



COMPARATIVE EFFICACY OF IVIG AND PLASMA EXCHANGE IN MANAGEMENT OF GUILLAIN BARRE SYNDROME

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ABSTRACT **Introduction:** Plasma exchange (PE) and Intravenous immunoglobulin(IvIg) are immunomodulatory treatments used in Guillain Barre Syndrome. We studied the comparative efficacy of both treatment modalities in GBS.
Methods: We included 70 patients of GBS and analysed the clinical aspects of morbidity and the outcome aspects with therapeutic modality.
Results: With regard to outcome taking together all GBS and its variants there is no significant difference in 4th week outcome in IV immunoglobulin group vs plasma exchange group as measured by HUGES and MRC sum score. Discussion: In our study the observation was that both IVIG and PE are equally efficacious with regard to outcome.
Conclusion: Plasmapheresis and IVIG were equally efficacious in management of GBS.

KEYWORDS :

Introduction

Guillain-Barré syndrome (GBS) is a demyelinating polyradiculoneuropathy with an acute flaccid ascending symmetric and areflexia. Incidence varies between 0.66 and 1.79 cases per 100 000 persons in general population. About pathogenesis, the etiologies of GBS remain unclear; However, several findings suggest that causes such as an infection of the respiratory or gastrointestinal tract, vaccinations, etc generate an abnormal immune response which leads to destruction of myelin sheaths and/or axons. Both plasma exchange (PE) and intravenous immunoglobulin(IvIg) are the two immunomodulatory treatments used in treatment of GBS. Several studies demonstrated that IvIg and PE are efficacious treatment for GBS. We studied the comparative efficacy of both treatment modalities in GBS.

AIM

The aim of the study is to compare efficacy of intravenous immunoglobulin (IvIg) versus Plasma exchange in management of GBS in our tertiary care centre. To determine whether there is a difference in clinical outcome, duration of hospital stay, duration of ventilation and complications in patients with Guillain-Barré Syndrome (GBS) and its variants treated with intravenous immunoglobulin (IVIg) versus plasma exchange (PLEX).

Materials and methods:

We included 70 patients who were admitted with clinical and electrophysiological criteria for diagnosis of GBS and its variants who required the assistance of mechanical ventilation, having excluded other cause of acute flaccid paralysis. We defined two groups: group 1 of 35 patients (group treated by Plasma Exchange : 5 cycles) and group 2 of 35 patients (group treated by IvIg: 0.4 g/kg/day for 5 days). We analysed the clinical and therapeutic aspects of morbidity with specific regard to duration of hospital stay and the outcome aspects with weaning from ventilator and motor recovery by MRC sum score and Huges scale at 4 weeks after onset. Statistical analysis of results was done using SPSS software.

RESULTS

The age of patients ranged between 16 years to 68 years of which 42% were males and 58 % were females. 23 patients (32%) had history of preceding infection. Treatment groups (IVIg: N = 35; PE: N = 35) had equal representation of patients with varying age and gender. Electrophysiological studies showed demyelinating polyradiculoneuropathy in 69.7% of patients with remaining suggestive of other AIDP variants.

The mean length of hospitalization in PLEX group is longer than IVIG groups. Risk of complications during hospital stay was more with PLEX than IVIG groups. There was no significant difference in mortality and morbidity between two groups.

TYPE	AIDP	AMAN	AMSAN	CPBV	MFS	TOTAL
NO OF PT	38	11	14	3	4	70
HUGES 2-3	16	3	7	1	1	28
MRC 3-4	1	4	0	1	1	7
NO.OF PATIENT VENTILATED	3	0	3	2	2	10
DURATION OF VENTILATION	3	0	3	2	2	10
TRACHEOSTOMY	1	0	1	1	2	5
DEATH	1	0	3	0	0	5

COMPARISON OF QUANTITATIVE VARIABLES WITH OUTCOME VARIABLES

	GROUP	N	Mean	Std. Deviation	P Value
HUGES_4thWK	PE	25	2.84	.374	0.651
	IVIG	26	2.88	.326	
MRC_4thWK	PE	23	3.57	.507	0.002*
	IVIG	26	4.00	.402	
TREATMENT_1_NIT_DAY	PE	34	9.79	3.583	0.004*
	IVIG	35	6.46	2.984	
DUR OF VENTILATOR	PE	7	11.71	5.82	0.604
	IVIG	3	14.00	7.00	
DAYS_IN_HOSPITAL STAY	PE	34	28.35	10.614	0.003*
	IVIG	35	19.23	9.647	

(* Indicates significant Since P<0.05)

Excluding Death

	GRP	N	MEAN	SD	P Value
DAYS_IN_HOSPITAL STAY	PE	32	27.88	9.35	0.001*
	IVIG	33	19.39	9.74	

(* Indicates significant Since P<0.05)

DISCUSSION :

Guillain Barre syndrome is a common neurological disease managed with immunomodulatory therapy by plasmapheresis or with Intravenous immunoglobulins. We should also consider and take into account the various factors affecting the overall prognosis apart from

other confounding issues when we are comparing the both the immunomodulatory treatments.

Chio et al¹ had observed that early motor recovery and weaning from mechanical ventilation in IVIG group when compared with plasma exchange group.

Plasma Exchange Sandoglobulin GBS Trial Group (PS GBS Trial Group)² selected 383 patients randomly to receive PE, IVIg, or PE followed by IVIg. After 4 weeks, the outcome was similar in each of the 3 groups. These 3 regimens also had similar outcomes during 48 weeks of follow-up

Huges et al had observed that patients treated within two weeks from onset with IvIg had recovery as much as PE³

Charra et al⁴ in their work with the absence of randomization revealed that there is a meaningful difference for the mechanical ventilation weaning and a precocious recovery in IvIg group compared to the PE group.

Van der Meché et al⁵ have said that treatment with intravenous immunoglobulin is at least as effective as plasma exchange and may be superior.

Kuwabara et al⁶ have stated that showed that IvIg group had a significant fast improvement than PE group.

But El-Bayoumi et al⁷, in pediatric population, found that the PE group had a significant shorter Mechanical ventilation duration compared to IvIg group.

Bril et al⁸ have said that the complication rate was higher in the PLEX-treated group and the efficacy of IVIG in the treatment of GBS is comparable with that of PLEX and that it can be used safely. Similarly Diener et al⁹ and Nomura et al¹⁰ have observed that both immunomodulatory treatments have equal efficacy.

In our study the observation was that both IVIG and PE are equally efficacious. For the IvIg group, the ICU stay was shorter than PE group. There was no significant differences between the two groups in age and gender with regard to outcome taking together all GBS and its variants. There is no significant difference in 4th week outcome in IV immunoglobulin group vs plasma exchange group as measured by MRC sum score. Weaning off from ventilator and need of Tracheostomy also did not show any significance between the immunoglobulin group vs plasma exchange groups but Chara et al had observed earlier recovery and weaning from ventilator. The duration of stay in hospital is comparatively less in IVIG group than PE group. Also earlier the initiation of treatment showed better outcome in both groups. These observations were similar to PS GBS Trial Group, Van der Meché et al, Bril et al and Diener et al and Nomura et al.

CONCLUSION

Although some reviews of literature have stated that there is a meaningful difference for the mechanical ventilation weaning and a precocious recovery in IvIg group compared to the PE group. In our study there was no significant difference in both the groups. Plasmapheresis and IVIG were equally efficacious in management of GBS.

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