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CORRESPONDENCE

Perioperative glucocorticoid stress dosing: a survey of anesthesiologists and general internists

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To the Editor,

Perioperative glucocorticoid (GC) stress dosing has long been recommended for patients with significant preoperative exogenous GC exposure, but remains controversial because of a lack of high-level evidence to support it.[1,2] In this context, we sought to characterize perioperative GC stress dosing patterns among Canadian physicians, specifically anesthesiologists (ANs), general internists (GIMs), and endocrinologists (ENs).

Following institutional ethical approval, we invited physician members of the Canadian Anesthesiologists' Society (CAS), Canadian Society of Internal Medicine (CSIM), Association des Spécialistes en Médecine Interne du Québec (ASMIQ), and Canadian Society of Endocrinology and Metabolism to participate in a 19-item online survey (Appendix 1, available as Electronic Supplementary Material [ESM]) from March to July 2017. One thousand seven hundred seventy-four CAS members and 856 CSIM/ASMIQ members were invited to participate, with 447 (17%) surveys completed (ANs, n = 295; GIMs, n = 145; ENs, n = 7). Due to the few EN responses received, these data were excluded from analysis. Most respondents worked at an academic centre (ANs, 62%; GIMs, 58%). Respondents practiced in all regions of Canada, though GIMs were predominantly from Ontario and Quebec (94%). For further details, refer to ESM Appendix 2.

In terms of preoperative evaluation, 173 respondents (39%) felt extremely or very confident in their ability to choose an appropriate stress dose regimen (ANs, n = 90, 31%; GIMs, n = 83, 58%). Three hundred fifty-six respondents (81%) agreed or strongly agreed that guidelines for perioperative GC administration are needed (ANs, n = 240, 82%; GIMs, n = 116, 80%). Respondents judged patients to be at higher risk for adrenal insufficiency when taking higher preoperative oral prednisone doses for at least three weeks in the last year (7.5 mg: ANs, n = 116, 39%, and GIMs, n = 87, 60%; 10 mg: ANs, n = 177, 60%, and GIMs, n = 98, 68%; 15 mg: ANs, n = 192, 65%, and GIMs, n = 114, 79%). Most respondents do not preoperatively test for hypothalamic-pituitary-adrenal axis function (ANs, n = 255, 86%; GIMs, n = 86, 59%).

Respondents were presented with five clinical cases and prompted to select their preferred management strategy (Table). Consistent with contemporary stress dosing recommendations, respondents attempted to stratify their GC management regimens based on the perceived likelihood of perioperative adrenal insufficiency.[3] Respondents provided supplemental GC in two high-risk

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Table Perioperative GC management for clinical cases

	Preoperative oral prednisone treatment		ANs	GIMs
	Daily dose (mg)	Duration	(n = 295)	(n = 145)
82-yr-old male with COPD Undergoing open cholecystectomy	40 mg	5 days, finished 1 week ago (COPD exacerbation)	No perioperative GC 166 (56%)	No perioperative GC 110 (76%)
66-yr-old female with prior liver transplant Undergoing total knee replacement	5 mg	7 years	Usual GC dose day of surgery No additional GC 144 (49%)	HC 50 mg *iv*, then HC 25 mg *iv* every 8 hr for 24-48 hr 87 (60%)
38-yr-old male with Ulcerative colitis and asthma Undergoing inguinal hernia repair (spinal anesthesia)	20 mg	6 months	Usual GC dose day of surgery No additional GC 158 (54%)	Usual GC dose day of surgery No additional GC 58 (40%)
38-yr-old male with Ulcerative colitis and asthma Undergoing total colectomy	20 mg	6 months	HC 100 mg *iv*, then HC 50 mg *iv* every 8 hr for 24 hr Taper dose by half per day to home dose 97 (33%)	HC 100 mg *iv*, then HC 50 mg *iv* every 8 hr For 24 hr Taper dose by half per day to home dose 44 (30%)
67-yr-old male with prior kidney transplant Undergoing lobectomy for early-stage NSCLC	5 mg	5 years	HC 100 mg *iv*, then HC 50 mg *iv* every 8 hr for 48 hr Taper dose by half per day to home dose 108 (37%)	HC 100 mg *iv*, then HC 50 mg *iv* every 8 hr For 24 hr Taper dose by half per day to home dose 47 (32%)

Data are presented as the most common response for each clinical scenario along with absolute number (percentage)

ANs = anesthesiologists; COPD = chronic pulmonary obstructive disease; GC = perioperative glucocorticoid; GIMs = general internists; HC = hydrocortisone

NSCLC = non-small-cell lung cancer; OR = operating room

cases and did not give supplemental GC in one low-risk case. For two intermediate-risk cases, there was disagreement on GC management. There was also no clear consensus on the specific stress dose regimen in cases where GC supplementation was favoured.

Interestingly, in each clinical case there was a minority of AN respondents (2-3%) who specifically recommended dexamethasone as their supplemental GC of choice at doses usually used for postoperative nausea and vomiting prophylaxis (i.e., 4-8 mg). This approach is rarely described despite dexamethasone's favourable clinical properties (e.g., lack of mineralocorticoid effect and long duration).[4]

As is generally the case with surveys, this study was limited by a low response rate. Our survey had a reasonable distribution of practice type and years of experience. There was, however, some geographical overrepresentation from Ontario and Quebec, particularly among GIM respondents. Also, their negligible response rate precluded EN input, which could have been very informative. Nonetheless, this is the first interdisciplinary survey of Canadian GC stress dosing practice patterns. The responses illustrated that perioperative GC management remains contentious, especially for intermediate-risk cases. While the degree of confidence around stress dosing was lower among ANs, both specialties expressed a desire for further guidance. These results support the need for continued clinical research in this field.

Conflicts of interest None declared.

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