COMPARING THE EFFECT OF DEXMEDETOMIDINE VERSUS HALOPERIDOL IN CONTROLLING AGITATION IN TRAUMATIC BRAIN INJURY

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Introduction

Traumatic brain injury (TBI) is a leading cause of mortality and long-term neurological disability. A considerable risk following TBI is post-traumatic cognitive impairment (agitation), occurring in approximately two-thirds of survivors. The management of post-traumatic agitation in ICU patients remains inadequately defined. Currently, there is limited evidence-based therapeutic intervention that has demonstrated a significant impact on outcomes within this patient population. However, emerging research indicates that certain pharmacological treatments, particularly antipsychotics (haloperidol), and, additionally, medications such as dexmedetomidine, are two commonly utilised medications in clinical practice for this purpose when non-pharmacological approaches prove ineffective in managing agitation.

Aim of the Work

The aim of this study was to compare the effect of dexmedetomidine to haloperidol in controlling agitation in TBI patients regarding their impact on hospital mortality and morbidity (resolution of symptoms, need and duration of mechanical ventilation, ICU stay and in-hospital stay).

Patients and Methods

60 patients were included in a prospective study aged 18–65 with moderate traumatic brain injury (TBI) admitted to the Critical Care Department at Alexandria Main University Hospitals. Eligible patients had a Glasgow Coma Scale (GCS) score of 9–12 and a Richmond Agitation Sedation Scale (RASS) score of +2 to +4. Patients were excluded if they were pregnant, breastfeeding, hypotensive, bradycardic, or allergic to the studied medications.

All patients underwent history-taking, clinical and neurological examinations, and initial brain imaging. They were randomly assigned into two groups:
Group A received haloperidol (2.5 mg IM every eight hours)
Group B received dexmedetomidine (0.5 µg/kg /hr IV infusion every other day).
The primary outcome was agitation control, defined by a reduction in RASS to <1. Secondary outcomes included the need and duration of mechanical ventilation, length of ICU and hospital stay, and ICU and in-hospital mortality.

Results

Table 1: Comparison between both group regarding Patients' RASS before and after intervention

		Group (A) (No.30)		Group (B) (No.30)		Chi square test	
		No	%	No	%	X^2	P value
RASS before	2	6	20.0%	10	33.3%	5.152	0.398
	2+	3	10.0%	0	0.0%		
	3	8	26.7%	8	26.7%		
	3+	3	10.0%	2	6.7%		
	4	6	20.0%	8	26.7%		
	4+	4	13.3%	2	6.7%		
RASS after	0	2	6.7%	3	10.0%	4.499	0.609
	1	7	23.3%	7	23.3%		
	1+	0	0.0%	1	3.3%		
	2	8	26.7%	10	33.3%		
	2+	3	10.0%	0	0.0%		
	3	7	23.3%	6	20.0%		
	4	3	10.0%	3	10.0%		

Table (1) shows that there were no statistically significant differences between group A and group B. regarding RASS before and after intervention

Table 2: Patients' need for MV, ICU and hospital mortality

		Group (A) (No.30)		Group (B) (No.30)		Chi square test	
		No	%	No	%	X^2	P value
NEED FOR MV	NO	17	56.7%	19	63.3%	4.311	0.116
	YES	13	43.3%	11	36.7%		
ICU mortality	NO	24	80.0%	25	83.3%	0.111	0.739
	YES	6	20.0%	5	16.7%		
HOSPITAL mortality	NO	29	97.7%	28	93.3%	1.333	0.513
	YES	1	3.3%	2	6.7%		

Table (2) shows that there were no statistically significant differences between the Patients' need for MV, ICU and hospital mortality regarding group A and group B.

Conclusion

Both dexmedetomidine and haloperidol were equally effective in controlling agitation, and there was no significant difference in RASS scores between them. There were also similarities with no significant difference in clinical outcomes, such as the need and duration of mechanical ventilation & ICU mortality.
Both dexmedetomidine and haloperidol were equally safe, as there was no significant effect on heart rate, mean arterial blood pressure or the Glasgow Coma Scale.