

Use of glucocorticoids following immunotherapy for cancer

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Background:

Immune checkpoint inhibitors have demonstrated significant advances in the treatment of several cancers including metastatic melanoma. However, they are frequently associated with immune-related adverse events which often require treatment with prolonged courses of glucocorticoids. Long-term glucocorticoid use is associated with several side effects including hyperglycaemia.

Aims:

1. To determine the prevalence of glucocorticoid use in patients treated with immune checkpoint inhibitors for advanced melanoma.
2. To determine the cumulative dose and duration of glucocorticoid (as prednisolone equivalent) given to patients for treatment of immune-related adverse events.
3. To determine the prevalence of new onset hyperglycaemia in patients treated with glucocorticoids.

Methods:

Retrospective review of patients with advanced melanoma treated with an immune checkpoint inhibitor between September 2010 and January 2017 at the Royal Marsden Hospital, London, UK. The electronic patient record was used to identify patients treated with glucocorticoids, to determine the cumulative dose and duration of glucocorticoid treatment and to determine the number of patients developing new onset hyperglycaemia (random blood glucose sample greater than 11.1mmol/l).

Results – prevalence of glucocorticoid use in patients treated with immune checkpoint inhibitors for advanced melanoma

Figure 1

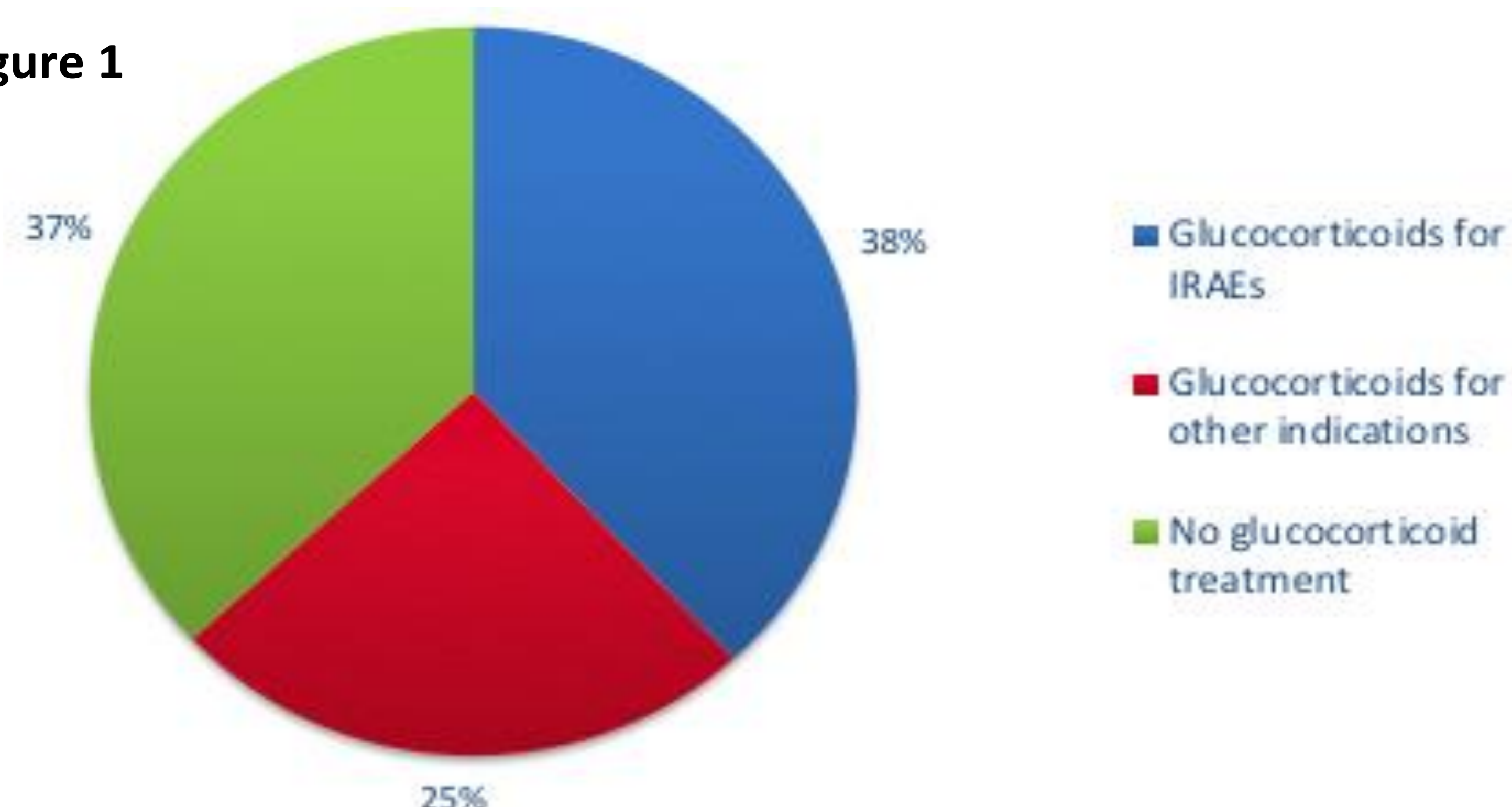


Figure 1 – number of patients treated with immune checkpoint inhibitors that were initiated on glucocorticoids (n=412). 157 patients (38%) received oral or intravenous glucocorticoids for immune-related adverse events, 103 patients (25%) received glucocorticoids for other indications and 152 patients (37%) were documented not to have received glucocorticoids for any purpose.

Results – cumulative dose of glucocorticoid given to patients for treatment of immune-related adverse events

Figure 2a

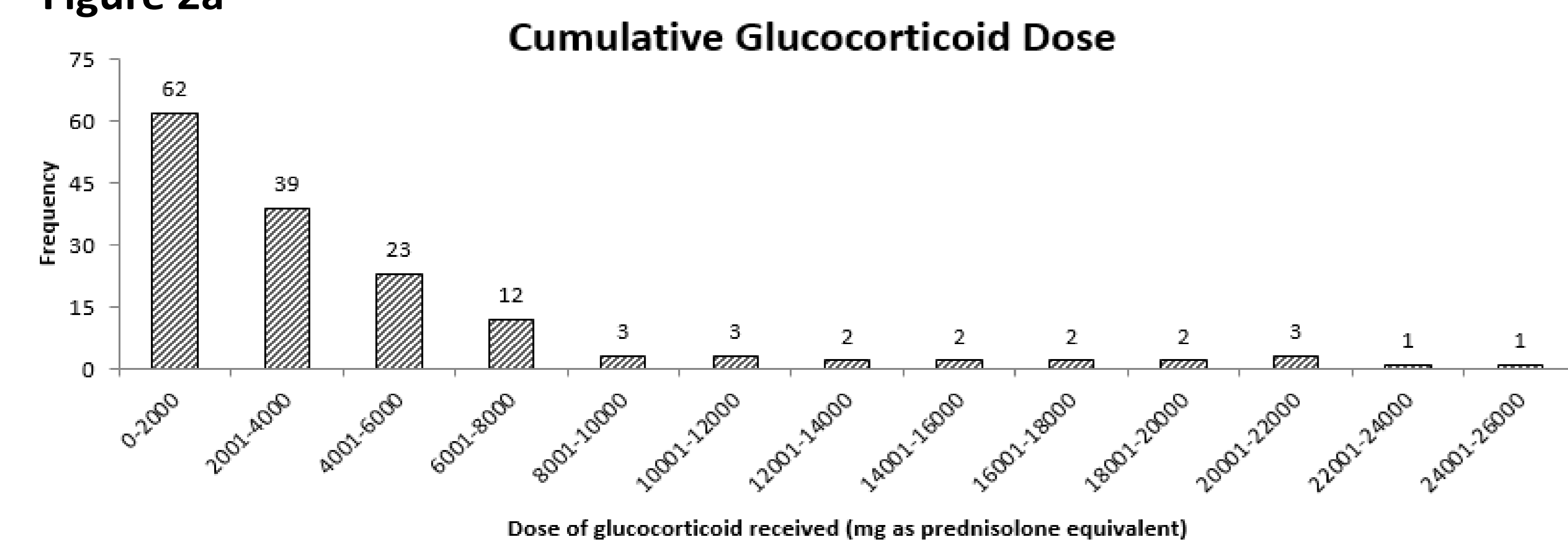


Figure 2a – of the 157 patients receiving glucocorticoids for immune-related adverse events, the median cumulative glucocorticoid dose a patient received was 2795mg prednisolone equivalent, with a maximum cumulative dose of 24254mg and a minimum cumulative dose of 25mg.

