

The perioperative management of transgender patients: a knowledge gap we can no longer ignore

Abstract

Recent years have seen an increase in the number of people openly identifying as transgender in the UK, with current estimates ranging between 200 000 and 600 000 individuals. There has also been an increase in the number of patients undergoing both medical and surgical gender-affirming treatment. There are several important, specific considerations that perioperative clinicians must be aware of when caring for transgender patients, including changes to the airway, potential respiratory and cardiovascular complications, and the management of hormone therapy. Alongside this, important general considerations include the correct use of patient pronouns and ensuring patients are admitted to correctly gendered wards. Despite the need for these considerations, the perioperative management of transgender patients is not covered in the Royal College of Anaesthetists' curriculum; to date, no national guidelines exist on the subject. This article discusses some of the key, specific perioperative considerations relevant to transgender patients, and highlights the need for national guidelines and improved education on the subject.

Key words: Anaesthesia; Lesbian, gay, bisexual, transgender; LGBT; Perioperative; Transgender

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Introduction

The number of people openly identifying as transgender has increased significantly over the last decade, with an estimated 200 000–600 000 transgender individuals living in the UK at the time of writing (Government Equalities Office, 2019). Stonewall's (2018) *Trans Report* highlighted a disparity in access to healthcare for transgender people, with 7% reporting having been refused care and 41% reporting feeling that their specific healthcare needs were not understood by healthcare professionals. Despite this, undergraduate and postgraduate education on the subject remains limited. Transgender healthcare is only included in the mandatory curriculum of around 10% of UK medical schools (Tollemache et al, 2021). Specific perioperative learning for this cohort is not included in the Royal College of Anaesthetists' (2021) curriculum.

Over 50% of people identifying as transgender have undergone or are currently undergoing medical intervention; a further 25% have not yet undergone any intervention, but wish to in the future (Stonewall, 2018). As an example, patients who have commenced hormone therapy or gender-affirming surgery will require care from non-specialists in the perioperative period (Figure 1). Therefore, clinicians must understand the specific perioperative considerations for these patients when undergoing non-gender affirming surgery. This article introduces some of these specific considerations, and highlights the need for unified national guidance.

Physiological and anatomical considerations

There are multiple anatomical and physiological considerations that physicians must be aware of when caring for transgender patients. Here, some key points relevant to the perioperative period are discussed.

Airway

Transgender women may undergo feminisation surgeries that alter the airway. Examples include mandibular reductions, cosmetic dentistry, vocal surgery and thyroid cartilage

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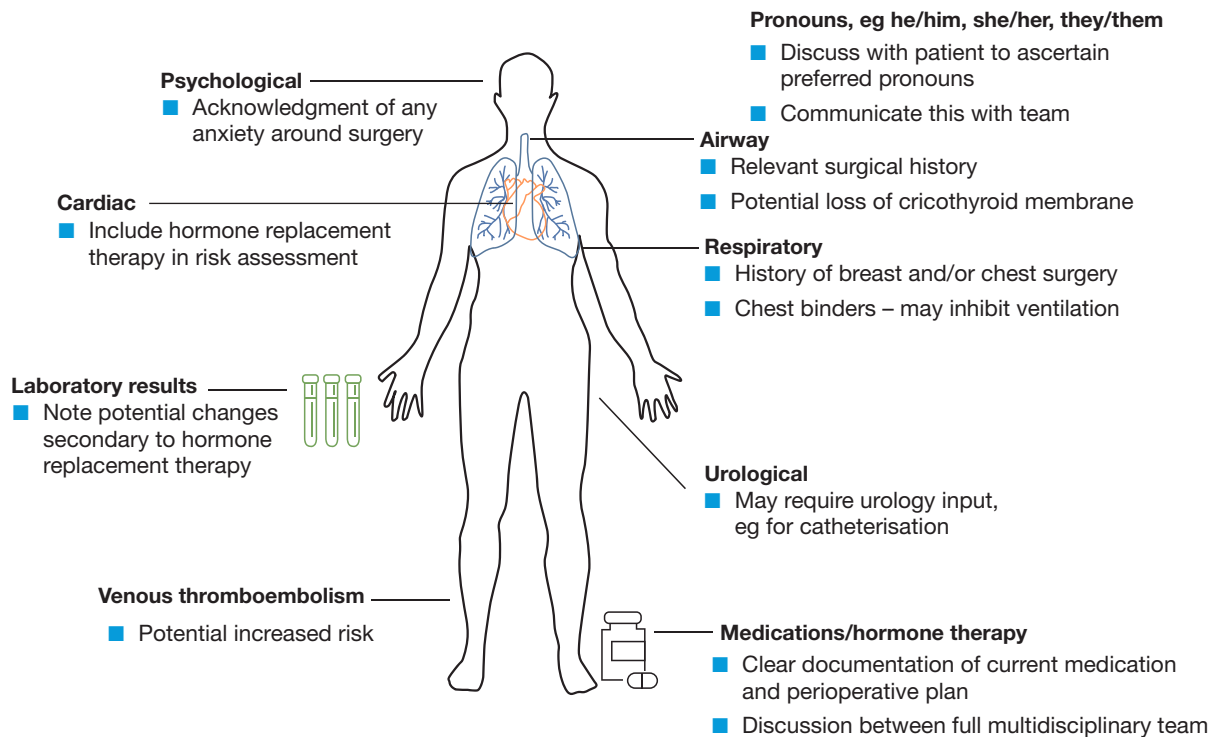


