How to do it -Treatment of CIDP

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ABSTRACT

Chronic inflammatory demyelinating polyneuropathy is a disabling but treatable disorder. However, misdiagnosis is common, and treatment can be difficult to optimise. Various agents are used first- and second-line. First-line options are intravenous immunoglobulin, corticosteroids and plasma exchange. Second-line therapies may be introduced as steroid sparing agents or as more potent escalation therapy. Symptomatic treatment of neuropathic pain, and non-pharmacological interventions, are also important considerations. We discuss the evidence for these treatments and explain the practicalities of the different approaches. Strategies for monitoring response and assessing the ongoing need for therapy are also outlined.

INTRODUCTION

Prompt identification of patients with chronic inflammatory demyelinating polyneuropathy (CIDP) is important, as it is a potentially disabling yet eminently treatable disorder. However, misdiagnosis is frequent and, even when the diagnosis is correctly established, patients are commonly over or undertreated, exposing them to unnecessary adverse effects or inadequate neurological recovery, respectively. Management is further complicated by an array of therapeutic options, each with multiple possible dosing regimens. Evidence supporting the use of some agents is patchy at best. Only a proportion of patients will respond, and there is a lack of sensitive biomarkers to monitor disease activity and response to treatment. In this article, we provide guidance on managing CIDP for the practicing neurologist.

DIAGNOSTIC CONSIDERATIONS

CIDP can be divided into “typical CIDP” and “CIDP variants”. In its typical form, CIDP manifests as a progressive or relapsing, symmetric, proximal and distal muscle weakness of upper and

lower limbs, with sensory involvement of two or more limbs, developing over at least eight weeks. Tendon reflexes are absent or reduced in all limbs. CIDP variants include the distal, multifocal, focal, pure motor or sensory forms. Diagnosis of variants can be challenging, is more frequently incorrect, and requires consideration of a distinct set of differentials.

Typical CIDP may present acutely ('A-CIDP') with rapid progression of symptoms within four weeks, and initially such patients may be diagnosed with Guillain-Barré syndrome (GBS). However, in A-CIDP there is continued deterioration more than eight weeks after symptom onset or relapse at least three times after initial improvement. In CIDP, cranial nerves are rarely affected, and respiratory or autonomic involvement is exceptional. Unfortunately, there are no specific clinical or laboratory elements that can distinguish GBS from A-CIDP in the acute phase.

CIDP mimics include haematological malignancies, POEMS syndrome (polyneuropathy, organomegaly, endocrinopathy, M-protein, skin changes), amyloid and hereditary neuropathies (1). Diabetic neuropathy should also be considered in the differential diagnosis, as it can cause slowing of conduction, CSF protein elevation and, in some cases, proximal weakness. Conversely, CIDP remains rare in diabetes, whereas in CIDP cohorts, diabetes is found in up to 20% (2).

It is also important to distinguish CIDP from other immune-mediated neuropathies such as multifocal motor neuropathy (MMN), anti-MAG (myelin associated glycoprotein) neuropathy, and nodal/paranodal antibody-associated neuropathies – now termed 'autoimmune nodopathies' (3) as there is evidence that they result from different and distinct underlying pathological mechanisms. Crucially, they also respond differently to treatment. An IgM paraprotein is a red flag for a non-CIDP diagnosis, and anti-MAG IgM antibodies should be tested for in such cases. IgG and IgA paraproteins likewise raise the possibility of amyloid, POEMS syndrome (especially with a lambda restricted clonal expansion) (4) and haematological malignancy. However, the presence of a paraprotein does not exclude CIDP and may simply reflect a monoclonal gammopathy of uncertain significance (MGUS) and a neuropathy which is otherwise similar to CIDP in its presentation, presumed mechanism and treatment response.

A small proportion of patients otherwise fulfilling diagnostic criteria for CIDP are found to have antibodies targeting nodal or paranodal molecules (contactin-1 - CNTN1, neurofascin-155 - NF155, contactin-associated protein 1 - Caspr1, and neurofascin isoforms - NF140/186). They often present with a more aggressive acute or subacute-onset neuropathy, and additional symptoms, including tremor, ataxia, respiratory failure and/or cranial nerve involvement, which are less frequently encountered in CIDP. They tend to have significantly elevated CSF protein levels and resistance to standard treatment with intravenous immunoglobulin (IVIg), corticosteroids and plasma exchange (PLEx). In the presence of such clinical features, nodal and paranodal antibodies should be tested and, if positive, a diagnosis of autoimmune nodopathy should be made. These are no longer regarded as CIDP variants, and emerging evidence supports the use of more targeted treatment, such as the B cell depleting monoclonal antibody rituximab, which has been reported to significantly improve functional outcomes in this subset of patients (5).

