

MyelomaAcademy™



NURSING BEST PRACTICE GUIDE

Steroids

This document is one of the Myeloma Academy Nursing Best Practice Guides for the Management of Myeloma series. The purpose of this Guide is to enhance knowledge and inform nursing practice about the side-effects of steroids when caring for myeloma patients.

After reading this, you should be able to:

- ★ Understand what steroids are and how they are used in myeloma
- ★ Be aware of the potential side-effects associated with steroid treatment
- ★ Understand how the side-effects of steroids can be managed
- ★ Understand the nurse's role in the assessment, intervention and management of steroid-associated side-effects

The information contained within this Guide should be used in conjunction with local policies, protocols and best practice guidelines in oncology.

Background

Steroids are drugs which mimic certain natural hormones in the body that help regulate and control the way the body develops and functions. There are several types of steroids; the ones used in the treatment of myeloma are known as glucocorticoids (e.g. dexamethasone, prednisolone).

Endogenous glucocorticoids e.g. cortisol, produced by the adrenal glands, regulate a variety of important metabolic, immunologic, cardiovascular and homeostatic functions^[1]. Dexamethasone and prednisolone exert their actions in the same manner and are frequently used to treat a wide range of diseases and conditions^[2].

KEY FACTS

- ★ Steroids are effective in the treatment of myeloma and are mostly used in combination with other anti-myeloma treatments
- ★ Side-effects associated with steroid treatment can affect multiple body systems and have a significant physical and psychological impact
- ★ Careful monitoring and effective management of steroid-related side-effects help improve quality of life and promote positive patient outcomes

In myeloma, these steroids work by inhibiting the expression of a range of cytokines^[3] and reducing the activity of nuclear factor kappa B (NF-κB)^[4], both of which are required for myeloma cell growth and survival. This dual action of steroids causes myeloma cell death.

Steroids have proven to be an effective anti-myeloma treatment and may be used as a monotherapy^[5, 6] but more often they are used in combination with other anti-myeloma treatments where they have a synergistic and complementary effect^[7-9]. They are also useful as an initial treatment for patients who have poor kidney function at diagnosis^[10].

The dose and scheduling of steroid prescriptions vary significantly depending on the treatment given and on individual patient factors.

High-dose dexamethasone (>480mg per cycle) was originally considered to be the mainstay of treatment for myeloma but, more recently, low-dose schedules (<480mg per cycle) have proven to be equally effective^[11].

Although steroids are effective in treating myeloma, they have, as with all drugs, the potential to cause side-effects. The nature and severity of these side-effects vary and are usually related to the dose and duration of steroid treatment^[12, 13], although the ability of patients to tolerate the same dose can vary enormously.

The clinical consequences of the side-effects of steroid treatment are varied and may include one or more of the following:

- ★ Insomnia
- ★ Flushing/sweating
- ★ Fatigue
- ★ Increased appetite/weight gain
- ★ Blurred vision
- ★ Rash
- ★ Oedema
- ★ Abdominal bloating
- ★ Hiccups
- ★ Sexual dysfunction

- ★ Gastric or duodenal ulceration
- ★ Hyperglycaemia
- ★ Proximal myopathy
- ★ Osteoporosis
- ★ Mood swings, hallucination and psychosis
- ★ Immunosuppression

In most cases, the side-effects of steroids can be managed by dose modification. However, failure to act promptly can adversely affect patients' quality of life and interfere with optimal treatment plans; non-compliance to treatment being a common issue. Careful monitoring and early identification of any side-effects associated with steroid treatment and timely intervention are therefore important in improving outcomes.

The following describes the medical approach to the management of steroid-induced side-effects and provides guidance on nursing interventions and nursing management of myeloma patients on steroid treatment.

GENERAL RECOMMENDATIONS:

- ★ Patients should undergo a comprehensive assessment including a physical examination and full medical history prior to the start of steroid treatment
- ★ Healthcare professionals across the multidisciplinary team should be aware of the full range of steroid-related side-effects
- ★ Patients should be given appropriate prophylaxis to reduce the risk of steroid-induced side-effects
- ★ Steroid-induced side-effects can be improved by reducing the dose or temporarily suspending steroid treatment and by giving the appropriate pharmacological and non-pharmacological interventions

NURSING RECOMMENDATIONS:

- ★ Patients should be assessed and monitored on a regular basis for any signs and symptoms related to the side-effects of steroid treatment
- ★ Any side-effects should be documented and assessed in a timely manner so that the most appropriate intervention can be applied to minimise the impact of the side-effect
- ★ Patients and their families should be educated about what to expect during their steroid treatment and understand the importance of early reporting of side-effects
- ★ Patients and their families should be advised on ways to prevent and self-manage the side-effects of steroid treatment



Medical Approach

Steroids, by nature of the way they work, can have an adverse effect on almost every system in the body. However, through accurate assessment, timely intervention and vigilant monitoring, side-effects, in the majority of cases, can be minimised and managed effectively.

