Effects on nondepolarizing muscle relaxant by different doses of magnesium sulphate to conduct relaxant anaesthesia

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Abstract

Background and Objectives: Magnesium sulphate is used during anaesthesia for its antihypertensive/ antiarrhythmic properties and attenuating the response to endotrachial intubation and as an anticonvulsant for women with eclampsia. At the motor nerve terminal, MgSO4 inhibits acetylcholine release. Thus, it enhances the effect of neuromuscular blocking agents. The current study determines the effect of magnesium sulphate pre-treatment on the onset, duration and recovery from non-depolarizing muscle relaxation during relaxant anaesthesia. Method: 105 patients satisfying the inclusion criteria were divided into three groups(groups A,B and C) of 35 each based on lot method. Magnesium sulphate (60mg/kg IV) was given fifteen minutes before induction in group A, magnesium sulphate (40mg/kg IV) was given fifteen minutes before induction in group B and the third group was taken as the control group C. Patients were preoxygenated and induced with 2mg/kg of propofol followed by 0.1mg/kg vecuronium. The onset, duration and recovery relating vecuronium was monitored using a peripheral nerve stimulator using train-of-four stimulus and response assessed visually. Results: There was no significant differences in patient charecteristics between the three groups. The results showed a significant difference between the three groups on the onset, duration and recovery from nondepolarizing muscle relaxants. Magnesium sulphate 60mg/kg IV(group A) is the most effective dose in acceleration of the neuromuscular blockade when compared to group B and group C. Conclusion: Monitoring of neuromuscular function and reduction in dose of vecuronium is required when using these two drugs in combination. Key Words: Magnesium sulphate; pretreatment; nondepolarizing muscle relaxant

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MATERIALS AND METHODS

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OBSERVATIONS AND STATISTICAL ANALYSIS

Т h ost a isv h om h e Ŧ в e W r oup S V b as edonlotmeth eac h d 0 . 6 k Μ s of р Ah / g g / M g s of 6 ĽМ k р g C :- IV 100ml NS as control Grou р Τ h e resubweendy s e d andreafbws

Table 1: Comparison of sex based on group

						0		
	Group A			Group B		Group C	Chi Caucata	
Sex	Count	Percent	Count	Percent	Count	Percent	Chi Square	р
Male	12	34.3	9	25.7	13	37.1	4.42	0.500
Female	23	65.7	26	74.3	22	62.9	1.13	0.568

		Table 2: Com	parison of age based	on group		
4.50	Group A	Group B	Group C	Group A	Group B	Group C
Age	Count	Percent	Count	Percent	Count	Percent
<=30	20	57.1	13	37.1	14	40.0
31-40	8	22.9	10	28.6	11	31.4
>40	7	20.0	12	34.3	10	28.6
Mean ± SD	32.3	± 8.3	36.6 ± 11 .	.3		35.1 ± 11
			F = 1.6, p = 0.	206		

Table 3: Comparison of weight based on group Moor SD

Group	Mean	SD	N	t	р	
Group A	55.9	6.9	35			
Group B	58.7	5.3	35	1.45	0.241	
Group C	57.3	8.2	35			

Table 4: Comparison of pulse rate based on group

Group	Mean	SD	N	F	р	Scheffe N	/lultiple Co	mparisons
						Pair	F`	р
Group A	78.3	3.2	35			A andB	0.4	0.667
Group B	79.1	3.8	35	9.73**	0.000	A and C	5.4**	0.006
Group C	75.4	4.0	35			B and C	8.8**	0.000
			**: - Sig	nificant at	0.01 level			

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Table 5. comparison of systeme blood pressure based on group	Table 5: Comparison	of systolic blood	pressure based o	n group
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Group	Mean	SD	Ν	F	р
Group A	113.6	13.3	35		
Group B	116.3	12.9	35	0.98	0.377
Group C	118.3	16.0	35		

Table 6: Comparison of diastolic blood pressure based on group

Group	Mean	SD	N	F	р
Group A	75.1	5.1	35		
Group B	76.0	5.0	35	0.5	0.609
Group C	76.3	4.9	35		

	Table 7: Comparison of ASA based on group									
A.C.A	Gro	oup A	Gro	Group A						
ASA	Count	Percent	Count	Percent	Count	Percent	Square	þ		
I	34	97.1	24	68.6	32	91.4	12 07**	0.001		
П	1	2.9	11	31.4	3	8.6	15.07	0.001		

**: - Significant at 0.01 level

Table 8: Comparison of onset of neuromuscular blockade based on group

	Group	Mean	SD	N	F	р	Scheffe N	/lultiple Com	parisons
							Pair	F`	р
G	roup A	128.8	10.5	35			A and B	16.9**	0.000
G	roup B	138.8	5.1	35	325.07**	0.000	A and C	297.8**	0.000
G	roup C	170.7	4.3	35			B and C	173**	0.000
				**					

**:	- Sign	ificant	at 0.	01	level
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Table 9: Comparison of clinical duration of action based on group

Dair		
Pdli	F`	р
A and B	22.2**	0.000
A and C	15.9**	0.000
B and C	0.5	0.598
	A and C B and C	A and C 15.9** B and C 0.5

**: - Significant at 0.01 level

Table 10: Comparison of neuromuscular recovery based on group

Group	Mean	SD	N	F	р	Scheffe Multiple Comparisons				
						Pair	F`	р		
Group A	17.1	2.1	35			A andB	101**	0.000		
Group B	11.7	1.3	35	345.34**	0.000	A and C	344.6**	0.000		
Group C	7.1	1.3	35			B and C	72.5**	0.000		
**: - Significant at 0.01 level										

Table 8.11: Distribution of Side effects based on group

		Group A		Group C		
SE	Count	Percent	Count	Percent	Count	Percent
No	35	100.0	35	100.0	35	100.0
Yes	0	0.0	0	0.0	0	0.0

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Ð ¢ h en p duration of blockade was for 47.6 minutes in Group А B h e revie i fille В n **A** 0% e di 🛍 С þ = h navonusalabbokatemt h meandraiorbing e e c ting Comp а r ist ŝ g 🏟 h h **b** r g r p S h Ð s đ t h e g nin np 6 褹 h b g im h 🖬 р =Ø ₿ Cþ h ena p f**c**h mt ŝ olia ing р Ζ elatticeski7InntsiGop 1.7 Α 1 Сħ B 6 rev / 1 e ž. e h s b уä r e r p h h in fin h p 41 t y y 16 6h AG B a p g g k **€**h h 8 g₿ nh ap n р et m edicatn h a d fatorstfærmark p e r H, a 🏙 p tv e mpn g n **d**n e p 0 12 i n g mt М g 🖿 h a to r **b** e ti е 🛍 p rbb e 0 p p 5 F uch Burk e r e S S (16 H M g h e h at р ίaπ. 븳 e in e dh đ 1ġ e р clinical duration of heuromuscular block. Th e s tudy andaty K a ussmanth 1997 totter it h e $g \hspace{0.4cm} / \hspace{0.1cm} k \hspace{0.1cm} g$ S O46n 6 r i dia o nsemilainfamim itaans o n th e idatermattaksp r tsoursts 0 p Т 6 h **b** e tik h h e 🟚 Ł h œ e w р æÅ e doff S e р UN VA Мg S 🚯 w h p р 🏙 0 8 ata onsettime and long t duration of neuromuscular e S 11 **∯**n / k g n 🖬 р h аŧ gn en h S Oľ h eta p r 1/ t T randah wa🝎 e у s timerrermanater bn w asseri e g y 6 r 🏜 6h h g₿g рA n n n ła h аff th eţ p Đ h аĦ ¢ sE 0 g e 6 gʻm i p À о'n ing værninidætærmælttok W ith a nd İw hð∕I g₽ rth ti уħ otv h at S Olly e 🖸 h de/ vin ħ W vecuroniumrequiredwaslessfort s ameduration of h e 51 g e r y i s g SS h Μ th n а 18 r ð ĥ 0 🙀 e а́р at M р

CONCLUSION

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