Figure 1. Specific considerations for the perioperative care of transgender patients.

reduction. One procedure of particular relevance to the anaesthetist is anterior web formation, where the suturing of the anterior vocal cords leads to a reduction of the glottic aperture by approximately one third, to a size similar to that of a cisgender (a person whose gender identity corresponds to their sex assigned at birth) female (Lennie et al, 2020). Airway instrumentation, and the size and type of airway device used, should be planned with care. If surgery was recently performed, instrumentation should be avoided where possible, to avoid trauma to the healing cords.

Another intervention of note is cricothyroid approximation, in which vocal cord tension is increased through movement of the thyroid and cricoid cartilages. This may cause complete loss of the cricothyroid membrane, making an emergency cricothyroidotomy impossible in a ‘cannot intubate, cannot oxygenate’ scenario; therefore, an alternative strategy must be discussed in advance with the patient (Lennie et al, 2020).

Transgender men may undergo voice masculinisation surgery, including window relaxation laryngoplasty or type III thyroplasty (Kocak et al, 2008; Kim, 2020). In this procedure, anterior-posterior shortening of the alae results in vocal cord relaxation and lowering of vocal pitch (Bultynck et al, 2021). Thus, it is paramount that preoperative assessment includes a clear history of previous laryngeal procedures.

Respiratory

Transgender men may perform chest binding with bandages or binders to compress breast tissue (Julian et al, 2021), which may produce a restrictive lung defect. While no studies have been performed that investigate chest binding in transgender patients, chest wall strapping has been used to investigate mechanisms of pulmonary pathology. Chest wall strapping differs from chest wall binding in that, rather than being a gender-affirming technique, it is a procedure that restricts the thorax and abdomen to investigate pulmonary physiology (Eberlein et al, 2014). Chest wall strapping reduces total lung capacity, vital capacity, functional residual capacity, residual volume and expiratory reserve volume (Eberlein et al, 2014). Removal of chest binders in the perioperative period is advised, but should be discussed with patients. Transgender female patients may have undergone a breast implantation procedure, which should be considered if anaesthetising in the prone position (Bekeny et al, 2021).

Urological

Gender-affirming urological procedures that transgender patients may undergo include:

- Vaginoplasty
- Phalloplasty
- Metoidioplasty with urethral lengthening (Drinane and Santucci, 2020).

Important postoperative complications include flap necrosis, rectal and urethral injuries. There is also a high rate of urethral stricture formation following phalloplasty in transgender men (25–58%) (Anderson et al, 2021). Instrumentation of the urethra should be performed with caution, because there is a high risk of urethral injury (Anderson et al, 2021). Urinary catheter insertion may subsequently be challenging, and a urological opinion should be sought.

Hormone therapy

The aim of hormone therapy is to align the patient's appearance with their gender identity. In adults, hormone therapies are either masculinising or feminising. Masculinising therapy aims for testosterone concentrations in the male reference range, via either short- (2–4-weekly) or long-acting (12-weekly) intramuscular injections, or daily transdermal testosterone.

In contrast, feminising hormone therapy typically consists of the administration of oral, transdermal, implanted or injectable (not available in the UK, but may be ordered online) oestradiol, to achieve a concentration in the female reference range. If the patient still has testicles and testosterone levels outside the female range, the administration of androgen blockers, such as gonadotropin-releasing hormone analogues, spironolactone or cyproterone acetate, is required. The effects of masculinising and feminising hormone therapy are summarised in [Table 1](#).

Effects of hormone therapy on cardiovascular risk factors

The specific risks associated with hormonal therapy in transgender patients are still being elucidated. Nota et al (2019) amassed one of the largest bodies of data on the subject. The risk rates of stroke, myocardial infarction and venous thromboembolism in transgender patients, compared to their cisgender counterparts, are summarised in [Table 2](#) (Nota et al, 2019).

