



# Audit of patient knowledge and awareness of “Sick Day Rules” in rheumatology patients on long term glucocorticoid therapy



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## Introduction

Glucocorticoids (GC) are commonly used agents for immunosuppression in the treatment of many autoimmune and inflammatory rheumatological diseases. GC induced adrenal insufficiency, a failure of production of adequate levels of cortisol due to HPA axis suppression, is a well-recognised complication of treatment. Life threatening adrenal crisis may develop in patients with adrenal insufficiency<sup>1</sup>. This survey endeavoured to assess the knowledge of patients taking long-term therapy regarding their risk of adrenal insufficiency and understanding of the “Steroid Sick Day Rules”. The results aim to highlight a potential educational opportunity in this patient cohort and therefore decrease the risk of adrenal crisis and improve patient safety.

## Methods

Rheumatic disease (RMD) patients taking  $\geq 2.5$  mg prednisolone daily for  $\geq 3$  months were recruited from the rheumatology outpatient department in Beaumont Hospital between March 2020 – July 2021. Suitable participants were recruited by reviewing outpatient charts and by filtering the DAWN database of rheumatology patient information. Patient knowledge and previous counselling of steroid sick day rules was assessed with use of a 10-point questionnaire carried out via phone call or in person.

The questionnaire recorded patient characteristics, clinical diagnosis, and prednisolone equivalent dose of steroid. Patients were asked if they carried a steroid emergency card or a MedicAlert bracelet; if “Steroid Sick Day Rules” had been discussed with them and whether they would inform healthcare professionals that they were on corticosteroid therapy. The questionnaire also included a series of clinical scenarios to assess if patients would alter their steroid dose in instances of active infection; vomiting or diarrhoea; and prior to dental, surgical or endoscopic procedures.

## Discussion

This study emphasises a significant deficit in patient awareness of long-term GC use despite them being commonly used to treat a variety of rheumatological diseases. Although no clear guidelines exist, it is generally accepted that patients taking  $>5$ mg prednisolone per day for  $>4$  weeks are at risk of adrenal insufficiency. Adrenal insufficiency secondary to prolonged GC usage is relatively common. Studies have also shown that the risk of adrenal insufficiency increases in periods with higher levels of daily and cumulative GC exposure<sup>1</sup>. The incidence of adrenal crisis in adrenal insufficiency is estimated to be between 5.2 – 8.3 crisis per 100 patient years<sup>2,3,4</sup> and crises contribute to mortality in adrenal insufficiency. Susceptibility to adrenal crisis varies, with risk factors including advanced age, a history of prior adrenal crisis and co-morbidities including asthma, type 1 diabetes and cardiac disease<sup>1,5</sup>.

Our data demonstrated low levels of patients reporting previous education from healthcare professionals on GC dose amendment. Patient education has been shown to be effective in improving self management and appropriate adjustment of stress dose GC in patients with adrenal insufficiency<sup>6</sup>. Thorough education of healthcare providers has also been proven as an important factor in minimising risks associated with adrenal insufficiency.

Recently published guidance on the prevention and emergency management of adults with adrenal insufficiency recommends that patients at risk of adrenal insufficiency taking  $>5$ mg prednisolone per day for  $>4$  weeks be issued with a Steroid Emergency Card<sup>7</sup>. This should prompt healthcare providers to consider adrenal crisis and initiate appropriate management in patients carrying the card as well as highlighting the latest guidance on the management of adrenal crisis. We suspect that our results may be generalisable to many other RMD patient departments. We are currently reviewing our procedures around healthcare professional and patient education, issuing of information leaflets, emergency cards or MedicAlert bracelets to at risk patients.

## References

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## Results

Fifty-one patients were identified as eligible and completed the questionnaire. The majority of patients surveyed were female and aged between 30 and 50 years. The median prednisolone equivalent dose taken was 5mg and the majority of patients in this study had been taking GC for greater than five years. Only 5.9% of patients surveyed reported that they had been counselled on Sick Day Rules and just 3.92% of patients carry a steroid emergency card or MedicAlert bracelet. Most patients were aware that GC should not be stopped abruptly and to inform healthcare professionals that they are on GC therapy. However, poor awareness was demonstrated in other aspects of Sick Day Rules. Few patients would increase their steroid dose appropriately in response to infection, vomiting or peri-procedure (27.5%; 17.7%; 7.2% respectively). Table 1 shows demographic characteristics, dose in prednisolone equivalent, and indication for long-term steroid. Figure 1 shows results in percentages of patient questionnaire responses.

Table 1:

	n	% (Range)
Age	18-30 years (1)	1.96%
	30-50 years (24)	47.1%
	50-70 years (15)	29.4%
	>70 years (11)	21.6%
Gender – females	41	80.4%
Prednisolone equivalent dose (median)	5mg	(2mg – 25mg)
Duration of corticosteroid therapy	>3 months (5)	9.8%
	1-5 years (22)	43.1%
	>5 years (24)	47.1%
Indication for long term steroid	Rheumatoid Arthritis (1)	1.96%
	Polymyalgia Rheumatica (7)	13.7%
	Vasculitis (11)	21.57%
	SLE (31)	60.8%
	Polymyositis (1)	1.96%

Figure 1:

