

Review: Plasma exchange or intravenous immunoglobulin reduces disability in the Guillain-Barré syndrome

Hughes RA, Wijdicks EF, Barohn R, et al. Practice parameter: Immunotherapy for Guillain-Barré syndrome: Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2003;61:736-40.

QUESTION

In patients with the Guillain-Barré syndrome (GBS) is immunotherapy consisting of plasma exchange, intravenous immunoglobulin (IgIV), or steroids effective for reducing GBS-related disability?

DATA SOURCES

Studies were identified by searching MEDLINE (1966 to March 2002), the Cochrane Library (March 2002), and reviewing bibliographies of relevant studies and personal reference lists of the members of the practice parameter group.

STUDY SELECTION AND ASSESSMENT

Studies were selected if they were randomized controlled trials (RCTs) that evaluated immunotherapy including plasma exchange, immunoabsorption, IgIV, or steroids in patients with GBS.

OUTCOMES

The primary outcome measure used in most RCTs was a 0 to 6 disability scale (0 = normal, 1 = symptoms but able to run, 2 = unable to run, 3 = unable to walk unaided, 4 = bed-bound, 5 = needing ventilation, and 6 = dead).

MAIN RESULTS

Plasma exchange: At 4 weeks, more patients who received plasma exchange than supportive care improved by ≥ 1 disability grade

COMMENTARY

The value of treating patients with GBS with plasma exchange or IgIV is beyond dispute. However, data from RCTs and Cochrane reviews included in the review by Hughes and colleagues do not help a clinician choose between the agents for individual patients. This choice should consider the probable adverse effects associated with each treatment. We usually favor plasma exchange for patients in whom hyperviscosity from IgIV is a potential problem. However, IgIV may be a better choice when central venous access for plasma exchange is problematic (e.g., in children or in patients who have received anticoagulants).

Some patients finish a course of treatment without improvement, or their disease continues to progress. It is tempting to apply another treatment in this circumstance, but clinical trials do not suggest any. No clear benefit was observed in a trial that evaluated plasma exchange followed by IgIV (1), although an insignificant difference between plasma exchange or IgIV alone and their combination sometimes leads to its use in desperation. The somewhat illogical sequence of IgIV followed by plasma exchange has not been tested.

The possibility of using corticosteroids in GBS refuses to die. A recent trial did not show any benefit from the combination of IgIV and

(Table). Mean improvement in disability grade was greater in the plasma exchange group than in the supportive care group (4 RCTs, $n = 585$) (weighted mean difference [WMD] -0.89 , 95% CI -1.14 to -0.63). The number of patients still on a ventilator 4 weeks after randomization was lower in the plasma exchange group than in the supportive care group (Table). At 1 year, more patients in the plasma exchange group than in the supportive care group had recovered full muscle strength (Table).

IgIV: Meta-analysis of 3 RCTs ($n = 398$) that compared IgIV with plasma exchange showed no difference between groups for improvement in GBS-related disability at 4 weeks (WMD 0.11, CI -0.14 to 0.37). Meta-analysis of 2 RCTs ($n = 533$) showed that fewer patients in the IgIV group than in

the plasma exchange group discontinued the study (relative risk 0.11, CI 0.04 to 0.32).

Steroids: 6 RCTs compared any form of corticosteroid or adrenocorticotropic hormone with no steroid or placebo. Meta-analysis of 3 RCTs ($n = 296$) showed that the groups did not differ for improvement in disability grade 4 weeks after randomization (WMD -0.06 , CI -0.32 to 0.19).

CONCLUSION

In patients with the Guillain-Barré syndrome (GBS), immunotherapy consisting of plasma exchange or intravenous immunoglobulin reduces GBS-related disability.

Source of funding: No external funding.

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Plasma exchange (PLE) vs supportive care (SC) in the Guillain-Barré syndrome*

Outcomes	Follow-up	Number of RCTs (n)	Weighted event rates		RBI (95% CI)	NNT (CI)
			PLE	SC		
Improvement by ≥ 1 disability grade	4 wk	5 (623)	57%	35%	64% (37 to 96)	6 (4 to 7)
Recovery of full muscle strength	1 y	5 (404)	68%	55%	24% (7 to 45)	8 (5 to 25)
RRR (CI)						
On ventilator	4 wk	5 (623)	14%	27%	47% (26 to 51)	8 (6 to 15)

*RCTs = randomized controlled trials. Other abbreviations defined in Glossary; RBI, RRR, NNT, and CI calculated from data in article using a fixed-effects model.

methylprednisolone (2). No other treatments show clinical promise at this time. Addition of interferon β -1a to IgIV was not helpful (3).

Until new ideas to test are formulated, we must concentrate on early identification of GBS, rapid institution of plasma exchange or IgIV as appropriate for the patient, and prevention or management of complications while we hope that the patient responds to treatment.

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References

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