



Parathyroid Hormone As A Marker For Trauma Resuscitation: A Prospective Exploratory Study

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Introduction

Lactate and base deficit levels are being used as best available markers for trauma resuscitation response and intervention. Recently, Parathyroid hormone (PTH) showed some role in trauma resuscitation. This study compared utility of these parameters in trauma resuscitation response assessment as well as outcome.

Methods

- A prospective observational study
- Patients presenting with at least class III trauma haemorrhagic shock, (pulse ≥ 120 / min and / or SBP ≤ 90 mmhg)
- PTH measurement was added in standard laboratory panel (having lactate and base deficit) at various timelines during resuscitation.
- The primary outcomes assessed were response with resuscitation, need of surgical measures for haemostasis and mortality.

Results

- 82 patients
- Median age – 34 yrs
- 80 % Men
- Blunt mechanism -82%
- Mortality 28%

Outcome Variables	Base Excess	Lactate	Parathyroid Hormone
Mortality			
No (n=59)	-8.2 (-11.9, -5.6)	5 (3.4, 8.1)	99.4 (58.9,164)
Yes (n=23)	-9.7 (-14.4, -6.8)	6.3 (5.3, 8.1)	133.5 (77.4,167.4)
p Value	0.07	0.1	0.3
Initial response with Resuscitation			
Nonresponder (n=21)	-9.2 (-12.7, -6.2)	6.2 (5,8.4)	133.5 (74.9,166.7)
Responder (n=61)	-9.4 (-12.3, -6)	5.2 (3.4, 7.6)	100.6 (59.7,160)
P Value	0.8	0.09	0.4
Surgical Interventions			
Needed (n=42)	-8.81 (-12, -5.9)	5.3 (3.45,8.3)	97.4 (59.3,151.6)
Not needed (n=40)	-9.4 (-13.1, -6.1)	5.5 (3.75,7.4)	115.1 (63.5,173.5)
P Value	0.5	0.9	0.4

Discussion

- PTH has a rapid half-life of 3 minutes to 5 minutes.
- Cleared by hepatic, renal, and skeletal blood flow.
- In haemorrhagic shock, decreased PTH clearance may occur.
- Hyperparathyroidism on hospital arrival in trauma patients shown to predict mortality and transfusion in the first 24 hours *.
- The effect of Calcium levels was not considered.

Conclusion

- ✓ Base excess and lactate level showed their utility in trauma resuscitation.
- ✓ PTH in isolation could not establish its role in predicting resuscitation response and outcome.