoop and run approach seems more effective.

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Prehospital physician is necessary

Most European countries use the 'stay and play' approach, using prehospital physicians. Anaesthetists are skilled in airway management, monitoring and treatment of critically ill and injured patients, as this is part of their routine practice. Comprehensive training enables physicians to make individual decisions that, at times, differ from protocols. These high level competencies in the areas of technical skills, diagnosis, decision making and pharmacological treatment are vital for trauma care, cardiac arrest and airway management (Berlac et al, 2008). Therefore, the stay and play approach provides advanced life support to increase stability during transfer to the referral hospital that is most suitable for the patient.

Studies have found that technical skills are less efficient when provided by paramedics. Compared with physicians, paramedics are less likely to complete endotracheal intubation, less likely to adequately fluid resuscitate hypotensive patients and less likely to perform thoracic decompressions when indicated (Silvestri et al, 2005).

In addition to technical skills and medical expertise, the adjunct of a physician in the prehospital emergency team also allows consideration of ethical concerns. It is not uncommon that a patient with complex medical comorbidities is so injured or ill that the decision to not attempt any intensive care treatment should be considered. Neither guidelines nor protocols can direct such a complex decision.

The presence of a physician in the prehospital emergency team has been associated with longer on-scene times, without consequences in term of mortality (Hoyer et al, 2006). In situations when performance of prehospital procedures may have a negative impact on survival, such as penetrating trauma patients, physicians can decide to scoop and run.

A paramedic-based system can appear less expensive, but this is much more complicated in reality. Many studies show that, without prehospital physicians, fewer patients arrive at hospitals alive. However, the long-term outcome of these additional survivals remains unknown. An English–German study found that more patients may be saved by a physician-based emergency medical service. Moreover, the survival of one patient after cardiopulmonary resuscitation was calculated to be less expensive in the physician-based emergency medical service than in the paramedic-based emergency medical service (Fischer et al, 2003). More studies are needed to confirm this point.

Conclusions

Both systems have advantages and drawbacks. Owing to the intrinsic complexity of individual health-care systems, it would be difficult to design and undertake a randomized study to support the superiority of one system over the other. Prehospital physicians are not necessary for all patients. The economic question appears to be crucial in the choice of prehospital medical system. This issue could be solved using a more dynamic and cost-effective dispatching system with triage capabilities whereby anaesthetists are selectively dispatched for the few critically ill patients who may benefit from their high level of knowledge and skill proficiency. **BJHM**

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