



# PERIOPERATIVE FACTORS AND OUTCOME IN ELDERLY PATIENTS UNDERGOING INTRACRANIAL SURGERY- A PROSPECTIVE OBSERVATIONAL STUDY

**Shailendra kumar ,DA, DNB; Mihir Prakash Pandia, MD; Arvind Chaturvedi, MD ; Surya Kumar Dube, MD,DM**  
 Department of Neuroanesthesiology, All India Institute of Medical Sciences, New Delhi, INDIA

## ABSTRACT

**•TITLE:** Perioperative factors and outcome in elderly patients undergoing intracranial surgery- A prospective observational study

**•BACKGROUND :** Elderly patient going for neurosurgery poses special challenge because of associated comorbidities, age-related pathophysiologic changes and specific problems related to neurosurgical patients like poor preoperative GCS, associated pulmonary infection, lower cranial nerve palsy, raised intracranial pressure, brain stem handling and major blood loss. As the data of perioperative complications of neurosurgical procedures in elderly is scarce, we assessed the incidence and characteristics of perioperative complications in patients undergoing intracranial procedures and the outcome of surgery in elderly patients.

### •OBJECTIVE:

**Primary objective :** To assess the incidence and characteristics of perioperative complications and surgical outcome in elderly patients undergoing intracranial procedures.

**Secondary objective:** To identify the risk factors associated with adverse outcome.

**•METHODS:** Prospective observational study in patients  $\geq 60$  years who underwent elective and/or emergency intracranial procedures. We included 101 patients. Intraoperative management of the patients was as per our institutional protocol. Perioperative data was analysed for occurrence of perioperative complications, surgical outcome and associated risk factors in elderly patients.

**•RESULTS:** Hypertension and diabetes were most common comorbidity our patients. Hemodynamic fluctuations were the most common intraoperative complication, while electrolytes abnormality was the most common postoperative complication. Multivariate logistic regression analysis showed vascular surgeries, preoperative GCS  $< 8$ , blood loss  $> 2$  litres as independent risk factors for poor neurological outcome at hospital discharge.

**•CONCLUSIONS:** Preoperative GCS  $< 8$ , vascular surgery and blood loss  $> 2$  litres are the risk factors for poor outcome in elderly patient undergoing neurosurgery.

## OBJECTIVE

► **Primary objective:** To assess the incidence and characteristics of perioperative complications and surgical outcome in elderly patients undergoing intracranial procedures.

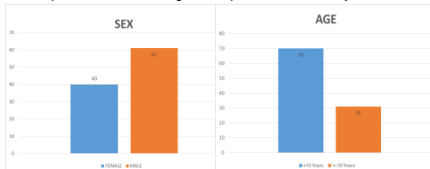
► **Secondary objective:** To identify the risk factors associated with the occurrence of adverse outcome in elderly patients

## METHODS

One hundred and one patients of  $\geq 60$  years undergoing neurosurgical procedures were studied prospectively. Information related to history, ASA status, comorbidities, type of surgery, preoperative GCS, nature of surgery, sign and symptoms of raised ICP, intraoperative blood loss, blood transfusion, brain bulge, hemodynamic fluctuations and postoperative complications like respiratory, cardiovascular and electrolyte abnormalities were noted. Glasgow outcome scale (GOS) were noted at the time of discharge. Univariate and multivariate analysis were performed to study the risk factors for poor outcome (Defined as GOS  $\leq 3$ )

## RESULTS

Data was analyzed in 101 patients. Out of 101 patients, there were 40 female patients. The mean age of the patients was 66.05 years.

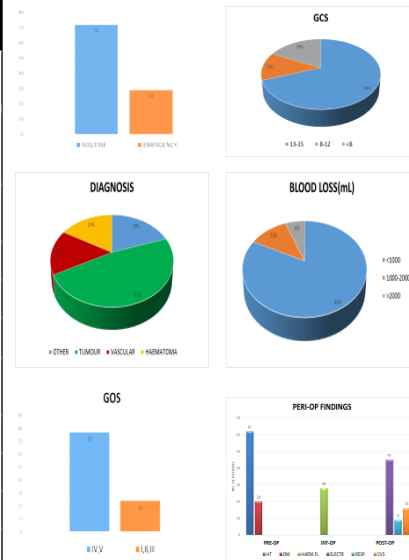


## UNIVARIATE ANALYSIS

VARIABLE	VARIABLE VALUE	GOS		Pvalue
		$\geq 3 = \text{GOOD}$	$\leq 3 = \text{POOR}$	
DIAGN.	Other	19(24.7)	1(4.2)	0.001
	Tumour	40(52.0)	8(33.3)	
	Vascular	7(9.0)	9(37.5)	
	Hematoma	11(14.2)	6(25.0)	
GCS VALUE	13-15	65(84.4)	5(20.8)	0.001
	8-12	6(7.8)	7(29.2)	
	3-7	6(7.8)	12(50.0)	
ROUTINE/EMERG	Routine	61(79.2)	11(45.8)	0.001
	Emergency	16(20.8)	13(54.2)	
RAISED ICP	No	55(71.4)	7(29.2)	0.001
	Yes	22(28.6)	17(17.9)	
BLOOD TRANSFN	No	60(78.0)	9(37.5)	0.001
	Yes	17(22.1)	15(62.5)	
BLOOD LOSS	$< 1$ L	66(85.7)	17(70.8)	0.03
	1-2 L	9(11.7)	3(12.5)	
	$> 2$ L	2(2.6)	4(16.7)	
BRAIN BULGE	No	63(81.8)	15(62.5)	0.04
	Yes	14(18.1)	9(37.5)	
HAEM. COMPLN.	No	61(79.2)	12(50.0)	0.01
	Yes	16(20.8)	12(50.0)	
RESPIRATORY	No	76(98.7)	16(66.7)	0.001
	Yes	1(1.3)	8(3.3)	
CVS	No	70(90.9)	15(62.5)	0.001
	Yes	7(9.0)	9(37.5)	
ELECTROLYTE	No	47(61.4)	9(37.5)	0.04
	Yes	30(39.0)	15(62.5)	

## MULTIVARIATE ANALYSIS

VARIABLE	Adj.Odds Value(95%CI)
DIAGN.	1 5.2(0.20,130.6) 28.1(1.1,671.4) 2.0(0.12,34.8)
GCS VALUE	1 43.3(3.0,616.8) 300(7.34,12298)
BLOOD LOSS	1 5.1(0.47,54.8) 36(257,505.1)



## CONCLUSION

Preoperative GCS  $< 8$ , vascular surgery and blood loss  $> 2$  litres are the risk factors for poor outcome in elderly patient undergoing neurosurgery.

For additional information please contact:  
**Dr. Shailendra kumar**  
 Department of Neuroanaesthesiology  
 All India Institute of Medical Sciences, New Delhi, India  
 Email: drshail.kumar@gmail.com