Study Protocol

Guillain-Barré Syndrome And It's Effect On Child Population

Abstract :

BACKGROUND

Guillian Barre Syndrome (GBS) is the most common cause of minor flaccid paralysis in the world and post-polio eradication is the most common cause on the Indian subcontinent as well. It affects 0.6-4 people per 1 lakh people per year. Guillian-Barre syndrome should be distinguished by a variation associated with inflammation of the cortical area of brain of chronic inflammatory polyneuropathy predicting prognosis and clinical course. Children have a better prognosis than adults and usually recover after a different period. However, in the Pressing event of the disease, the damage can be severe and can lead to mechanical failure and even death. There are a few studies in the indian subcontinent that show the effects of GBS in children and the effect of regional variability of the outcome. This study is therefore designed to study prospective clinicians, as well as the overall effect on children with GBS in India.

Objective :

Studying the short-term and long-term effect of Guillian Barre Syndrome in children

METHODS:

This is a health care infrastructurel-based study to be conducted at Acharya Vinoba Bhave Rural hospital (ABVRH) for a period of one year. All children under the age of 18 between August 2019 to July 2020 are admitted to the PICU and completing the comprehending criteria will be comprised in the study. Patient details regarding the progression of the disease, the results of the investigation, the PICU stay, clinical studies in the hospital, the treatment received and the state of discharge will be recorded in the pre-prescribed proforma. The data obtained will be analyzed simultaneously.

CONCLUSION:

Information on factors associated with positive and negative outcomes in children with GBS will serve as a guide for your treating pediatrician to plan a treatment plan and will also help them explain their predictions to parents.

Keywords: GBS, PICU, EFFECT , Child Population

I. INTRODUCTION

Guillain-Barré Syndrome (GBS) is a polyneuropathic disease typified by persistent contractile unit incompetence and decreased or lack of tenderness. GBS is a leading cause of acute flaccid paresis in children and adolescents. (1) The annual average of GBS cases in theUnited States is1.65 to1.79 per people. Guillain-Barré progression is a rare form of autoimmune condition. (2)
This involuntary answer may be caused by surgery, vaccination, or infection.

The most common form of GBS, acute demyelinating polyradiculoneuropathy, presents as a progressive motor weakness that starts in the legs and progresses significantly.
Symptoms generally subside within four weeks, followed by plain before departure. There are symptoms other than motor weakness. Further than half of cases suffer from pain and about two-

thirds experience independent symptoms resembling as cardiac arrhythmias, hypertension or urinary retention. Serious illness can lead to respiratory muscle weakness and the need for air care. Decision is grounded on clinical features, cerebrospinal fluid tests, and nerve conduction studies. Cerebrospinal fluid tests revealed an albumin-cytologic breakdown, which is an increase

in CSF protein despite a normal number of white blood cells. Emotional stimulation studies show abnormal sensory processing that indicates a delay or inhibition of performance. Patients should be admitted to hospital for various care and treatment options that change the course of the disease as the disease progresses. Treatment may include non-inflammatory specifics, carbamazepine, or gabapentin; Monitoring respiratory and autonomic problems; and other means of venous thrombosis, skin degeneration, and immunosuppression.plasma exchange therapy has been shown to ameliorate short- term and long- term stuff , and intravenous immunoglobulin has been shown to accelerate recovery in older patients and children. Other remedies, including corticosteroids, haven't shown any benefit.GBS mortality rate is 3%. (1) Autonomic dysfunction is the leading cause of death in affected children. (3) Although most patients undergo complete neurological recovery, neurological problems continue to affect up to 20% of patients with the disease, and half of these patients have severe disabilities. IVIG treatment, plasmapheresis, can dramatically change the disease, especially if started early. (4)

Rationale: Present the available evidence despite restrictions suggesting that the prediction of GBS for children is better than for adults but details of the predicting factors in children with GBS are not available. To date there have been very few major studies pertaining to the effect of GBS in young ones. In not so advanced countries and resources there is a great need to explore this area in order to set guidelines for the future. In-depth analysis of symptoms and signs with EPF can help to explain the overall effect and need for air management in GBS patients. The information on clinical points associated with the guidelines for distinguishing between complex and incomprehensible complications in children with GBS will serve as

Objective :

*Assess To measure out the rate of decline in persons sick with GBS at short-term and long-term follow-up

* Assessing various determinant condition associated with adverse outcomes in persons sick with GBS.

MATERIALS :

1. Setting

The study will be organized as a hospital-based study for the pediatric department of AVBRH Sawangi, a tertiary education center in central India.

2. Study Design

It will be a prospective study looking at patients with Guillain Barre Syndrome over a period of 1 year which is from August 2019 to July 2020. These children will be followed for one year until August 2021 with short and long term follow-up.

3. INCLUSION CRITERIA :

All children diagnosed with GBS and admitted to AVBRH equally in the study timeline will be added to the study after receiving an oral and written profile of refusing to object to the guardian.

