



Can the Visensia Index Score Predict Mortality in High risk Injured Patients?

Coba V, Rubinfeld I, Horst M, Ozuh A, Brandt M, Andrzejewski T, Combs L, Gasevic E, Patton JH
 Department of Surgery, Henry Ford Hospital, Detroit, Michigan



Introduction

- Current measure for predicting mortality in injured patients are determined by complex scoring systems (ex. TRISS, RTS, ISS, APACHE II, etc) or lab analysis (base deficit or lactate).
- The Visensia Index Score (VIS) is a proprietary algorithmic bedside monitor that integrates 5 vital signs: heart rate, respiratory rate, blood pressure, pulse oximetry and temperature (OBS Medical, IN).
- VIS score ranges from 1 (no abnormality) to 5 (severe abnormalities in all variable), with score of 3 consider a early warning sign of deterioration.
- The VIS has shown early success in identifying early patient deterioration in the telemetry inpatient unit.
- The utility of real-time bedside monitoring of the VIS in injured patients has not been studied.

Hypothesis

We hypothesized that VIS bedside monitoring system can identify high risk injury patients upon presentation to the Emergency Department.

Methods

- IRB approved - Retrospective review of trauma registry of high risk injured defined as ISS >25.
- Setting: Urban Level 1 ACS trauma center.
- Period: 6 months.
- The first set of vital signs were obtained upon arrival to the Emergency Department.
- The OBS Medical investigators were given the data points and calculated out a VIS number. They were blinded to the patient's outcome.

Results

These patients

Demographics		n= 124
Age (years)	41.3 ± 19.9	
Race (African American)	61%	
Mechanism of Injury		
Blunt	77%	
Penetrating	22%	

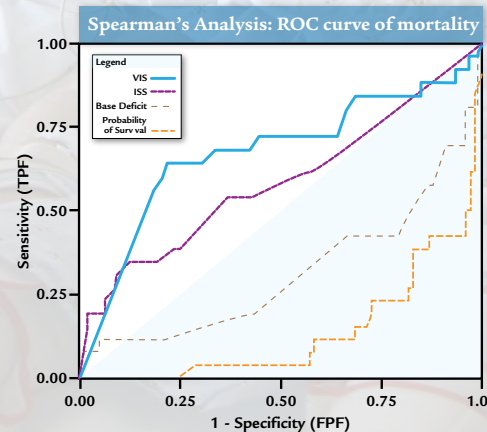
Presented with

ED vital signs		
Temperature	36.8	± 6.26
Pulse per minute	95	± 25.6
Respiratory rate	19	± 5.8
SBP (mmHg)	137.3	± 34
DBP (mmHg)	74.6	± 23
Oxygen Sat. %	97.2%	± 3.8
Base Deficit	-4.8	± 5.9
ISS	33.7	± 12.1
Prob. of Survival	73.4%	

Had these outcomes

Disposition		
ED to ICU	58.9%	
ED to Operating Room	34.7%	
ICU LOS (days)	9.2	
Hospital LOS (days)	16.1	
Disposition to home	35%	
Disposition to rehab center	38%	
Mortality	21%	

Logistic Regression - Mortality		
	Odds Ratio	
ISS	1.04	p = 0.01
Base Deficit	0.88	p < 0.001
Probability of Survival	0.01	p < 0.001
VIS	1.48	p = 0.03



Results



Conclusion

- VIS was more accurate than base deficit or ISS in predicting mortality in trauma patients.
- Future trials utilizing the VIS monitor may be useful to determine its efficacy in the prehospital and resuscitation environment.
- VIS may be a valuable early warning sign in predicting mortality in injured patients available as early as the initial vital signs.

References

- Hrvanek M, Edwards L, Clontz A, et al. Defining the incidence of cardiorespiratory instability in patients in step-down units using an electronic integrated monitoring system. Arch Internal Med. 2008 Jun 23;168: 1300-8.