Clinical Experience with Gullain Barre Syndrome Over a 6-Year Period in One Hospital in The Middle East

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Abstract

Background: Gullain Barre Syndrome (GBS) is the most common cause of sporadic acute flaccid paralysis but is still relatively rare. No series describing the full clinical course of patients with GBS were reported from the Arab world.

Methods: Here we report on our experience with GBS over a 6-year period in one large medical facility from January 1999 till December 2004.

Results: We encountered 12 patients with GBS.The median age was 47 years and all had generalized weakness and areflexia. One patient started as Miller Fisher Syndrome (MFS) and ended up with GBS. More than 80% of patients were admitted to Intensive Care Unit (ICU), and 75% were intubated. All patients received supportive care. Specific treatment included intravenous immunoglobulin IVIG in all patients (100%), plasma exchange (PE) in 2 patients (17%), and intravenous methyl prednisolone (IVMP) in 1 patient (9%). The median time to walk independently was 62 days. Transient complications occurred in the majority of patents but the overall outcome was good in the majority of patients; with one single (8%) and probably unrelated mortality.

Conclusions: Compared to other series, no significant difference in clinical presentation or outcome was noted.

Keywords: Guillain Barre Syndrome, Middle east, clinical experience.

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Introduction

Gullain Barre syndrome (GBS), though rare with a variable incidence rate of 2.4- 2.73 per 100,000, is still the most common cause of sporadic flaccid paralysis. [1] The underlying cause is not well-understood but revolves around immune mediated acute inflammatory demyelination of the peripheral nerves and roots usually precipitated by a recent respiratory or gastrointestinal infection. [2] Molecular mimicry between cell wall of the preceding infectious agent and components of peripheral myelin is considered the most probable mechanism. Well-studied examples include Campylobacter jujuni and the axonal form of GBS and MFS. [3,4] Though considered to be of good prognosis, significant minority of patients with GBS may die in the acute stage or have significant disability. [5] The management of this syndrome is basically supportive including physical, respiratory and psychological support

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in addition to specific treatment with well-studied therapies, namely IVIG and PE. [6-8] Here, we report our experience with GBS over a 6-year period in a major community hospital in the middle east.

Patients and Methods

All patients with a diagnosis of GBS over the period from January 1999 and December 2004 seen in King Fahad armed forces hospital, Jeddah, Saudi Arabia were studied. All of these patients were taken care of by the author.

The diagnosis of GBS was based on acute progressive flaccid paralysis with areflexia and abnormal cerebrospinal fluid (CSF) analysis consistent with GBS and/ or abnormal electrodiagnostic studies. It showed evidence of peripheral nerve dysfunction of demyelinating, axonal or both dysfunctions. No better explanation for the paralysis of any of these patients was possible.

Results

The following table summarizes the cardinal features of these 12 GBS patients.

Table summarizing the cardinal features of the 12 GBS patients.

Variable	***Value***
Age (year) mean ± SD	*45± 18.9*
Sex M/F	*7 / 5*
Season: cold (winter and fall) /spring/summer %	*58 / 33 / 9*
Precipitating infection %	*76 %*
Respiratory/GI/Varicella	*58 / 8 / 8*
CSF Cells(/cumm) mean ± SD	*2.4 ± 1.4*
CSF protein mg% mean ± SD	*126 ± 25.4*
EDX Pure Demyelinating %	*78%*
EDX Mixed Demyelinating% and Axonal %	*22%*
Worst functional scale(mean ±SD)	*4.25 ± 0*
ICU / Ventilation/ Tracheostomy %	*83 / 75 / 50*
Rx: IVIG/PE/IVMP (%)	*100 / 17 / 8*
Length of hospital stay mean ± SD	*50 ± 37*
Days to walk independent (mean ± SD)	*63 ± 54.3*
Outcome (%) recovery/ residual/dead	*75 / 17 / 8*

M male, F female, GI gastrointestinal, CSF cerebrospinal fluid, EDX electrodiagnosis, ICU intensive care unit, IVIG intravenous immunoglobulin, PE plasma exchange, IVMP intravenous methylprednisolone.

Demography and precipitating factors: There were 12 patients, 5 females (42%) and 7 males (58%). The age ranged between 7 and 75 years with a mean of 45±18.9 years and a median of 47 years. The majority of patients (50%) were middle age (41-60 years) while 4 patients (33%) were young between (7-40) years, and 2 (17%) were old (61-80) years. Seven patients (58%) were admitted in the cold season while four patients (33%) were admitted in spring and one (8%) was admitted in summer. Precipitating factors were identified in 10 patients (83%) and not identified in 2 patients (17%). Of those with known precipitating factors, upper respiratory tract infection within the previous 2 weeks, usually viral, was evident in 7 patients (58%); while gastroenteritis, chickenpox and acute myocardial infarction (AMI) each was a precipitating factor in each patient (8% each).