4. Exclusion criteria:

1. Refusal of permit.

2. Children who already have a neurological problem before being diagnosed

3. Children with developmental delays / Cerebral palsy / limb paralysis

5.Variable: GOOD AND BAD SUCCESS (by Likert rating)

Measurement variability: All children admitted to the PICU will be monitored by clinics (length of hospital stay, need for air support, ventilatory length) and electrophysiological variability (nerve conduction velocity).

II.Methodology

All children under the age of 18 who are eligible for a GBS diagnosis from the Department of Medicine between August 2019 and July 2020 will be included in the study after taking a written and oral profile of non-compliance with the caregiver. Hospitalization, treatment received and discharge status will be recorded in the pre-prescribed proforma. The result was tested on the Likert scale at least one year after the onset of the disease. (5) In terms of this measure;

0 – indicates health status: no signs or symptoms due to Guillain-Barre syndrome,

1 – The signs or symptoms are mild and can be avoided

2 – can walk 5 meters in the open without help, walker or cane, but can not walk,

3 – be able to walk in open spaces with the help of a person and frame or stick to a waist height of 5 m

4 – restricted to chair or bed: unable to walk as 3,

5 – requires assisted breathing for at least half a day or night,

6 – die.

Clinical and electrophysiological variability will be the comparison between a positive outcome (score 0/1) and a group with a negative outcome (dead or scorer score> 1). The information obtained was analyzed with the help of SPSS software.

Methods of calculation: Data once collected will be entered into a Microsoft Excel sheet. Data analysis will be done using SPSS software. Representation of the definition of Quantitative variability and standard deviation will be used while Qualitative data will be represented by frequency and percentage and the square test of Chi will be used for statistical significance analysis. A value less than 0.05 will be considered significant.

Expected Outcomes: We will enroll all PICU-approved children who meet the inclusion process during the study period. Those children whose parents would not consent, children with a known vascular disease or cerebral palsy or organ failure will not be excluded. The final cohort of participants will be followed during their entire PICU stay and at least one year after enrollment. Available information will be included in the pre-designed profile. The results obtained will be specified under the profile of the people and the main results. The profile of the people will be determined under age, gender and advanced system of the organs involved. Significant effects will include electrolyte abnormalities represented by percentages. Patients will be grouped for positive and negative outcomes as defined by the Likert criteria. Various factors such as disease progression, diagnosis, PICU duration, and acquired treatment and discharge status will be analyzed to determine the important relationship between variability and outcome.

III. Result and Discussion

GBS in children is one of the leading causes of acute flaccid paresis. The overall results are even better than for adult patients but GBS places significant physical, mental and financial burden on the patient and the family and the community.

Kalra V. Et al (6) studied 52 children with GBS and long-term data were obtained from 40 children. In the 1-year follow-up study, 87.5% of children recovered completely or had minor symptoms, after one year this increased to 95%. Only 2 of the 40 had symptoms for more than 1 year at the last follow-up visit. They found that factors most closely related to adverse effects were the need for adherence therapy, sensory sensitivity during nerve conduction tests, and delays in autonomic mobility. In a study by Briscoe et al. (7) she studied 22 children during a seven-year follow-up period in those presented in 1970-85 and 9-7 years in those presented in 1970-80. 18 was normal in neurologic examinations and had no complications. Two others had chronic illnesses and one had a chronic illness. Of the 19 children who experienced full recovery at the clinic, all initially presented well, and the three who performed well had complex outcomes.

In previous studies GBS is more common in men than in women. In a study by Salehiomran et al. Male: female ratio is 1.8: 1. (1) Dhadke et al., observed a difference in the sex profiles of patients in their study and 1.5: 1 male: female average.)

The study reported that 66 independent cases could show a medical profile at the clinic within a week or two of the recorded disease. (9) Dhadke et al., Has reported respiratory infections as the most dangerous, followed by gastrointestinal disorders. In a study reported by Salehiomran, a previous infection was diagnosed in 7 patients (41.2%) two weeks ago. (1)

Many previous studies have reported GBS disease in children. A study by Akbayram et al. Reported paralysis in 34/36 (94.4%) children with GBS. (10) The majority of young patients in the Pi-Lien et al. Study were placed in the AIDP group. (11) Akbayram's reported death was 8.9%, and Salehiomran reported that no deaths were reported in the study. In a study by Korinthenberg et al. Total recovery was 92% with Maneesh Kumar et al. Poll is 82.4%. (12)

As shown in various previous studies (13, 14) long-term recovery is better in pediatric patients compared to adults .In one of the largest possible studies by Korinthenberg et al. (12) at the end of the follow-up period (288 days), 96% of children had asymptomatic or indicated symptoms that did not interfere with their daily functioning. Several previous studies have found that the need for low airway (14, 15) and low conduction amplitude (15) is associated with poor performance in children with GBS.

