Value-based healthcare represents a transformative shift in urological care, prioritising the delivery of high-quality, cost-effective services. By emphasising robust outcome measurement, transparent cost structures, centralised care pathways, and patient-centred approaches, VBHC enhances both clinical effectiveness and patient experience. In this evolving landscape, the BAUS is uniquely positioned to champion these principles – driving innovation, standardisation, and strategic implementation across the UK and internationally.

Disclosure of Interests

Prokar Dasgupta is supported by the Engineering and Physical Sciences Research Council (EPSRC; grant number EP/Y009800/1), through funding from Responsible AI UK (RAI UK). He also acknowledges funding from the Trustworthy Autonomous Systems (TAS) Hub and UK Research and Innovation (UKRI). He recognises support from the Wellcome Trust for Surgical and Interventional Engineering, the London Institute for Healthcare Engineering (LIHE), the Hinduja-King's Academy, Alberto Recordati, the King's-Vattikuti Institute, The Urology Foundation and King's College London (KCL).

References

1 **European University Hospital Alliance**. Rethinking healthcare systems [Internet]. 2024. Available at: www.euhalliance.eu/rethinking-healthcare-systems/. Accessed July 2025
2 **Porter ME, Teisberg EO**. *Redefining Health Care: Creating Value-Based Competition on Results*. Boston, MA: Harvard Business School Press, 2006
3 **Reitblat C, Bain PA, Porter ME et al.** Value-based healthcare in urology: a collaborative review. *Eur Urol* 2021; 79: 571–85
4 **Labban M, Dasgupta P, Song C et al.** Cost-effectiveness of robotic-assisted radical prostatectomy for localized prostate cancer in the UK. *JAMA Netw Open* 2022; 5: e225740
5 **Nabi J, Friedlander DF, Chen X et al.** Assessment of out-of-pocket costs for robotic cancer surgery in US adults. *JAMA Netw Open* 2020; 3: e1919185
6 **Brunckhorst O, Liszka J, James C et al.** Mental well-being in prostate cancer: a multi-institutional prospective cohort study. *BJUI Compass* 2025; 6: e70040

Correspondence: Lucinda Gabriel, King's Health Partners, Guy's Hospital, Counting House, St. Thomas' Street, London SE1 9RT, UK.
e-mail address: e-mail: lucinda.gabriel@kcl.ac.uk

Abbreviations: PROMs, patient-reported outcome measures; RARP, robot-assisted radical prostatectomy; VBHC, value-based healthcare.

Perioperative management of novel obesity and diabetes drugs: what the urologist needs to know

Sabrina H. Rossi[1,2], Vishal Patil[2], Sophie A. Schenk[2], Grant D. Stewart[1,2] and James Armitage[2]
[1]*Department of Surgery, University of Cambridge, and* [2]*Cambridge University Hospitals, Cambridge, UK*

Obesity represents a large, and growing burden on the NHS: 29% of adults in England are obese (defined as a body mass index of ≥30 kg/m^2). Obesity and associated complications cost the NHS ~£11.4 billion/year, with an estimated cost to society of £74.3 billion/year when taking into account lost productivity, unemployment, and social care [1]. The NHS has recently approved novel drugs for the management of obesity and diabetes. Additionally, a growing number of individuals are obtaining private prescriptions or even counterfeits from unregulated sellers. Urologists should sensitively ask patients, who may not volunteer this information unless directly asked. These drugs are receiving increased media coverage, and it is anticipated their use will increase in the future [1]. It is important for urologists to be aware of perioperative management guidelines and the urological implications for patients taking them. We therefore aim to draw attention to guidelines for glucagon-like peptide-1 receptor agonists (GLP-1 RAs); dual glucose-dependent insulinotropic peptide (GIP)/GLP-1 RAs; and sodium-glucose co-transporter-2 (SGLT2) inhibitors. A joint consensus statement was recently published by multidisciplinary associations for anaesthesia, diabetes and bariatric perioperative care, developed in collaborations with surgeons, pharmacists, and patients [2]. Furthermore, we summarise key considerations regarding elective and emergency urology patients taking these drugs (Fig. 1).