To make a diagnosis of typical CIDP and CIDP variants, the 2021 European Academy of Neurology/Peripheral Nerve Society guidelines (3) strongly recommend nerve conduction studies (both motor and sensory) to support the clinical findings. A diagnosis of "CIDP" or "possible CIDP" is made if neurophysiology is *strongly* or *weakly* supportive of demyelination, respectively. Imaging, cerebrospinal fluid testing, or nerve biopsy may support the diagnosis of CIDP in patients who fulfil clinical criteria but whose neurophysiology suggests possible CIDP. However, repeating the neurophysiology and sampling a greater number of motor nerves may allow a diagnosis of CIDP to be made without these supportive tests, and may be preferable to more invasive investigations in particular. Conversely, patients with other conditions mimicking CIDP may also meet electrophysiological criteria for demyelination, and in some cases also have similar CSF and imaging findings. Response to treatment with immunomodulatory agents (IVIg, corticosteroids, PLEx) also supports clinical diagnosis, however lack of improvement following treatment does not exclude CIDP and a positive response is not specific for CIDP.

Overall, most patients with CIDP respond to first-line treatment with IVIg, corticosteroids or PLEx. The vast majority of those who do not, respond to an alternative first-line treatment. Conversely, placebo responses are common (6).

Continued deterioration after initial treatment/s should lead to a re-evaluation of the diagnosis. However, some investigations may be more difficult to interpret at this stage. IVIg can confound antibody and paraprotein tests, and elevate CSF white cell counts, probably for several weeks. Steroids may mask lymphoma. If an alternative diagnosis cannot be established by other means, the threshold for nerve biopsy falls, particularly so with failure to respond to two first-line therapies. If, following investigation for alternative diseases, CIDP remains the most likely diagnosis, alternative immunosuppressive treatment can be considered.

WHEN AND WHO TO TREAT

Current treatments aim to suppress the underlying immunopathology. This prevents further nerve injury and hopefully facilitates functional recovery. Patients who are clinically stable or already improving are therefore unlikely to benefit from therapy. The likely limited benefit in those who are mildly functionally affected needs to be weighed against the risk of adverse effects, and the theoretical concern that irreversible deficits will accumulate over time. We tend to favour a watch-and-wait approach in this setting, but would ultimately make the decision in collaboration with the patient, taking into account their opinions and attitude to risk.

A response to treatment usually means neurological improvement. However, clinical stabilisation after a period of more rapid decline may equally indicate an immunological response, coupled with a reduced capacity for peripheral nerve recovery. Patients who are stable over weeks to months, but have not fully normalised, are therefore unlikely to be undertreated, and may not require continued therapy to remain stable.

HOW TO TREAT

CHOICE OF FIRST LINE THERAPY

The mainstays of first-line therapy in CIDP are intravenous IVIg or corticosteroids (Table 1). IVIg is supported by the highest level of evidence (7). Plasma exchange (PLEx) is another option, but, due to the impracticalities of usage, is often reserved for patients who have not responded to steroids and/or IVIg. In practice, the choice of first-line treatment is usually determined by patient-specific and pragmatic considerations. Thus, co-morbidities, speed of progression, disease severity, and convenience are important factors to consider, alongside the strength of evidence. In England, IVIg is only commissioned for CIDP if there is "significant functional impairment inhibiting normal daily activities".

	Typical tempo of response	Risk of 'paradoxical' worsening	Chance of rebound	Ability to induce remission	Notable side effects	Cost	Convenience/ ease of use
Cortico-steroids	Weeks-months	Moderate (higher if multifocal or pure motor)	Low	Moderate	Hyperglycaemia, weight gain, sleep/mood disturbance, avascular necrosis	Low	High
Plasma exchange	Days	Low	High	Low	Vascular access and haemodynamic complications, vasovagal reactions	High	Very low
IVIg	Days-weeks	'Never'	Low	Low	'flu-like' symptoms, headache/aseptic meningitis, rash, thrombo-embolism, haemolysis	Very high	Low / Moderate

Table 1 - Comparison of first-line treatments for CIDP

Immunoglobulin

The highest certainty evidence exists for the use of IVIg in CIDP. Data from five randomised trials (total 235 patients) show that IVIg is significantly more likely than placebo to improve disability at one month (7). Overall, about 80% of patients with CIDP respond to IVIg (8). In England, short-term induction regimens (a maximum of 4g/kg, divided into at least two courses of 1-2g/kg each, given over a 4-to-8-week period) to assess response can be initiated without prospective IVIg panel authorisation. Long-term treatment requires approval by the panel.

