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Letters to the Editor

Emergency Medicine

'Sieve', 'Sort' or START

The article by Sammut, Cato and Homer (Emergency Medicine 2001; **13**: 174–80) states that the triage module of the Major Incident Medical Management and Support course (MIMMS) provides a means of achieving effective triage of multiple casualties. The system advocated is a two-stage system: triage 'sieve' and triage 'sort'.

Published evidence on the value of the physiological components of the 'sieve' to predict severe injury suggests that it is likely to have poor accuracy.[1–3] This has been confirmed by a direct comparison of triage algorithms in which triage 'sieve' had significantly lower accuracy than the other algorithms tested[4] with a sensitivity of less than 50%, regardless of whether capillary refill or heart rate is used as the circulatory assessment. Other algorithms such as Simple Triage and Rapid Treatment (START)[5] have sensitivities of greater than 80%, with similar or significantly better specificity. START assesses the casualty's ambulatory status, ability to follow commands, presence of a palpable radial pulse and respiratory rate.

Triage-Revised Trauma Score, which forms the basis of the triage 'sort', has been demonstrated to lack adequate sensitivity when retrospectively applied to multiple casualty incident situations[6,7] when the cut off for critical injury was a score of 11. In MIMMS the critical injury cut off is set at 10, which reduces the sensitivity even further. The resulting sensitivity is significantly less than 'first look' algorithms such as START.

Additionally, triage tags are taught as the best method of managing casualty flow at the scene and keeping track of the number and types of casualties. In reality they have failed repeatedly to assist in scene management,[8] with no case reports in the literature suggesting that they were of assistance in incidents involving more than 24 casualties. Alternative systems that do not use tags, such as geographical triage,[8] have proved to be highly successful in multiple-casualty incidents involving as many as 300 casualties.[9]

We applaud the concept of standardized training for these types of events. However such training should adopt an evidence-based approach, especially in the area of triage. The continued promotion of triage 'sieve' and 'sort', and triage tags as a methodology for multiple casualty situations is no longer appropriate.

References

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Reply

The letter by Garner and Nocera raises several points in respect to triage. The writers advocate the use of the START/SAVE system as being better able to triage casualties than the Sieve/Sort approach. In fact the MIMMS system agrees with Benson *et al.*, the authors of the START/SAVE system; their paper states that START/SAVE is designed for situations where 'early evacuation is not possible, and local initial responders cannot expect significant outside assistance for at least 49–72 hours', as in the earthquake situation.[1] Benson *et al.*'s summary emphasizes that their system is designed for use over 'many hours to days'.[1] The authors also make the point that their system is dynamic.[1] This

approach is supported by Poon[2] who also divides the triage into Initial Triage and Secondary and Continuous Triage. For Secondary and Continuous Triage, START/SAVE is advocated. All of this is consistent with the MIMMS approach which uses Initial Triage for the rapid clearance of the disaster site and then emphasizes that triage must be dynamic and continues by whatever is the best system for the occasion, from the treatment areas, to hospital admission and even to pre- and postsurgical intervention. Unlike the START/SAVE system, the Sieve/Sort approach is used where rapid evacuation is required and facilities to do this are available. This method is suitable for CBR (NBC) incidents where START/SAVE is not ideal.

Triage tagging is also mentioned in the letter. Tagging is used extensively in major incidents aiming to indicate those that have been assessed and to show what is required initially. The military systems also use such tags to indicate treatment and history as the scene evolves. The MIMMS system does not advocate tagging as a method of 'keeping track of the number of, and types of, casualties', as Garner and Nocera suggest.

In conclusion, MIMMS, an international system of an all hazard approach, is also dynamic. It changes in accordance with current practice and advances in the field. We thank Garner and Nocera for their thoughts and for their support for the concept of standardized training. We also look forward to their paper on comparative analysis of triage systems.[3]

References

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Tracheostomy is the only safe option

I have read with interest the case report of Semmonds and Doherty.[1] It adds to an increasing volume of literature witnessing the major haemorrhagic side-effects of thrombolytic therapy. I must, however, disagree with the recommended management of the airway in their otherwise well thought out discussion.

Endotracheal intubation was already difficult, if not impossible by the time of initial assessment of this man. The statement that a situation where the subject was unable to lie flat, had minimal mouth opening and a large posterior pharyngeal wall haematoma was stable is difficult to accept. Indeed, the events of the next morning where the man suffered acute respiratory obstruction, retrospectively supports the conclusion that conservative management was a poor option.

The assertion that general anaesthesia carries significant risks in the postinfarct period is true when applied to consideration of elective surgery, but myocardial ischaemia will not be helped by profound hypoxia nor the distress caused by partial/near total obstructed breathing. Anaesthesia if required to secure a precarious airway is a preferable option in this circumstance. Nor should we consider that general anaesthesia as stated will make a patent airway unstable. A controlled inhalational induction with continuous positive airway pressure may well support the airway and improve the situation.[2] This has certainly been my experience in the small number of cases of upper airway obstruction that any one clinician may expect to manage in their career. Thiopentone/Suxemethonium/Tube would, I agree, kill the patient very quickly in these circumstances.

The recommendation that blind nasal intubation should be considered the option of choice is plainly dangerous and must be condemned. First, if one is concerned for the risks of causing upper airway haemorrhage, this is the best method to ensure bleeding because the nasal route is vascular at the best of times. Blood in the airway will result rapidly in loss of control of the situation.[3] Second, this technique is not widely practised and those who are good at it are from a previous generation of anaesthetists. This is not the situation to try it for the first time. Third, the paper quoted in support reports a problem of lingual haematoma.[4] The distortion of the anatomy by a posterior pharyngeal haematoma would almost certainly make the nasal approach impossible. Indeed, if the authors failed to traverse the nasopharynx fibreoptically, how do they hope to do so blindly?