The GLP-1 RAs and Dual GIP/GLP-1 RAs

Both GLP-1 and GIP (also known as incretin hormones) are secreted in the small intestine in response to glucose, and act via several mechanisms including: increased pancreatic insulin secretion, increased insulin sensitivity, altered glucagon secretion (GLP-1 reduces glucagon secretion, while

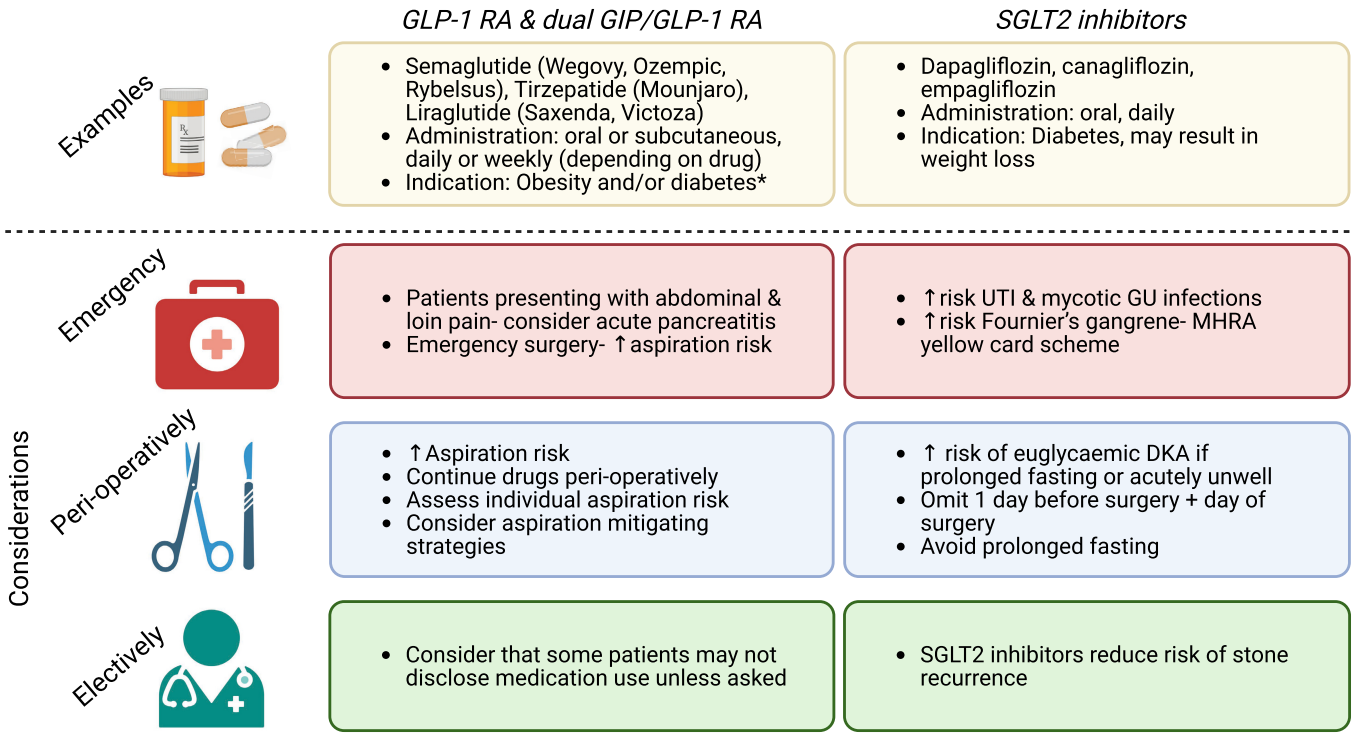

Fig. 1 Important considerations for each drug subtype. Created in BioRender (https://BioRender.com/9pmbj8w). GU, genitourinary. *Please see Table S1 for more detailed drug indications and administration.