Pre-assessment

IVIg is a blood product and written informed consent is recommended prior to use. Any required serological tests should ideally be performed prior to IVIg, as exogenous immunoglobulins can produce false positive results. Any serological test which relies on the detection of IgG can theoretically be affected. There is evidence that at least some IVIg preparations contain IgG which can result in false-positive hepatitis, syphilis and Lyme serology, as well as ANA, ANCA, anti-cardiolipin and dsDNA antibodies (9)(10). Immunoglobulin may also elevate the erythrocyte sedimentation rate (ESR) and cerebrospinal fluid white cell count. Some centres routinely perform a range of serological tests prior to starting IVIg, whilst others only do so if they are clinically indicated, or may be in the future. The risk of thrombotic

complications should also be assessed, as this influences the maximum recommended daily IVIg doses and infusion rates (Figure 1).

Although thromboembolism was not seen to be significantly more common than with placebo in randomised trials (11), these primarily involved younger patients with few co-morbidities. In clinical practice, rates appear much higher (12). Administration of daily doses ≥35 g of IVIg may carry a greater risk of early thromboembolic complications, possibly due to sudden rise in viscosity, although a convincing association has not been demonstrated (13). There is less evidence that higher infusion rates themselves elevate risk. The measures outlined in figure 1 are designed to reduce the risk in susceptible individuals, whilst allowing those with minimal risk to receive their infusions in a timely and efficient manner. IgA deficiency is no longer considered a contraindication to immunoglobulin therapy and urgent treatment should not be withheld because of theoretical concerns of adverse reactions (14).

IVIg dose is based on body weight. However, for patients with BMI ≥30 kg/m^2 or whose actual weight is >20% more than their ideal body weight, Department of Health guidelines recommend that prescribers should consider using adjusted-body-weight dosing for immunoglobulin (see calculator at https://ivig.transfusionontario.org/dose/). Doses are usually rounded (down) to the nearest whole vial, as long as this is within 10% of the calculated dose.

Induction regimens

An initial cycle of 2 g/kg divided over 2-5 days is recommended (Figure 2). Response is usually best assessed after three weeks. Except in patients who have fully normalised, we favour giving a further 2 g/kg at six weeks. Almost all patients who are IVIg responsive will improve after these two treatment cycles. Other induction regimens follow the initial 2g/kg with 1 g/kg at three and six weeks. However, some patients require more than 1 g/kg/cycle to respond, and the full benefit of the first cycle may not be apparent by three weeks. The PRIMA and PRISM studies demonstrated that IVIG, administered as a regimen of a 2 g/kg induction dose and 1 g/kg maintenance doses every 3 weeks, resulted in response rates of 60.7% and 76.2%, respectively. Both studies showed that patients not responding after 6 weeks of IVIG treatment may still respond at a later time point (15)(16). The PRISM study suggested that CIDP patients should be maintained on IVIg treatment for 6 months before considering alternative therapy; the median time to response was 15 weeks and 29% of the patients were responsive after 6 weeks (16).

Suspending further treatment after the week six cycle allows assessment of ongoing disease activity (indicated by re-deterioration following a period of improvement and/or stability), and individual optimisation of the subsequent dosing interval. Some patients may achieve sustained remission after the induction regimen alone, without the requirement for further therapy. Others may begin to deteriorate as early as week 2 or as late as week 10. Longer lasting responses are uncommon in the presence of persistently immunologically active disease (17).

Maintenance

Standardised doses (for example, 1 g/kg every three weeks) are sometimes used. However, idealised dosage requirements are not uniform. For this reason, we favour individually optimising both the dose per cycle and treatment interval. To do this, two further, full dose (2 g/kg) cycles are given, separated by an interval just shorter than the empirically-determined time to relapse after the second cycle. Thereafter, we progressively reduce the dose per cycle by 20% each time to establish the minimum dose required for response (Figure 2) (17). Shortening the interval between infusions should be considered if there is an ongoing response with deterioration prior to the next scheduled dose.