Assessment

Baseline

Before treatment is initiated patients should undergo the following baseline assessments:

- ★ Body weight
- ★ Blood glucose, triglyceride and potassium levels
- ★ Blood pressure
- ★ Ophthalmic examination

A full medical history for any pre-existing conditions should be made as steroids must be used with caution in patients with the following comorbidities: diabetes, glaucoma, heart failure, recent myocardial infarction, hepatic disease, hypothyroidism, osteoporosis, obesity, peptic ulceration, and psychiatric disorders. In such cases, patients are normally started on a lower dose, but as close as possible to the optimum dose of steroid.

Side-effects

For each presenting side-effect, the appropriate assessments and tests should be made as clinically indicated. Additional tests may be required to rule out other comorbidities, for example, patients who report episodes of sweating and flushing should be assessed for signs of infection and hormonal changes as well.

The severity of a particular side-effect can be quantified and graded using a system such as the National Cancer Institute (NCI) Common Terminology Criteria for Adverse Events (CTCAE) version 4.0^[4]. Grading assists with the reporting of and subsequent management of the side-effect [see Appendix I].

Treatment

Steroid-induced side-effects can be reduced by altering the dose and/or schedule of treatment and this is recommended for grade 2 or 3 side-effects.

An initial 50% dose reduction, together with reduced frequency, should be considered initially and tapered further if necessary. Treatment should be stopped if grade 2 or 3 toxicities persist despite these measures.

Pharmacological interventions may be of benefit either to prevent or treat specific side-effects.

These include for:

- ★ Gastritis/gastric reflux, ulceration – concomitant use of a proton pump inhibitor or a histamine H2 receptor antagonist
- ★ Hyperglycaemia – oral hypoglycaemic agents or subcutaneous insulin
- ★ Oedema – diuretics
- ★ Insomnia – sedatives and hypnotics
- ★ Mood changes – antidepressants/ anti-anxiolytics
- ★ Hyperactivity – benzodiazepines

Monitoring

Patients require regular monitoring during steroid treatment particularly those with comorbidities. Routine assessment of blood pressure, full blood counts, electrolytes and blood glucose should be made at each visit. Weight gain, oedema and shortness of breath should also be assessed and an eye examination every six months is recommended.

Signs and symptoms of specific side-effects should be monitored as appropriate.

Nursing interventions and management

Nurses play a central role in the management of the side-effects of steroid treatment and in applying timely interventions to enhance patient outcomes.

The following provides best practice guidance for nursing interventions related to the assessment, treatment and monitoring of myeloma patients with steroid-induced side-effects, involving a more holistic approach to care and educating patients and their families about steroid treatment and its potential side-effects.

Interventions

- ★ Ensure patients' full medical history is recorded prior to the start of steroid treatment
- ★ Ensure that the patient's renal function is assessed prior to the start of steroid treatment
- ★ Ensure baseline assessments are performed e.g. baseline blood glucose, blood pressure, blood count, renal function and weight measurements, before steroid treatment is started
- ★ Ensure patients are monitored at each visit for blood glucose, blood pressure, full blood count, electrolytes and weight
- ★ Be vigilant for signs of steroid-induced side-effects and report them to the haematologist
- ★ Ensure patients and their families understand the importance of early reporting of side-effects and that they know who to report to. Provide emergency contact details if appropriate

Mood alterations

- ★ Acknowledge and reassure patients and their families that mood swings are a common side-effect of steroid treatment
- ★ Advise patients to adapt their lifestyle to accommodate mood alterations e.g. plan activities which make use of "highs" and "lows" in mood
- ★ Suggest patients consider attending support groups/counselling (with or without family)
- ★ Discuss with patients and their families alternative/complementary treatment options e.g. relaxation techniques, meditation or creative therapies
- ★ Refer patients to psychosocial counselling if appropriate

Management

General

- ★ Ensure patients understand the use of steroids in combination with other anti-myeloma treatments
- ★ Educate patients and their families about the potential side-effects of steroid treatment
- ★ Provide patients with written information to help them understand about steroid treatment and its potential side-effects, particularly if it is the first time they have been treated with steroids

Hyperactivity

- ★ Educate patients about the potential risk and association of hyperactivity on steroid-taking days
- ★ Advise patients to take their steroid treatment in the morning and to avoid divided doses
- ★ Advise patients to adapt their activities to correspond with their energy levels

- ★ Suggest relaxation, meditation or visualisation techniques and exercise to decrease hyperactivity
- ★ Encourage patients to maintain a level of gentle exercise

Insomnia

- ★ Educate patients and their families on the risk of sleep disturbance
- ★ Advise patients to take their steroid treatment in the morning and to avoid divided doses
- ★ Help patients evaluate their sleep habits and determine whether insomnia is steroid-related
- ★ Advise patients to adopt activities that are conducive to sleep e.g. avoiding stimulants such as caffeine, taking a warm bath before going to sleep, or using relaxation techniques
- ★ Identify and manage other factors that may be contributing to insomnia e.g. pain, obstructive sleep apnoea from steroid-related weight gain

Gastrointestinal

- ★ Educate patients about the risks, signs and symptoms of steroid-related gastrointestinal side-effects particularly: heartburn, gastric reflux, gastric ulcer
- ★ Advise patients to take their steroids with food and to avoid greasy, fried and highly acidic food
- ★ Advise patients to elevate the head of their beds if gastric reflux is a problem at night
- ★ Inform haematologist or coordinate referral to gastroenterologist if symptoms worsen or do not improve

Weight gain

- ★ Educate patients about the risk of increased appetite and weight gain during steroid treatment
- ★ Encourage patients to maintain a healthy balanced diet

- ★ Coordinate referral to a dietician where appropriate
- ★ Encourage patients to take regular forms of gentle exercise
- ★ Hyperglycaemia
- ★ Educate patients about the signs and symptoms of hyperglycaemia and hypoglycaemia
- ★ Ensure patients who have a high risk of developing or who have pre-existing diabetes are closely monitored
- ★ Advise patients to modify their diet and lifestyle by avoiding simple sugars and carbohydrates, to lose weight if necessary and to increase their level of exercise
- ★ Teach patients to self-administer insulin and manage their glucose levels where appropriate
- ★ Coordinate referral to endocrinologist where necessary

Oedema

- ★ Advise patients to elevate affected limbs and wear compression stockings where appropriate
- ★ Encourage patients to maintain physical exercise
- ★ Advise patients to restrict their salt intake

Fatigue

- ★ Educate patients on the likely pattern of fatigue most common one or two days after treatment
- ★ Suggest patients monitor and record fatigue levels to assist with planning activities
- ★ Advise patients to modify their activities according to their levels of fatigue e.g. schedule activities to coincide with periods of peak energy, pacing themselves, postponing or delegating non-essential activities
- ★ Encourage patients to exercise to combat fatigue

Muscle weakness

- ★ Coordinate referral to physiotherapist for muscle strengthening exercises
- ★ Coordinate referral to occupational therapist to assist with adjustments
- to activities of daily living in the home environment
- ★ Ensure patients are aware of the importance of maintaining adequate fluid intake. Seek advice from clinicians if necessary

Summary

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Steroids form an important part of anti-myeloma treatment, whether alone or in combination, because of their synergistic and complementary activity with other drugs. However, steroids can also cause potentially serious side-effects that can affect almost every system in the body.

Nurses play a crucial role in the ongoing assessment and monitoring of patients undergoing steroid treatment and in providing effective management strategies to minimise the negative impact of steroid-induced side-effects on patients' quality of life and to help treatment outcomes.

Abbreviations

- | | | | |
|----------------|--|----------------|---------------------------|
| ★ ADL | Activity of daily living | ★ NCI | National Cancer Institute |
| ★ CTCAE | Common terminology criteria for adverse events | ★ NF-κB | Nuclear factor kappa B |

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ABOUT THE NURSING BEST PRACTICE GUIDES

The Nursing Best Practice Guides have been developed by Myeloma UK and an expert nursing advisory group, with input from relevant specialist healthcare professionals. They have been developed to enhance nurse knowledge, inform nursing practice and support nurses in the delivery of high quality treatment and care to myeloma patients and families.

Nursing Best Practice Guide series:

- ★ Complementary therapies
- ★ Fatigue
- ★ Gastrointestinal toxicities
- ★ End of life care
- ★ Myeloma bone disease
- ★ Myeloma kidney disease
- ★ Myelosuppression
- ★ Oral Mucositis
- ★ Pain
- ★ Palliative care
- ★ Peripheral neuropathy
- ★ Steroids
- ★ Venous thromboembolic events

ABOUT THE MYELOMA ACADEMY

The Myeloma Academy provides healthcare professionals involved in the treatment and care of myeloma patients with access to comprehensive accredited learning resources and tools in an innovative online environment and through educational events.

It supports the education and continual professional development of myeloma healthcare professionals so they can provide optimum patient-centred treatment and care within the current UK health and policy environment.

For more information visit:

www.myeloma-academy.org.uk or by email **academy@myeloma.org.uk**

ABOUT MYELOMA UK

Myeloma UK is the only organisation in the UK dealing exclusively with myeloma.

Our mission is to provide information and support to people affected by myeloma and to improve standards of treatment and care through research, education, campaigning and raising awareness.

For more information about Myeloma UK and what we do, please visit **www.myeloma.org.uk** or contact us at **myelomauk@myeloma.org.uk** or **+44 (0)131 557 3332**.

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Appendix I

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National Cancer Institute (NCI) Common Terminology Criteria for Adverse Events (CTCAE) version 4.0^[14]

Toxicity grade	Description of severity
1	Mild: asymptomatic or mild symptoms; clinical or diagnostic observations only; intervention not indicated
2	Moderate: minimal, local or non-invasive intervention indicated; limiting age-appropriate instrumental ADL*
3	Severe: medically significant but not immediately life threatening; hospitalisation or prolongation of hospitalisation indicated; disabling; limiting self-care ADL**
4	Life-threatening consequences: urgent intervention indicated
5	Death related to adverse events

* Instrumental ADL (activity of daily living): preparing meals, shopping for groceries or clothes, using the telephone, managing money etc.
** Self-care ADL: bathing, dressing and undressing, feeding self, using the toilet, taking medication and not being bedridden



Notes



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