GIP increases it), delayed gastric emptying, and activation of hypothalamic satiety centres. Through these mechanisms, these drugs can lead to weight loss and/or improved diabetic control and even reduce major cardiovascular events (Table S1) [2]. Common drug side effects include gastrointestinal (GI) symptoms (e.g., nausea, vomiting, and diarrhoea). These occur more frequently upon drug initiation or secondary to dose escalation and can occasionally lead to dehydration [3]. Infrequently, patients can develop acute pancreatitis following the use of GLP-1 RAs [3], and could present as an emergency with epigastric and loin pain that may be referred inappropriately to urology as renal colic. In the perioperative setting, delayed gastric emptying is associated with an increased risk (up to 10-fold) of aspiration [2], as well as potential for reduced absorption of oral medications prescribed in the perioperative period. Although the recently published guidance refers to elective surgery, urologists should be aware that the risk of aspiration may be particularly high in patients undergoing emergency surgery who are not adequately fasted. In the elective setting, each patient's individual aspiration risk should be assessed: individuals with upper GI symptoms may be particularly at increased aspiration risk and point-of-care gastric ultrasound may be used to assess this (if available). Urologists should consider local anaesthesia (e.g., in penile surgery) or neuraxial block and avoid procedures under sedation if possible. Should a general anaesthetic be required, it is paramount to liaise with anaesthetic colleagues to ensure adequate depth of anaesthesia, particularly when the trachea is not intubated. Mitigating strategies that may be considered include: use of prokinetics (e.g., metoclopramide) prior to induction, head-up-positioning, use of a tracheal tube over supraglottic airway, nasogastric/orogastric decompression if high risk, applying cricoid pressure (based on limited evidence base, with common sense supporting its use), and awake tracheal extubation [2]. These drugs should be continued perioperatively and standard fasting guidelines should be adhered to, although there is limited available evidence and therefore these recommendations may change in the future [2].

The SGLT2 Inhibitors

The SGLT2 inhibitors (e.g., dapagliflozin, canagliflozin, and empagliflozin) are licenced for use in patients with type 2 diabetes to reduce blood glucose, although they may also result in weight loss. Beyond their use in patients with diabetes, these drugs may also reduce cardiovascular morbidity in patients with heart failure and have been shown to slow progression of chronic kidney disease particularly in patients without diabetes [4]. SGLT2 inhibitors block the SGLT2 in the renal proximal convoluted tubule, thereby

reducing glucose reabsorption and resulting in glycosuria. Reduced plasma glucose is accompanied by reduced insulin secretion, increased glucagon levels, and lipolysis. Free fatty acids are transported to the liver and converted to ketones.

In the perioperative setting (and especially in emergencies), patients are therefore at increased risk of diabetic ketoacidosis (DKA; defined by hyperglycaemia, increased blood ketones, and metabolic acidosis) and euglycaemic DKA. The latter is characterised by normal glucose levels and is therefore difficult to recognise, warranting a high index of clinical suspicion. Risk factors include prolonged starvation and acute illness. It is therefore important to consider this diagnosis in patients who may have ileus or reduced oral intake following major urological surgery. To reduce these risks, guidelines suggest omitting SGLT2 inhibitors the day before and the day of surgery, re-instating these when patients are eating and drinking normally and capillary ketones are <0.6 mmol [2]. These recommendations need to be balanced against the risk of hyperglycaemia that can occur upon stopping SGLT2 inhibitors preoperatively. Furthermore, euglycaemic ketoacidosis may occur in patients without diabetes taking SGLT2 inhibitors; therefore, regular glucose and ketone monitoring perioperatively is paramount [2].

Importantly, SGLT2 inhibitors are associated with an increased risk of infections, including: UTIs (secondary to glycosuria) and mycotic genital infections (and importantly diabetes is a risk factor for infection). Endourologists are encountering patients with fungal bezoar throughout the upper and lower urinary tract associated with the use of SGLT2 inhibitors. Patients may present to the general urology clinic with recurrent UTIs, and both infection risk and antibiotic prophylaxis need to be considered when planning elective urology procedures (including flexible cystoscopy, prostate biopsy, and endoscopic surgery). SGLT2 inhibitors are also associated with an increased risk of Fournier's gangrene. If suspected, Fournier's gangrene should be treated, SGLT2 inhibitors should be omitted, and cases should be reported via the Medicines and Healthcare products Regulatory Agency (MHRA) Yellow Card Scheme [5].

Diabetes and obesity are also risk factors for renal stone formation. SGLT2 inhibitors reduce the risk of recurrent stone formation in patients with diabetes relative to placebo and other anti-diabetic drugs (GLP-1 RAs and dipeptidyl peptidase 4 [DPP-4] inhibitors) [6,7] and may be prescribed in metabolic stone clinic. Future trials will investigate whether recurrent nephrolithiasis can be reduced in patients without diabetes using these drugs [7].

