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Quality of Care in Paediatric Emergencies

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Timely and adequate medical care significantly reduces morbidity and mortality in (paediatric) emergencies. However, a wide variability in care (and suboptimal care) has been described by several authors worldwide. We audited emergency care for severely ill children in Flanders (Belgium) and identified multiple areas open for improvement, often in basic areas of paediatric life support. More performancebased teaching may have positive impacts on the care delivered and intensive care "outreach" must become part of our daily practice.

Quality of Care

The field of intensive care and emergency medicine is continuously evolving and our way of working and thinking has changed profoundly in the last 20 years. At times it seems the boundaries of our capabilities are more defined by ethical concerns, than by strict medical considerations. In the meantime, society has changed as well. In terms of healthcare, the focus on health and disease has clearly shifted from a biomedical to a more holistic "patient-centred" model. Beyond mere survival, long-term health has become the standard of value for medical care and given the continuous economic pressure on existing healthcare systems, outcomes are weighted against costs in obtaining them. Society thus demands that we, as a profession, are critical towards our own efficiency.

Traditionally healthcare systems were (and still are to a great extent) solely evaluated in terms of input (i.e. number of staff, equipment, organisational structure…). Outcome is now recognised to be an at least equally important construct. Measuring outcome is however, hampered by suboptimal measurement tools and inherent bias (Curtis et al. 2006). Adverse outcomes are not that frequent and it is often difficult to define a clear relation between certain processes and the eventual outcome.

If we believe that the things we do (or prescribe…) make a difference for a patient, then not doing them or doing them wrong makes a difference as well; even if not for that individual patient, then likely for the next, or the one thereafter ('near-miss principle'). Under the assumption that certain processes of care are associated with certain desired outcomes, the audit of these care processes becomes an important part of evaluating health systems.

Huge variability has been described in virtually any aspect of healthcare. Where a certain degree of variability constitutes medical evolution (within the boundaries of studies and case-specific "informed risk-taking"), most often variability actually means "suboptimal care". While our knowledge about health and disease increases, the evidence that this knowledge is not applied in day-to-day care increases as well. More specifically for intensive care and emergency medicine, the last two decennia have been characterised by several innovative trials about the major impact of certain processes (e.g. early goal directed treatment in sepsis, low tidal volume strategies, timely and correct antibiotics…) (Pronovost et al. 2004). Yet simultaneously more and more reports were published about the lack of compliance with these ("high-evidence") processes and about the overall percentage of suboptimal care, especially in case of emergencies (Rubenfeld et al. 2003; Abella et al. 2005; Seward et al. 2003; Lecky et al. 2002).

Measuring Performance

Measuring our performance and the quality of the care we provide is a responsibility we have towards our patients and society. One of the means of doing this is by peer-review audit. Peerreview audit has been under discussion, as it is felt to be subjective with a high inter-observer variability and a low reproducibility. Further, due to its retrospective nature, it relies heavily on the quality of available data. However, when using strict guidelines for panel review, well-validated data and trained reviewers, the inherent degree of subjectivity associated with the methodology can be kept within limits. Structured panel review then has the power to identify problem areas to improve and needs to be addressed. Indeed, if one wants to pursue change, the first step most often is the perception of the problem. Importantly, audit is a means not an end; eventually it is about performance improvement not about throwing stones.

The Quality of Care in Paediatric Emergencies in Flanders

Paediatric emergencies are uncommon and their management complex. Therefore the probability of providing suboptimal care is likely higher. Yet, it has been shown that especially for these emergencies timely and adequate medical care significantly reduces morbidity and mortality (Han et al. 2003; McGloin 1997). It is thus very important that all who are involved in the first hour of treatment of a severely ill child are well trained to do so.

We audited emergency care in two different groups of severely ill children in Flanders. In both audits a similar methodology was used. Data were collected prospectively and missing data were completed afterwards. Reviewers received a short anonymous patient description and an extensive chronologic data sheet. Problems with care processes were categorised as defaults if there was convincing evidence in literature and if there was consensus between both reviewers. Only clear violations of well-defined standards were withheld as suboptimal care, and this was irrespective of their potential impact on outcome.

In the first audit, we reviewed medical care in children (0-17y) with severe trauma (Injury Severity Score [ISS] > 13). Data were obtained through the Flemish paediatric trauma registry (PENTA) (Van de Voorde et al. 2008). This registry collected data on paediatric trauma in 18 emergency departments during a one-year period (2005). 92 cases (median ISS 21, 12 deaths) were reviewed by two reviewers independently and then discussed in consensus meetings. There were no defaults seen in only four of the cases reviewed. Inadequate care in “Airway-Breathing” management was seen in 41.3% of all relevant cases. Defaults in “Circulatory” management were observed in 31.5%. More detailed results of this audit will be published in the nearby future.

In the second audit we reviewed care in 50 consecutive “high urgency” secondary transfers to our institution (PICU, tertiary care university hospital). Again only clear violations were withheld as defaults. We found that in 22% of cases the demand for referral was delayed and/or inadequate. Defaults in “Airway-Breathing” management were seen in 36% of all cases. Inadequacies in “Circulation” management occurred in 36%. For

“D – neurological” management suboptimal care was observed in 39% of relevant cases.

How to Influence Performance

In both of these audits the degree of inappropri ate care recognised is clearly significant, even when taking the inherent subjectivity of the methodology into consideration. Defaults were often seen in really basic areas of (advanced) paediatric life support.

How then can we better prepare health providers for paediatric emergencies? First of all, we should try to better define “the barriers” to optimal care that currently exist. Is it merely about knowledge gaps? False beliefs? Fear? Is it a catecholamineinduced memory failure in view of a child that is critically ill? The fact is, that passive dissemination of information does not necessarily promote behavioural change (Bero et al. 1998; Stockwell and Slonim. 2006). Performance-based teaching seems to be more effective, yet its effect tends to diminish rapidly over time (Grant et al. 2007; Semeraro et al. 2006). Courses like EPLS/APLS could make an important difference as long as they are repeated regularly. Yet in Flanders, (as in many other countries) there lacks a strong (societal) incentive for following any of these courses and thus, certainly not for recertification.

Further, knowing how much of the fight is won or lost in the first hours of treatment, we cannot just stay in our unit and wait for the patient to arrive. Even the healthcare professional who has received repeated and thorough performance-based teaching, whatever his/her background, will have an actual exposure to severely ill children that remains far lower than that of us, paediatric intensive and emergency care physicians. Therefore, it is our task to be available for advice if wanted, feedback if asked, and most importantly, rapid (ward) intervention if needed.

Conclusion

We audited medical care in paediatric emergencies in Flanders and identified several problem areas, often in basic areas of paediatric life support. Defining the barriers to “optimal” care and more performance-based teaching may have positive impact on the care delivered and the eventual patient outcome. Furthermore, if not already, we should make intensive care “outreach” part of our daily practice.

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