IV. Limitations

This study is a one-institutional study and therefore the wide range of research findings will be limited even if there is a solid approach. Although we plan to follow the study subjects for a period of approximately 1 year after the introduction of the index, long follow-up may be better to show long-term effects on neurological disease such as GBS. Due to limited resources and limited time available, it is not possible to follow long periods in the current study.

REFERENCES

1. Salehiomran MR, Nikkhah A, Mahdavi M. Prognosis of Guillain-Barré Syndrome in Children. Iran J Child Neurol. 2016 Spring;10(2):38-41. PMID: 27247582; PMCID: PMC4885153.

2. Hughes RA, Rees JH. Clinical and epidemiologic features of Guillain-Barré syndrome. J Infect Dis. 1997 Dec;176 Suppl 2:S92-8. Doi: 10.1086/513793. PMID: 9396689.

3. Van Doorn PA, Ruts L, Jacobs BC. Clinical features, pathogenesis, and treatment of Guillain-Barré syndrome. Lancet Neurol. 2008 Oct;7(10):939-50. Doi: 10.1016/S1474-4422(08)70215-1. PMID: 18848313.

4. Koul R, Al-Futaisi A, Chacko A, Fazalullah M, Nabhani SA, Al-Awaidy S, Al-Busaidy S, Al-Mahrooqi S. Clinical characteristics of childhood guillain-barré syndrome. Oman Med J. 2008 Jul;23(3):158-61. PMID: 22359705; PMCID: PMC3282330.

5. Winer JB, Hughes RAC, Greenwood RJ, Perkin GD, Healy MJR. Prognosis in Guillain Barre syndrome. Lancet 1985;i:1202-1203.

6. Kalra V, Sankhyan N, Sharma S, Gulati S, Choudhry R, Dhawan B. Outcome in childhood Guillain-Barré syndrome. Indian J Pediatr. 2009 Aug;76(8):795-9. Doi: 10.1007/s12098-009-0125-y. Epub 2009 Apr 16. PMID: 19381495.

7. Briscoe DM, Mcmenamin JB, Odonohoe NV. Prognosis in Guillain Barre Syndrome. Archives of Disease in Childhood, 1987:62:733-735.

8. Dhadke SV, Dhadke VN, Bangar SS, Korade MB. Clinical profile of Guillain Barre syndrome. J Assoc Physicians India. 2013 Mar;61(3):168-72. PMID: 24475678.

9. Kumar M, Aroor S, Mundkur S, Kumar S. Guillain-barré syndrome: a clinical study of twenty children. J Clin Diagn Res. 2015 Jan;9(1):SC09-12. Doi: 10.7860/JCDR/2015/8344.5491. Epub 2015 Jan 1. PMID: 25738052; PMCID: PMC4347143.

10. Akbayram S, Doğan M, Akgün C, Peker E, Sayın R, Aktar F, Bektaş MS, Caksen H. Clinical features and prognosis with Guillain-Barré syndrome. Ann Indian Acad Neurol. 2011 Apr;14(2):98-102. Doi: 10.4103/0972-2327.82793. PMID: 21808470; PMCID: PMC3141496.

11. Hung PL, Chang WN, Huang LT, Huang SC, Chang YC, Chang CJ, Chang CS, Wang KW, Cheng BC, Chang HW, Lu CH. A clinical and electrophysiologic survey of childhood Guillain-Barré syndrome. Pediatr Neurol. 2004 Feb;30(2):86-91. Doi: 10.1016/S0887-8994(03)00403-X. PMID: 14984898.

12. Korinthenberg R, Mönting JS. Natural history and treatment effects in Guillain-Barré syndrome: a multicentre study. Arch Dis Child. 1996 Apr;74(4):281-7. Doi: 10.1136/adc.74.4.281. PMID: 8669925; PMCID: PMC1511471.

Paradiso G, Tripoli J, Galicchio S, Fejerman N. Epidemiological, clinical, and electrodiagnostic findings in childhood Guillain-Barré syndrome: a reappraisal. Ann Neurol. 1999 Nov;46(5):701-7. Doi: 10.1002/1531-

13. 8249(199911)46:5<701::aid-ana4>3.0.co;2-7. PMID: 10553986.

14. Rees JH, Thompson RD, Smeeton NC, Hughes RA. Epidemiological study of Guillain-Barré syndrome in south east England. J Neurol Neurosurg Psychiatry. 1998 Jan;64(1):74-7. Doi: 10.1136/jnnp.64.1.74. PMID: 9436731; PMCID: PMC2169900.

15. Ortiz Corredor F. Factores que influyen en el pronostico del sindrome de Guillain Barre infantil [Factors affecting prognosis in childhood Guillain Barré syndrome]. Rev Neurol. 2004 Mar 16-31;38(6):518-23. Spanish. PMID: 15054714.