In conclusion, we summarise perioperative management guidelines for patients taking GLP-1 RAs, dual GIP/GLP-1 RAs, and SGLT2 inhibitors, as well as important considerations for emergency and elective urology patients. An increased awareness of these recommendations will enable urologists to adopt a shared decision-making approach with patients and improve communication with multidisciplinary specialties such as anaesthetic, endocrine, and medical teams.

Funding

None declared.

Disclosure of Interests

The contributing authors have no conflicts of interest relating to the subject matter presented in this work. Grant D. Stewart has received educational grants from Pfizer, AstraZeneca, and Intuitive Surgical; consultancy fees from Pfizer, Merck, EUSA Pharma, and CMR Surgical; travel expenses from Pfizer; and speaker fees from Pfizer and MSD. Grant D. Stewart is the clinical lead (urology) of National Kidney Cancer Audit and topic advisor for the National Institute for Health and Care Excellence (NICE) kidney cancer guideline. Sabrina H. Rossi is funded by a University of Cambridge Academic Clinical Lectureship. All other authors declare no competing interests.

References

1 **2025 NHS England**. Interim commissioning guidance. Available at: https://www.england.nhs.uk/wp-content/uploads/2025/03/PRN01879-interim-commissioning-guidance-implementation-of-the-nice-technology-appraisal-ta1026-and-the-NICE-fu.pdf. Accessed June 2025.

2 **El-Boghdadly K**, **Dhesi J**, **Fabb P et al.** Elective peri-operative management of adults taking glucagon-like peptide-1 receptor agonists, glucose-dependent insulinotropic peptide agonists and sodium-glucose cotransporter-2 inhibitors: a multidisciplinary consensus statement: a consensus statement from the Association of Anaesthetists, Association of British Clinical Diabetologists, British Obesity and Metabolic Surgery Society, Centre for Perioperative Care, Joint British Diabetes Societies for Inpatient Care, Royal College of Anaesthetists, Society for Obesity and Bariatric Anaesthesia and UK Clinical Pharmacy Association. *Anaesthesia* 2025; 80: 412–24

3 **Medicines and Health Products Regulatory Agency (MHRA)**. GLP1 medicines for weight loss and diabetes what you need to know. 2025. Available at: https://www.gov.uk/government/publications/glp-1-medicines-for-weight-loss-and-diabetes-what-you-need-to-know/glp-1-medicines-for-weight-loss-and-diabetes-what-you-need-to-know. Accessed June 2025.

4 **Madero M**, **Chertow GM**, **Mark PB**. SGLT2 inhibitor use in chronic kidney disease: supporting cardiovascular, kidney, and metabolic health. *Kidney Med* 2024; 6: 100851

5 **MHRA**. SGLT2 inhibitors: reports of Fournier's gangrene (necrotising fasciitis of the genitalia or perineum) 2019. Available at: https://www.gov.uk/drug-safety-update/sglt2-inhibitors-reports-of-fournier-s-gangrene-necrotising-fasciitis-of-the-genitalia-or-perineum#:~:text=We%20have%20received%206%20Yellow,548%2C565%20patient%2Dyears%20of%20treatment. Accessed June 2025.

6 **Paik JM**, **Tesfaye H**, **Curhan GC**, **Zakoul H**, **Wexler DJ**, **Patorno E**. Sodium-glucose cotransporter 2 inhibitors and nephrolithiasis risk in patients with type 2 diabetes. *JAMA Intern Med* 2024; 184: 265–74

7 **Sakhaee K**. SGLT-2 inhibitors for the prevention of recurrent nephrolithiasis. *BMJ* 2024; 387: q2447

Correspondence: Sabrina H. Rossi, Department of Surgery, University of Cambridge, Cambridge Biomedical Campus, Cambridge CB2 0QQ, UK.
e-mail: sr725@cam.ac.uk

Abbreviations: DKA, diabetic ketoacidosis; GI, gastrointestinal; GIP, glucose-dependent insulinotropic peptide; GLP, glucagon-like peptide-1; MHRA, Medicines and Healthcare products Regulatory Agency; RA, receptor agonist; SGLT2, sodium-glucose co-transporter-2.

Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S1. Drug administration and indications for GLP-1 RA and dual GIP/GLP-1 RA, adapted from the MHRA [3].