Presenting signs and symptoms and functional grade: All patients were flaccidly weak at the time of presentation with variable weakness grade. Half of patients had sensory symptoms at presentation usually in the form of parasthesias in the lower limbs and back pain. Five patients (42%) showed evidence of cranial nerve dysfunction mostly of bilateral facial weakness, bulbar or ocular weakness. One patient (8%) presented with the classical triad of MFS: ophthalmoplgeia, ataxia and areflexia with positive ant GQ1b antibody.

For the presenting signs all patients had flaccid weakness with variable severity and all were areflexic. Sensory and cranial signs were present in 50% of patients each. On GBS functional grade (9), which is a 7 level grade from 0-VI, the grades 0 grade normal, 1 minimal deficit, 2 walk without support but can't run, 3 walk with assistance, 4 bedridden, 5 being ventilated and VI being dead. The range of worst grade was II-VI with an average grade of 4.25±0. Two patients (17%) had grade II, while 2 patients (17%) reached grade IV, while 7 (58%) patients reached grade V and 1 patient (8%) died (grade VI).

Diagnostic Studies

Cerebrospinal fluid analysis: All patients except one had CSF study within the first one week of admission. The one exception was a patient with acute myocardial infarction who developed an areflexic flaccid quadriparesis after sustaining acute large anterior wall MI. He was considered unstable for doing CSF and actually he died in hospital later during the course of his illness. The range of protein in the other 11 tested patients was 46-327 mg % with an average of 126±25.4. The CSF total cell count (all lymphocytes) ranged between 0 and 5 cell/cubic ml, with an average of 2.4±1.4 cell/cc.

Electrodiagnostic Studies

Nerve conduction studies of the median, ulnar, radial, peroneal, tibial, and sural nerves were studied as well as F wave responses in 9 (75%) patients. The study was not done in the other 3 patients (1 patient with MI and 2 patients refused). Seven of the 9 patients with EDX showed evidence of pure demyelination defined as slowing of conduction velocities, conduction blocks and prolonged F waves with still relatively preserved amplitudes of the motor and sensory action potentials. Two patients of the 9 (22%) has mixed features of axonal (loss of amplitude) and demyelination as well.

Admission to intensive care unit (ICU), ventilation and tracheostomy and length of stay

Ten patients (83%) were admitted to ICU because of respiratory compromise and deteriorating vital capacity and/ or autonomic or bulbar dysfunction. Nine of these patients (75%) were intubated usually on an elective base to protect airways and to support ventilation due to impending respiratory failure. Sex of patients admitted to ICU had tracheostomy due to prolonged intubation exceeding 2 weeks. The length of stay in the hospital ranged from 5-126 days with an average of 50±37 days. Those who stayed for a quite short time were 2 patients; one stayed for 5 days and the other for 7 days; and they were young (age 7 and 18 years), respectively. Those came with mild flaccid lower limb weakness of 2-week duration and stayed quite stable and were discharged home after a course of intravenous immunoglobulin; they were followed up over the next three months and showed improvement with no further dysfunction.

Treatment and Complications

All patients received supportive care as appropriate. All patients received a course of IVIG treatment at a dose of 400mg/kg /day for 5 days. Two of the patients who seemed to progress rapidly in their weakness received plasma exchange prior to their IVIG treatment. One patient with severe grade at presentation received both IVIG which was followed 48 hours later by a 5-day course of 500 mg IVMP daily. The following complications were observed during hospitalization: pneumonia in 4 patients (33%), autonomic dysfunction in 3 patients (25%), neuropathic pain in 2 patients (17%), acute exposure keratitis in one patient with sever bilateral facial palsy (8%), acute myocardial infarction in an elderly patient (75 years) who developed AMI with elevated troponin and ST elevation on the fifth day of IVIG treatment (8%). One patient developed cardiac arrest and died (8%); this was the patient with AMI as the precipitating factor for his GBS. One patient developed generalized pruritis (8%).

Final Outcome

Follow up ranged from 1-44 months after discharge from the hospital with an average of 10 months. Number of days to walk independently ranged from 5-183 days with a median of 62 days and an average of 63±54.3 days. Nine patients had full clinical recovery (75%), while 2 patients (17%) had some residual deficit enough to bother them in their daily activities but were independent. One patient died after a cardiac arrest while in hospital. This patient was in a high risk for sudden death due to a recent AMI.

Discussion

In this small series of patients, we report the details of the clinical presentation and final outcome from a single medical center over a six-year period time. This means that on average we used to see 2 patients per year with a diagnosis of GBS. We don't have incidence estimation of GBS in Saudi Arabia or any other Arab countries; like if we consider a nearby country such as Iran, where a recent study [10] reported an annual incidence of 2.11/100,000, one would as expect something like 30 case / year in Jeddah area with a population of around 1.5million. We believe that the number of cases may be small. This may reflect a real lower incidence than Iran or may be falsely low due to bias of small sample size. Anyhow, we think that this sample does not represent the general society as this facility is a one that serves military persons and their dependants. The peak age incidence in this series is between 41-60 years with a median age of 47 years and a mean of 45.3 years which is older than the Iranian series; [9] which was with a mean of 34.4 years. Males were slightly more affected than females and this was also reported before. [11] The peak incidence was in cold seasons reflecting a higher incidence of respiratory infection which was the precipitating factor in 58 % of patients; while gastroenteritis was so in 9% only. Chickenpox preceded GBS in 1 patient and this has been reported before. [12] Acute MI preceded one episode of GBS in this series. Immune mediated mechanism caused by the disrupted myocardium or endocardium as happens in another post MI immune syndrome known as Dressler's syndrome [13] is a reasonable explanation. Our high rate of admission to ICU (82%) mechanical ventilation (75%) and tracheostomy (50%) reflect our low threshold to interfere with these patients on an elective rather than emergent basis. The good outcome in spite of such an aggressive treatment supports our intensive approach. This rate was much higher than the reported in literature. [10, 14, 15] The CSF findings were similar to those reported before. Demyelination was the most frequent pathology seen by EDX and that may be a reason for the good outcome in this study as we did not report pure axonal form. All patients received standard treatment with IVIG. One of our elderly patients developed an acute MI in the fifth day of IVIG treatment. We believe that this complication was causally related (though we cannot prove it). This patient has no history of ischemic heart disease or risk factors for it except for that old age and his baseline EKG was normal. Others [16, 17] have reported other thrombotic events following IVIG. Elderly patients who are given IVIG must be closely monitored and well hydrated. Two patients received PE as part of their treatment though previous literature [18] did not show a benefit of combining IVIG and PE; still some physicians including ourselves are pushed to use a combination for certain patients. Though steroids have been shown to be harmful or useless in GBS according to old literature, [9, 19] we were impressed by a recent study [20] which suggested some benefit in subgroups of patients and we elected to treat one patient with a combination of IVIG and IVMP and her response seemed much better. She needed fewer days to be able to walk compared to the average group. Definitely we cannot make a firm conclusion and we acknowledge that steroids should not be used routinely for acute management of GBS till further studies clarify this issue. As for the final outcome, our small series did not differ from other series. The median time to walk independently (62 days) was similar to other original studies. [6-8] We have only one death that may have been related to the precipitating factor (AMI) rather than to GBS itself. The majority of our patients made a full recovery with a significant minority (17%) with mild deficits but without loss of independence.

In conclusion, GBS may be less common in our population and that the outcome is good. Prospective studies are needed to assess the incidence of such a disease and to be careful when using IVIG for elderly patients.

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الخبرة السريرية في (متلازمة جليان وباري) من خلال دراسة المرض في أحد المستشفيات في الشرق الأوسط لمدة ست سنوات

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الملخص

تعتبر متلازمة جليان وباري من أشهر الأسباب المؤدية إلى الشلل الرخو الحاد المفرد في العالم رغم ندرة حدوثه بشكل عام. ولا يوجد وصف كامل للتطورالسريري لهذا المرض في البلاد العربية. هنا نقدم وصفا سريرياً كاملا لمرضى هذه المتلازمة الذين تمت معاينتهم وعلاجهم في أحد المستشفيات الكبيرة في الشرق الأوسط ما بين كانون الثاني 1999 وكانون الأول 2004. لقد قمنا بدراسة 12 مريضاً، وكان متوسط العمر47 عاما وجميعهم عانوا من الشلل الرخو مع فقدان الانعكاسات الوترية. أظهر أحد هؤلاء المرضى متلازمة ميلر وفشر ومن ثم تطور إلى متلازمة جليان وباري. أدخل أكثر من 80% من المرضى إلى العناية المركزة، وتم وضع أنبوب داخل الرغامي في 75% منهم. أُعطي المرضى جميعهم العلاج المساند بالإضافة إلى إعطائهم الكريين المناعي بالوريد. وتم اجراء تغيير بلازما الدم لاثنين منهم 17% واعطاء الستروويد في الوريد لواحد فقط 9%. كان متوسط الزمن للمشي عند المرضى 62 يوماً. حدثت هناك بعض المضاعفات في أغلب المرضى ولكن النتيجة النهائية كانت جيدة عند غالبيتهم، مع حدوث وفاة واحدة (8%) وعلى الأغلب غير مرتبطة بالمرض الأساسي. وبالمقارنة مع الدراسات الأخرى فإن هذه المجموعة من المرضى لم تختلف عن باقي المجموعات المدروسة في العالم.

الكلمات الدالة: الخبرة السريرية، متلازمة جليان وباري، الشرق الأوسط.