Conclusions:

- Immune-related adverse events frequently occur in patients treated with immune checkpoint inhibitors.
- Consequently, patients typically receive high doses of glucocorticoids for prolonged durations, often resulting in glucocorticoid-induced hyperglycaemia.
- Given the doses used, many patients will also be at risk of adrenal suppression.
- Endocrinologists therefore need to be aware of these emerging indications for prolonged glucocorticoid treatment in the oncology setting.

Results – duration of glucocorticoid given to patients for treatment of immune-related adverse events

Figure 2b

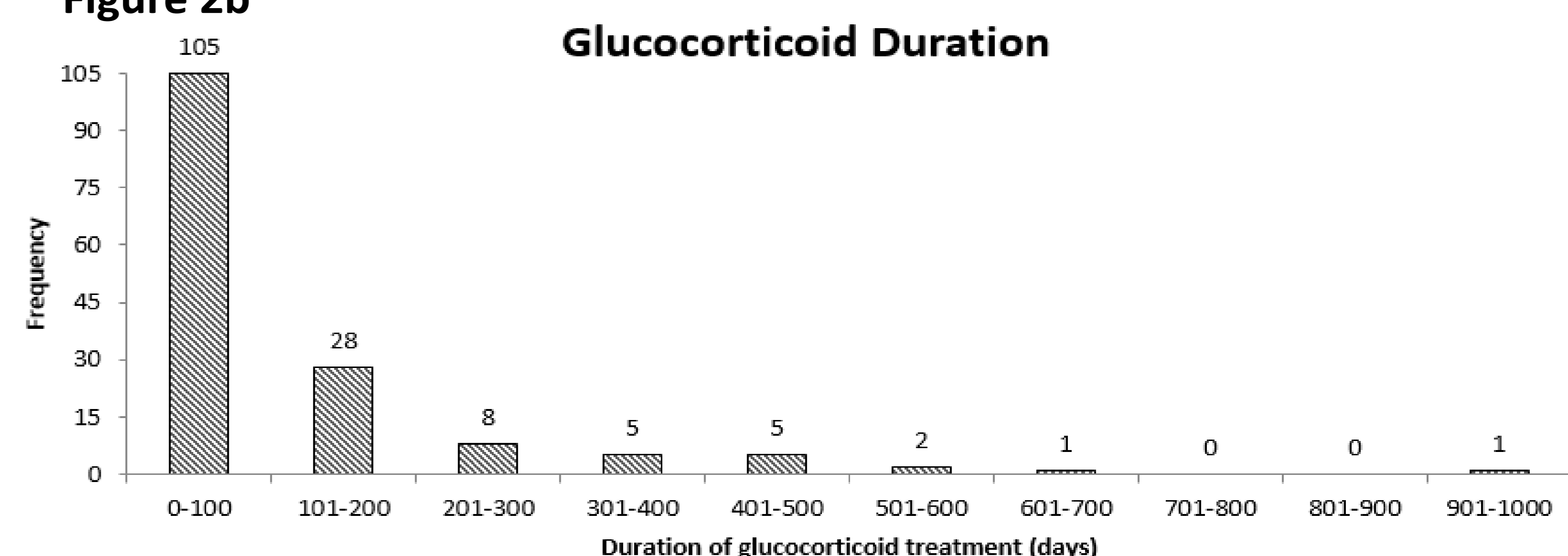


Figure 2b – of the 157 patients receiving glucocorticoids for immune-related adverse events, the median duration of glucocorticoid treatment was 61 days, with a maximum duration of 974 days and a minimum duration of 3 days.