Subcutaneous immunoglobulin

Subcutaneous immunoglobulin (SCIg) is generally preferred by patients as it is more convenient and is associated with fewer infusion-related adverse effects. Weekly infusions can be given at home and lead to more stable immunoglobulin levels as well as less clinical fluctuation. Placebo controlled studies show SCIg is effective at preventing relapse following a switch from IVIg (18)(19)(20). However, whether it is effective as an induction therapy remains to be seen, and the response to dose changes may take longer to manifest clinically than with IVIg. Home administration also requires training and logistical support. This may usefully be provided by immunology departments, which often have longstanding experience with SCIg. Given these issues, and that a proportion of patients do not need long-term therapy, we prefer to assess response and optimise dosing using IVIg. Patients can then be offered the option to switch to SCIg if needed, typically at the same overall monthly dose. Only a small proportion (<10%) subsequently need or choose to revert to IVIg.

Corticosteroids

Anecdotal evidence from clinical practice and observational studies strongly suggest corticosteroids are effective in CIDP. However, there is little evidence from randomised controlled trials to support the use of prednisolone compared with no treatment (21). Two studies have directly compared steroids with IVIg. Broadly, they found little difference in overall disability outcomes, though IVIg may work more quickly. High dose IV methylprednisolone (IVMP), 2g over 4 days every 4 weeks for 6 months, was more often discontinued due to perceived lack of efficacy or intolerance (22). However, it was more likely to induce short-term remission. Those that improved with IVMP did not relapse within six months of stopping treatment, whereas 38% of the IVIg treated patients did (23). A comparative study of daily prednisolone versus pulsed monthly dexamethasone found that these approaches were broadly similar, though steroid-induced adverse events, namely weight gain, hypertension and diabetes mellitus, were more severe in the patients receiving prednisolone (24).

In addition to the usual concerns with steroid use, caution is required in pure motor and multifocal presentations in particular, where ‘paradoxical’ worsening can be seen following steroid treatment (25).

Many different steroid regimens have been proposed for CIDP. **Error! Reference source not found.** provides a comparison between three of these over a six-month course. The very high doses given over short periods in pulsed regimens may produce additional, more rapid, non-

genomic effects (26)(27), disproportionate to those expected from simply calculating the average daily dose for the duration of the cycle. Whether this translates into improved efficacy in suppressing disease activity and inducing long-term remission remains to be seen. Pulsed regimens are also easier to stop quickly. Although trial evidence suggests that the pulsed dexamethasone produces fewer side effects than daily prednisolone (24), in clinical practice many patients find the former difficult to tolerate.

Regimen	Route	Dosing	Equivalent average daily prednisolone dose over 6 months:
Tapered Daily Prednisolone	PO	60 mg od, reduced by 10 mg each month	35 mg
Pulsed Dexamethasone	PO	6 cycles of 40 mg od for 4 days every 4 weeks	35 mg
Pulsed Methylprednisolone	IV/PO	1 g every 3 weeks for 8 cycles	55 mg

Table 2 - Corticosteroid regimens for CIDP

Plasma exchange

Plasma exchange (PLEx) is an effective and relatively safe option in the treatment of CIDP, at least in the short term, though has several logistical drawbacks which limit its use. There have been two double-blind randomised controlled trials assessing the efficacy of PLEx in CIDP. The first compared plasma vs sham exchange in twenty-nine patients treated twice weekly for three weeks (28). The second trial recruited fewer patients, with only 15 completing the trial, receiving 10 plasma or sham exchanges over four weeks. Patients were crossed over to alternate treatments after a washout period of five weeks (29). In both studies there was clear benefit from PLEx, in both disability scores and nerve conduction studies, compared with sham exchange. Comparative studies between PLEx and IVIg suggest they are equally effective in the short term. Data is lacking regarding the safety and efficacy of PLEx as maintenance therapy.Broadly speaking, there are two different technologies for PLEx used in the UK. One removes plasma proteins using a membrane filtration system, and the other using a blood cell separator via a centrifugal system. The advantage of the latter is that high flow can be accommodated using a peripheral venous cannula, as opposed to the requirements for central venous catheterisation with a membrane filtration system. In hospitals where centrifugal machines are available, an outpatient-based day-treatment service can potentially be offered. It is typical that 1–1.5 plasma volumes are removed at each procedure and replaced with isotonic 4.5% human albumin solution (HAS). A single plasma volume exchange removes about

66% of an intravascular constituent and a double plasma volume exchange approximately 85%. The optimum treatment volume for each procedure is 100–150% of the patient's plasma volume where one plasma volume is 0.07 x (1-haematocrit) x weight (kg).

