

## Introduction

We aimed to identify surgery specific and patient specific prognostic factors related to developing unfavourable outcomes following burrhole evacuation of chronic subdural haematomas (CSDH).

## Methods

A retrospective cohort of patients undergoing evacuation of CSDH at a single institution was established from September 2010-October 2014. Primary endpoint was the dichotomized score on a modified Rankin scale at 6 months follow-up ('favourable outcome' score 0-1 or 'unfavourable outcome' score 2-6). A logistic regression analysis was performed to model and predict the determinants related to outcome. A scoring system was made to predict 'favourable vs. unfavourable' outcomes.

## Results

120 patients were included in this study (mean age 66.1±15.2 years). Logistic regression analysis showed that age>75 (OR 7.1, 95%CI 1.7-29.0, p=0.007), midline shift 10-20mm (OR 3.4, 95%CI 1.0-11.4, p=0.04), disorientation (OR 24.1, 95%CI 3.1-189.0, p=0.002), motor function deficit (OR 4.9, 95%CI 1.5-15.9, p=0.008) before surgery were unfavourable prognostic factors. Duration of in-patient stay, sex, ASA, side of haematoma, coagulation status were not predictive of developing an unfavourable outcome. Using the significant prognostic factors that predicted an unfavourable outcome, a scoring system was devised (1. Age: <60 - 3 points, 60-75 - 2 points, >75 - 1 point; 2. GCS: <8 - 0 points, 8-13 - 1 point, >13 - 2 points; 3. Thickness of haematoma: >3cm - 0 points, 1-3cm - 1 point, <1cm - 2 points; 4. Mid-line shift: >2cm - 0 points, 1-2cm - 1 point, <1cm - 2 points; 5. Motor function: Not normal - 1 point, normal - 2 points; 6. Orientation: disorientated - 1 point, orientated - 2 points). ROC curves were constructed to predict favourable vs. unfavourable outcomes. A score of 9 and above showed a favourable outcome.

Logistic regression results: characteristics of unfavorable prognostic factors before surgery.

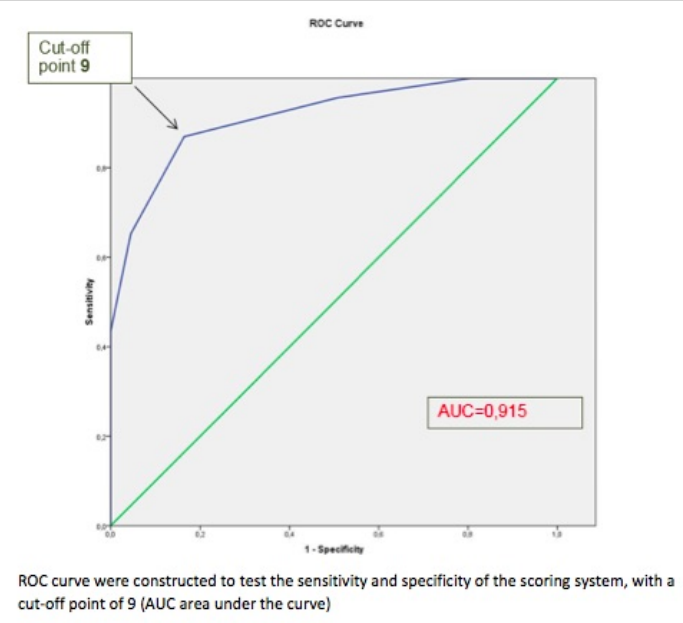
	OR	95% CI	P
AGE >75	7.1	(1.7-29.0)	0.007
MIDLINE SHIFT	3.4	(1.0-11.4)	0.04
DISORIENTATION	24.1	(3.1-189.0)	0.002
MOTOR FUNCTION DEFICIT	4.9	(1.5-15.9)	0.008

OR, odds ratio; CI, confidence interval

AWAR Score		
Age	>75	1 point
	60-75	2 points
	< 60	3 points
GCS	<8	0 point
	8-13	1 point
	>13	2 points
Thickness of the hematoma	>30mm	0 point
	10-30mm	1 point
	<10mm	2 points
Midline shift (initial CT-scan)	>20mm	0 point
	20-10mm	1 point
	<10mm	2 points
Motor Function	Deficit	1 point
	Normal	2 points
Orientation	Disoriented	1 point
	Oriented	2 points

AWAR Score a new scoring system for patients with chronic subdural hematoma.

Maximum - 13 points, Minimum - 3 points; >9 points - favorable prognosis.



## Conclusions

Unfavourable outcomes are predicted by age>75, mid-line shift >1cm, drop in GCS on verbal or motor score from normal. A scoring system has been devised to predict outcome.

## Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of identifying risk factors that lead to poor prognosis in this cohort of individuals, 2) Discuss, in small groups, further management of patients who have unfavourable predictive outcomes, 3) Identify an effective treatment using a scoring system that is practical and statistically reliable to estimate clinical outcome of CSDHs.