Hospital Vila Franca de Xira

Medical escort of critical care patients in the pre-hospital setting

Gonçalo Almeida[1], Miguel Gusmão[1], Carlos Santos[2]; Tiago Carvalho[3]; Tiago Amaral[4]
[1]Anesthesiology resident, MMT (VMER) São José, CHLC, E.P.E
[2]RN, MMT (VMER) Vila Franca de Xira
[3]Intensivist, MMT (VMER) Vila Franca de Xira
[4]Clinical Nurse Specialist, MMT (VMER) São José, CHLC, E.P.E.

Introduction

- Pre-hospital emergency cases include the patient's transportation to the hospital, with an adequate escort, when indicated
- In Portugal, secondary transport's escort is guided by an escort score published by the Portuguese Medical Association's Guidelines on the Critical Care Patient's Transport (2008).

- This score (TS) defines three levels of escort: no medical escort (level A), doctor or nurse escort (level B), doctor and nurse escort (level C).
- There is no published data on this score's application to the pre-hospital setting. Such use could improve resource management in the pre-hospital emergency medical services, as it could support the need to involve a doctor and/or nurse in the patient's escort to the hospital.

Objective

- Our study's aim is the evaluate the TS application to the pre-hospital context.

Study Methods

- We gathered data from primary transports' escorts between January 2015 and January 2017.

- We recorded:
  - whether the patient was taken to hospital or not
  - if yes, the transport's escort (Doctor, Doctor and Nurse, or only emergency technicians)

- Posteriorly, we calculated the TS for each of those transport records.

- We calculated
  - Sensibility (Ss)
  - Specificity (Sp)
  - Positive predictive value (PPV)
  - Negative predictive value (NPV)

- For the following situations:
  - Escort by emergency technicians only (level A)
  - Escort by doctor or nurse (level B)
  - Escort by doctor and nurse (level C)

Measurement	Score	Measurement	Score
1. Haemodynamics		6. Respiration	
Stable	0	Respiratory rate between 10 and 14 breaths/min in adults	0
Moderately stable (requires volume <15 ml/min in adults)	1		
Unstable (requires volume >15 ml/min or inotropics or blood)	2	Respiratory rate between 15–35 breaths/min in adults	1
		Apnoea <10 or >36 or irregular breathing	2
2. Arrhythmias (existing or probable)		7. Airway	
No		No	0
Yes, not serious (and AMI after 48 hours)	1	Yes (Guedel tube)	1
Serious (and AMI in the first 48 hours)	2	Yes (intubation or tracheostomy)	2
3. ECG monitoring		8. Respiratory support	
No	0	No	0
Yes (desirable)	1	Yes (oxygen therapy)	1
Yes (essential)	2	Yes (mechanical ventilation)	2
4. Intravenous line		9. Assessment	
No	0	GCS =15	0
Yes	1	GCS 8–14	1
Pulmonary artery catheter	2	GCS <8 and/or neurological disorder	2
5. Provisional pacemaker		10. Technopharmacological support (actual or en route)	
No	0	None	0
Yes (not invasive). Always AMI in the first 48 hours	1	Group I	1
Yes (endocavity)	2	Group II	2

Results

556 primary transports

141 escorted by emergency technicians only

ST score level A

No medical escort

Ss = 85,78%
Sp = 70,92%
PPV = 89,67%
NPV = 62,89%

269 escorted by doctor or nurse only

ST score level B

Medical escort doctor or nurse only

Ss = 28,25%
Sp = 86,06%
PPV = 65,52%
NPV = 56,14%

146 escorted by doctor and nurse

ST score level C

Medical escort by doctor and nurse

Ss = 78,08%
Sp = 59,72%
PPV = 40,57%
NPV = 88,36%

Discussion & Conclusions

- TS appears to be an indicator with enough Ss and Sp to support the pre-hospital team's decision regarding whether or not to escort the patient to the hospital with only emergency technicians or with a more differentiated escort, especially when the score's result is Level A.

- Numbers are less clear regarding a decision to which medical escort kind to be used, as TS **cannot differentiate between doctor or nurse or both doctor and nurse when the result is level B or C.**

- More figures are needed to understand if this score can be implemented as a decision tool regarding the kind of medical escort a patient needs in a primary transport.

- **Clinical evaluation remains the best decision support tool**

Bibliografia:
OM e SPCI; Transporte de Doentes Críticos – Recomendações; 2008
Eur J Emerg Med. 1998 Mar;5(1):13-7.