Results – prevalence of new onset hyperglycaemia in patients treated with glucocorticoids

Figure 3

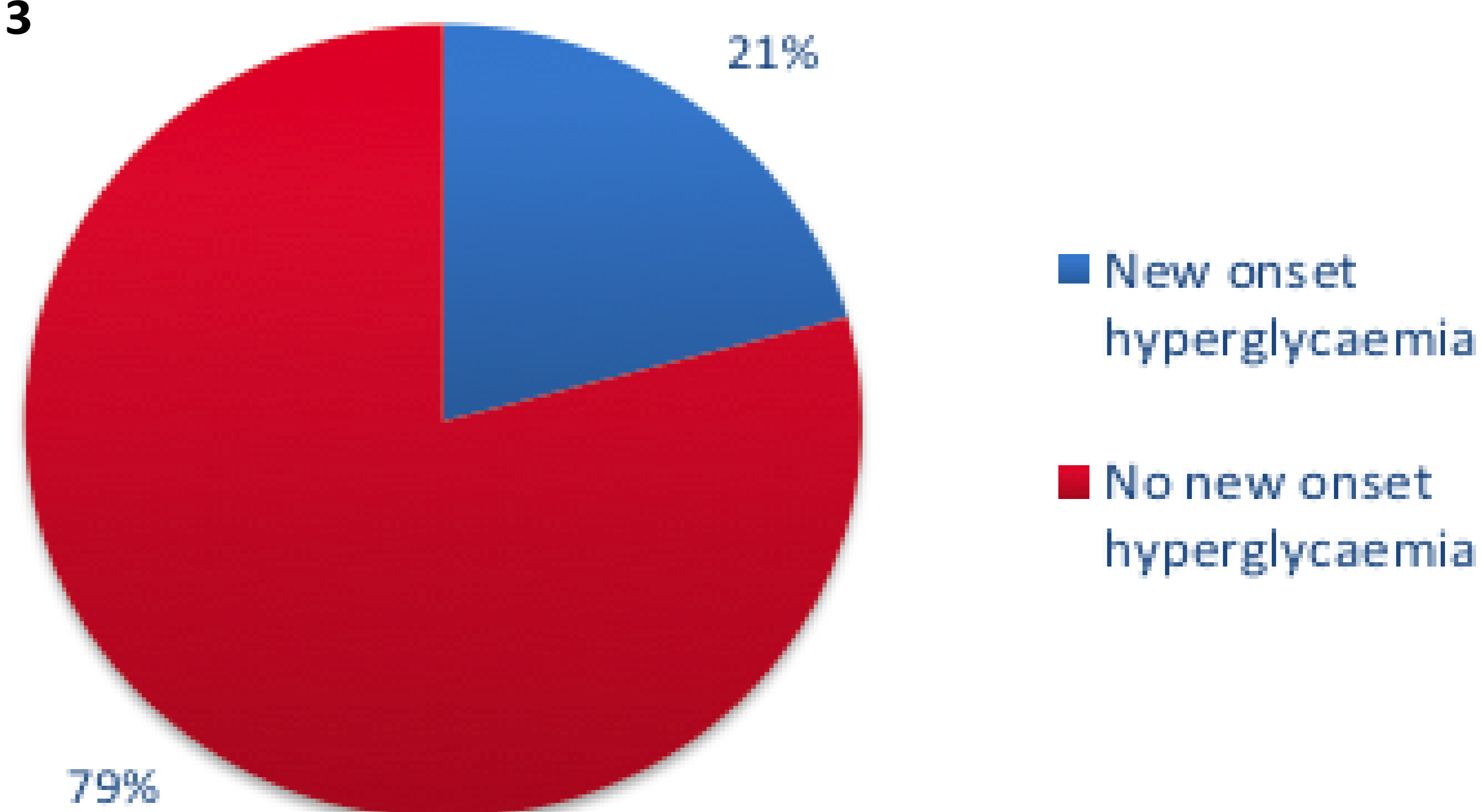


Figure 3 – number of patients receiving glucocorticoids for immune-related adverse events that had documented blood glucose measurements (n=130). 27 patients (21%) were documented to develop new onset hyperglycaemia whilst the remaining 103 patients (79%) had no documented hyperglycaemia.