Prognosis of Guillain-Barré Syndrome in Children.

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Peripheral neuropathies
Study type	Observational invasive

Summary

ID

NL-OMON33503

Source
ToetsingOnline

Brief title
Prognosis GBS in Children

Condition

- Peripheral neuropathies

Synonym
acute inflammatory demyelinating polyneuropathy (AIDP), no lay-term

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus MC, Universitair Medisch Centrum Rotterdam
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: child, Guillain-Barré syndrome, prognosis

Outcome measures

Primary outcome

Main study parameter/endpoint

Residual effects on long-term outcome, with respect to nerve physiology dysfunction, neurological impairment, restrictions in daily activity and participation, and quality of life. Long-term outcome will be defined at least six months from diagnosis, the period in which most recovery occurs. The outcome levels will be determined by using various questionnaires and physical tests that are validated for the appropriate age categories. By using these tests, preferably the results obtained in patients from various ages can be combined.

Secondary outcome

Secondary study parameters/endpoints

Demographic and clinical features available in the acute phase of disease will be related to these outcome endpoints. This information is usually available in the patient record files and includes age, sex, type of preceding clinical infection, cranial and sensory nerve involvement, severity of weakness and disability, and routine neurophysiology. All this information should be available preferably within two weeks of diagnosis, the period in which additional treatment in thought to be still effective.

Other study parameters

· To further define outcome, the residual damage of nerve physiology caused by GBS will be determined by a compound muscle action potential (CMAP) scan [Blok 2008]. In this routine 10 minutes non-invasive neurophysiological examination, the ulnar nerve of the non-dominant arm will be tested by a series of non-painful electrical stimuli in the wrist. This test will provide information on the extent and the mechanism of nerve dysfunction, especially on the recruitment of motor units.

· To further define the factors that influence the extent of residual defects, genetic polymorphisms will be determined. Previous studies identified a relation with polymorphisms in the mannose binding lectin (MBL) gene and subsequent levels of MBL in serum and poor outcome in adult patients [Geleijns 2007]. Since these genetic polymorphisms remain unchanged trough life, this information is also available in the acute phase of disease and potentially can be used to predict outcome.

Study description

Background summary

The Guillain-Barré syndrome (GBS) is a severe post-infectious immune-mediated polyradiculoneuropathy that may affect persons of all ages [van Doorn 2008]. GBS is characterised by a rapidly progressive weakness and sensory loss, usually followed by a slow clinical improvement after treatment with intravenous immunoglobulin. Despite this improvement, a considerable proportion of patients develop a residual impairment and handicap. In adult patients, 20% remain unable to walk and the majority of patients report residual deficits several years after onset, including sensory deficits and severe fatigue [Bernsen 2001, Garssen 2006]. They also report serious long-term impact on work and private life [Bernsen 2002]. Previous studies in adult patients have identified various clinical, neurophysiological and laboratory features that are relates with outcome, including age, severity of disease in the acute

phase, preceding diarrhoea, axonal damage, anti-ganglioside antibodies and polymorphisms in complement genes [Geleijns 2006, van Koningsveld 2007, van Doorn 2008]. Prognostic models have been developed based on the prognostic factors available in the acute phase of disease, to predict the outcome at six months in individual patients [van Koningsveld 2007]. This information can be used in clinical practice to inform patients and their relatives about the prognosis and to conduct selective trials in patients with poorest outcome. These prognostic models, however, are based predominantly on data obtained in adult patients.
GBS also occurs in children with an incidence of 0.25 to 0.5 per 100.000 per year. Previous case studies showed that also in children the neurological deficits may persist at least for months [Korinthenberg 2007]. However, in paediatric GBS the long-term outcome after more than six months and the impact on development and quality of life is unknown. Children may have a higher capacity to recover from GBS than adults because younger age in adults is related to relatively good outcome. On the other hand, children are in a more vulnerable state of life, which may increase the impact of the disease on long-term psychological and physical development. The information on outcome in adult patients can therefore not be applied to paediatric cases. In addition, the prognostic models developed in adult patients are not validated in children with GBS. Therefore it is currently difficult to provide information to individual children and parents/care takers about the prognosis.

Study objective

The present study aims to assess the long-term outcome of patients who suffered from GBS during childhood. This outcome at least six months after diagnosis will be determined in patients previously seen at the department of Paediatric Neurology of the Sophia Children*s Hospital, Erasmus MC or other centres (from 1987 till now). Most of those patients are currently adults. We will focus on the residual neurological impairment, restrictions in activity and participation, and quality of life, defined by various validated questionnaires and physical tests. In addition, the residual nerve dysfunction will also be determined by the CMAP scan, a routine non-invasive neurophysiological examination that provides information on the type and extent of nerve damage. All this information on long-term outcome will be related to the clinical features in the acute phase of disease, which are available in the patient files. In addition, DNA will be obtained to determine genetic polymorphisms that are related to poor prognosis in adult patients with GBS. The information on clinical and genetic prognostic factors will be underpowered to develop definite prognostic models. However, the identification of candidate prognostic factors for GBS in children will be validated further in future prospective studies.

OBJECTIVES

Primary objective: To assess the long-term outcome of paediatric GBS with

respect to nerve physiology dysfunction, neurological impairment, restrictions in daily activity and participation, and quality of life.

Secondary objective: To determine which demographic and clinical factors in the acute phase of disease, and which genetic polymorphisms, are related with this long-term outcome.

Study design

Observational cross-sectional cohort study.

Study burden and risks

. The endpoints will be determined by questionnaires that patients (and their parents/care takers) can fill out at home within 1 hour. During the clinical visit there will be an evaluation of 1 hour about these questionnaires where patients can receive help for questions that were difficult to fill out. There will also be a quality control of the data and some additional questionnaires are filled out with help of the researchers. Than the patients will have a routine neurological examination of less than half an hour. The vigorimeter and Jamar dynamometer to determine grip strength are not painful and last less than 5 minutes and are part of this neurological examination.
· To obtain DNA to study genetic polymorphisms of the complement system saliva from children and a blood sample or saliva from adults will be obtained. These samples will be obtained in less than 5 minutes and carry no additional risks.
· To determine the nerve physiology a10 minutes CMAP scan of the ulnar nerve of the non-dominant arm will be performed. With this routine non-invasive neurophysiological technique a series of small electrical stimuli will be applied at the wrist. These series are felt by the patients but are not painful and carry no additional risks.
· The clinical visit including all tests will be performed in less than 3 hour, but usually within 2 hours.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Children (2-11 years)
Elderly (65 years and older)

Inclusion criteria

Inclusion criteria:
· Fulfilling the diagnostic criteria for GBS [Asbury 1990]
· Age of diagnosis of GBS 18 years or less
· Diagnosis of GBS was made in 1987 or thereafter
· Patients were either treated at the ward or outpatient clinic of the department of Paediatric Neurology of the Sophia Children*s Hospital, Erasmus MC, or were included in the earlier clinical trials of the GBS study group of the Erasmus MC
· Written informed consent given by the patient and/or parents/care takers

Exclusion criteria

· Additional diseases or disorders at the time of diagnosis that may influence the endpoints
· Diagnosis of GBS less than 6 month ago

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	15-08-2009
Enrollment:	50
Type:	Actual

Medical products/devices used

Registration:	No

Ethics review

Approved WMO

Date:	13-08-2009
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL28356.078.09