Glucocorticoid-induced adrenal suppression: physiological basis and strategies for glucocorticoid weaning

To the Editor: The article by Torpy and Lim[1] clearly describes the considerations required when developing a corticosteroid tapering regimen, including the potential for an increase in underlying disease activity. In neurological disorders, re-emergent disease activity can be life-threatening. Trials have previously been conducted that inform steroid dosing regimens in selected neurological conditions. However, significant practice variation remains. While existing trials inform practice in selected situations, there is a need for pragmatic randomised trials or to leverage large observational registry data to inform steroid usage in neurology.

Previous randomised trials in neurological disorders have sought to demonstrate evidence-based means to minimise corticosteroid exposure both by tapering to cessation quickly and by reducing regular dosing regimens. For example, a previous randomised trial in myasthenia gravis found that a comparatively rapid prednisolone taper was beneficial.[2] In chronic inflammatory demyelinating polyneuropathy, a randomised trial did not demonstrate a difference in remission in patients treated with either a regimen of pulsed dexamethasone compared with a prednisolone wean over 32 weeks.[3] The seminal randomised Optic Neuritis Treatment Trial investigated different corticosteroid regimens (all 14 days in duration with a four-day weaning period) and remains the best available evidence for the treatment of individuals with this condition.[4] However, for all such conditions, individual neurologist practice often differs (eg, three days of 1 g methylprednisolone with no subsequent taper for optic neuritis). Subsequent randomised studies continue to investigate whether dose reduction, or alternative routes of administration, may be non-inferior.[5]

Existing trial data are valuable when developing corticosteroid weaning regimens for patients with neurological disorders. However, there are no trials to inform the use of corticosteroids in rare but serious disorders, including autoimmune encephalitis, primary angiitis of the central nervous system, and neurosarcoidosis. Although suggestions from experts may be useful for such patient groups, current practice variation highlights that there is equipoise to support trials to determine the best corticosteroid regimens and corticosteroid-sparing agents. Pragmatic investigator-initiated randomised trials, or leveraging of the power of global observational registries, of steroid regimens in neurology should be supported by academic institutions and funding bodies.

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1 Torpy DJ, Lim WT. Glucocorticoid-induced adrenal suppression: physiological basis and strategies for glucocorticoid weaning. *Med J Aust* 2023; 219: 444-447. https://www.mja.com.au/journal/2023/219/10/glucocorticoid-induced-adrenal-suppression-physiological-basis-and-strategies
2 Sharshar T, Porcher R, Demeret S, et al. Comparison of corticosteroid tapering regimens in myasthenia gravis: a randomized clinical trial. *JAMA Neurol* 2021; 78: 426-433.
3 van Schaik IN, Eftimov F, van Doorn PA, et al. Pulsed high-dose dexamethasone versus standard prednisolone treatment for chronic inflammatory demyelinating polyradiculoneuropathy (PREDICT study): a double-blind, randomised, controlled trial. *Lancet Neurol* 2010; 9: 245-253.
4 Beck R, Cleary P, Anderson M, et al. A randomized, controlled trial of corticosteroids in the treatment of acute optic neuritis. The Optic Neuritis Study Group. *N Engl J Med* 1992; 326: 581-588.
5 Pietris J, Lam A, Bacchi S, et al. The efficacy, adverse effects and economic implications of oral versus intravenous methylprednisolone for the treatment of optic neuritis: a systematic review. *Semin Ophthalmol* 2024; 39: 6-16. ■