There is no evidence-based established protocol for PLEx in CIDP, and typically five initial daily exchanges of one plasma volume each are prescribed, with subsequent therapy being guided by clinical response. Patients are often given PLEx at four to six weekly intervals, using between three to five exchanges per cycle, once the patient's individual response characteristics have been determined.

Although generally regarded as a well-tolerated treatment option, evidence for safety and tolerability of PLEx is sparse and largely relies on small case series' (30). PLEx with albumin or saline causes a transient fall in blood-clotting factors, and mild prolongation of prothrombin and activated partial thromboplastin times. These generally recover in 4 to 24 hours. Clinically significant bleeding is rare. More common risks include vasovagal episodes, fluid overload, under-replacement, and hypotension from rapid shifts in fluid between compartments. To minimise this risk, suspending anti-hypertensives on treatment days should be considered. More rarely, allergic or anaphylactic reactions occur due to the plasma or HAS infusion. If central or large bore access is required complications related to line insertion and use may occur. These include haematomas at the point of insertion, venous thrombosis, vascular damage secondary to line insertion, and line sepsis.

All patients should have daily FBC, clotting, fibrinogen, U&E, renal, liver, magnesium and bone profile. For infection control purposes, all patients require pre-treatment virology including hepatitis B surface and core antibodies, hepatitis C antibody, HIV and HTLV 1 and 2. It is also useful to check baseline immunoglobulin levels, as these can be rapidly depleted.

Monitoring response & ongoing requirement for therapy

The Department of Health guidelines specify that a selection of three outcome measures be used to monitor for clinically meaningful response to immunoglobulin (31). The latest EAN/PNS guidelines recommend that improvement to at least one disability and one impairment scale be used to confirm objective response to treatment (3). Ideally, the chosen measures should be as objective as possible and sensitive to change.

Two useful outcome measures that assess disability are the inflammatory neuropathy Rasch-built Overall Disability Score (I-RODS) (increase of ≥4 points) (32)(19)(33) and the Inflammatory Neuropathy Cause and Treatment (INCAT) disease scale (decrease of ≥1 point) (34)(35). Further outcome measures are selected based on the individual patients' disability or impairment: for example, the MRC sum score (increase of ≥ 2 points) or 10-meter timed-walk test could be used if limb weakness or gait disturbance predominates, respectively. Quality of life assessments can also be valuable.

By 6-12 months, a significant proportion of patients are able to discontinue treatment without relapsing (36), in which case we favour complete treatment suspension with careful monitoring for objective worsening. Slow tapers (either increasing the dose interval or

reducing the dose) seem prone to progressively heighten anxiety whilst also frequently being less informative regarding underlying disease activity, but may be unavoidable in the setting of long-term daily steroids. The ongoing requirement for immunoglobulin should be assessed at least annually for the first 3 years, and probably less often thereafter, when long-term dependence is much more likely. In those who relapse on treatment withdrawal, re-stabilisation on the previously effective therapy can be rapidly achieved (37) and should be accompanied by consideration of the use of second-line agents.

SECOND LINE AND ESCALATION THERAPIES

Steroid (or IVIg) sparing agents

When first-line therapies have proved effective, but long-term treatment is required to maintain clinical stability, a variety of immunosuppressive agents can be used with the aim of reducing steroid or IVIg requirements. These include azathioprine, methotrexate, mycophenolate and ciclosporin. Evidence supporting the use of azathioprine comes from one, low-quality trial of relatively short duration (38). A single methotrexate study did not show evidence of benefit. Though this trial was compromised by a large proportion of patients in the placebo group being able to reduce or even stop their existing therapy, and methotrexate has been widely used in clinical practice, the latest iteration of the CIDP guidelines advise against its use (6). There is also no evidence to determine whether these agents reduce the chance of future relapse in patients who achieve remission or have a relapsing-remitting disease course. The use of any of these agents in CIDP therefore requires careful consideration and open discussion with the patients regarding the uncertainty of the potential benefits and the potential for adverse events. Such use should be evaluated against the option of simply remaining solely on an apparently effective first-line therapy. If second-line therapies are deemed appropriate, immunosuppression checklists can help to evaluate and manage the associated risks (39). Monitoring requirements once on therapy will usually need to be carefully coordinated with primary care, and explicit shared care arrangements can be helpful in this regard.

More potent immunosuppression

More potent forms of immunosuppression are usually considered in the context of markedly inadequate responses to first-line therapies. As before, the first step must be to reconsider the possibility of a non-CIDP diagnosis. However, although there have been no controlled trials, observational studies suggest >30% of patients refractory to first-line therapies can respond to escalation therapies (notably rituximab or cyclophosphamide) (40). A positive response to rituximab may be even more likely in the context of a paraprotein or nodal/paranodal antibody (41)(42)(43).

Haematopoietic stem cell transplantation

In the largest case series reported to date, 66 CIDP patients who were dependent on or failed to respond to IVIg or PLEx underwent haematopoietic stem cell transplantation (HSCT), in a

prospective open-label study, and were assessed up to 5 years after treatment (44). Almost all patients requiring assistance to ambulate became and remained independently mobile, and 83% of patients were immune therapy free at 5 years. Despite these promising results, the evidence for the use of HSCT in refractory or treatment-dependent severely affected patients remains insufficient, and its morbidities and mortality risk are significant, mainly related to infections and long-lasting immunodeficiency. Therefore, HSCT should only be considered as a last resort treatment in specialised CIDP centres.

Immunoadsorption

A less commonly offered treatment option in the United Kingdom, available only in selected centres, is immunoadsorption (IA). This involves passing the separated plasma through an absorption column to selectively remove IgG. Other circulating factors largely remain in the fluid exiting the column, which is then returned back to the patient**.** Low-quality evidence from case reports and small case series suggest that some patients with CIDP can respond to this treatment modality (45)(46)(47). Two, small, randomised studies, one with a high risk of bias, did not find a significant difference in these response rates when compared to IVIg or plasma exchange (48)(49). The theoretical advantage of IA over plasma exchange is that it can be given more intensively, without disturbing clotting and without the need for replacement fluid. However, the extent to which the removal of additional circulating factors by plasma exchange is therapeutically important remains unclear. Overall, it is unlikely that IgG is the sole pathological agent in CIDP, though it may have more primary importance in some subtypes. Further evidence is needed before the widespread use of IA can be recommended for CIDP.

SYMPTOMATIC AND NON-PHARMACOLOGICAL TREATMENTS

The aim of immunotherapy in CIDP is to improve functional status by reversing or stabilising peripheral nerve injury, and in turn preventing motor and sensory deficit. The treatment of other disabling symptoms, such as pain or fatigue, as well as non-pharmacological management should not be overlooked, as these complement drug treatment in optimising clinical outcome, and can in themselves improve patient quality of life.

Physiotherapy and occupational therapy support physical recovery and can help to maintain independence. Orthotics can help mitigate the impact of foot drop.

Neuropathic pain is common in CIDP (50), although information regarding the association of pain during the disease course and response to different treatments is limited and only comes from small case series. Some data suggest immunotherapy for CIDP may be sufficient to treat neuropathic pain, though specific treatments for neuropathic pain are also often used (50).

Fatigue correlates poorly with specific markers of peripheral dysfunction in immune-mediated neuropathies such as CIDP (51). Conversely, fatigue is significantly associated with the concurrent use of sedatives, older age, poor sleep, and depression (52). Thus, where possible, these factors should be addressed, and ideally optimised. There are no clearly beneficial pharmacological or other treatments for fatigue specifically in peripheral nerve disorders (53).

FUTURE DIRECTIONS

Trials of FcRn blocking agents as alternatives to IVIg are currently in progress (54), and an evaluation of complement inhibition is planned (55) An increasing number of targeted biological immunotherapies have now been developed for other indications. Anti-CD20 agents such as rituximab and ocrelizumab target B cells, and CTLA-4 fusion proteins (abatacept) block T cell activation. Proteasome inhibitors (bortezomib, carfilzomib) and Bruton's tyrosine kinase inhibitors (ibrutinib, zanubrutinib) target long-lived plasma cells. The hope for the future is to be able to identify the key underlying mechanisms in individual patients, and then specifically and directly target treatments to these.

KEY POINTS

- Misdiagnosis is common in CIDP
- CIDP is a treatable disorder with a wide range of potential therapies
- Most patients with CIDP respond to one or other of the first-line options (IVIg, corticosteroids or plasma exchange)
- A substantial proportion do not require continuous, long-term treatment to remain in remission
- Second-line and escalation therapies need careful consideration and monitoring

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FURTHER READING

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FIGURE LEGENDS

Figure 1 - IVIg pre-assessment and monitoring

Figure 2 -Treatment algorithm to optimise dosing of intravenous immunoglobulin (Reproduced with permission from Wiley©, taken from Lunn, et al. A proposed dosing algorithm for the individualized dosing of human immunoglobulin in chronic inflammatory neuropathies. JPNS; 2016)