Table 1. Effects of masculinising and feminising hormone therapy

	Masculinising effects	Feminising effects
Body and facial hair	Increased	Decreased
Fat distribution	Decreased	Increased; more female distribution
Muscle mass	Increased	Decreased
Bone density	Potential increase	Potential decrease
Breast tissue	Potential decrease	Increased
Voice pitch	Decreased (deeper)	No effect

Table 2. Risk of hormonal therapy in transgender patients compared to cisgender patients

Patient	Condition	Risk compared to cisgender men	Risk compared to cisgender women
Transgender women undergoing hormone therapy	Venous thromboembolism	Increased	Increased
	Myocardial infarction	No difference	Increased
	Stroke	Increased	Increased
Transgender men undergoing hormone therapy	Venous thromboembolism	No difference	No difference
	Myocardial infarction	No difference	Increased
	Stroke	No difference	No difference

Effects on laboratory results

The use of hormone therapy can alter expected biochemical values in transgender patients, and an understanding of this is important when interpreting perioperative blood results. SoRelle et al (2019) have provided one of the biggest bodies of work investigating this aspect of care; their findings are summarised in [Table 3](#).

Perioperative management of hormone therapy

Decision making around cessation or continuation of hormone therapy perioperatively should be multidisciplinary, involving the patient, their endocrinologist, the anaesthetist and surgeon. Generally, testosterone therapy and anti-androgens can be continued. The management of oestradiol is more controversial, as there is no consistent approach. Some clinicians may continue oestradiol supplementation, while others would pause it for 4–6 weeks preoperatively (particularly for major surgery). Meticulous perioperative venous thromboembolism prophylaxis is vital, alongside early mobilisation, where possible.

Anaesthetic drug dosing

Decreased protein binding secondary to reduced albumin in transgender women may have significant effects on highly-protein bound drugs (such as bupivacaine), with close monitoring of toxic effects or dose reduction considered (Lennie et al, 2020). Previous work with cisgender women suggests oestrogen may cause a reduction in plasma cholinesterase activity, potentially prolonging the effects of succinylcholine (Robertson and Aberd, 1967). When considering the target-controlled infusions algorithms used for total intravenous anaesthesia, it should be acknowledged that patients’ body composition changes when undergoing hormone therapy; therefore, the volume of distribution of drugs will need to change accordingly. In general, a patient’s body composition will start to show signs of change towards the affirmed gender after just 3 months of hormone therapy. There are no robust data to suggest an accurate drug model for total intravenous anaesthesia in these patients, and the authors recommend careful titration to clinical effect and the use of processed electroencephalogram monitoring.

General considerations

There are several social points to consider when caring for transgender patients, with staff education being key to this process. The use of a patient’s preferred name and pronouns is paramount, which can be facilitated by asking the patient what these are on first meeting

Table 3. Effects of hormone therapy on laboratory results

Parameter	Transgender women (change relative to cisgender male)	Transgender men (change relative to cisgender female)
Red blood cell count	Decrease	Increase
Haematocrit	Decrease	Increase
Haemoglobin	Decrease	Increase
Creatinine	Decrease	Increase
Alanine aminotransferase	Decrease	Increase
Aspartate aminotransferase	No change	Increase
Alanine phosphate and bilirubin	Decrease	No change
Albumin	Decrease	No change
Total calcium	Decrease	No change
Triglycerides and high-density lipoprotein	No change	Increase

Adapted from SoRelle et al (2019)

Key points

- There are several specific considerations to be aware of when caring for transgender patients in the perioperative period.
- There is currently no national guidance on the perioperative care of transgender patients and it is not included in the Royal College of Anaesthetists curriculum.
- Further education is required to ensure that transgender patients are given the optimum care they deserve.

and clearly handing over to staff involved in the patient's care. The visibility of a healthcare professional's own pronouns on items such as name badges and emails can also help to provide an inclusive environment for patients. Patients should be roomed according to their gender identity, where possible.

Over a quarter of transgender patients reported feeling afraid of discrimination when accessing and using healthcare (Stonewall, 2018). Staying in hospital can cause significant feelings of vulnerability for these patients, especially if undergoing examination, being asked to remove their clothing or being exposed in a theatre environment. It is important to always remain cognisant of these elements of care.

Suggestions for improving care

The perioperative management of transgender patients currently represents a large knowledge gap for many anaesthetists across the UK. Its absence from the anaesthetic or surgical curriculums and the lack of national guidance only serves to exacerbate this issue. The authors recently held the first national educational event for the Association of Anaesthetists on transgender perioperative care, which was well attended and received (Flower and Edwardson, 2022). The next steps are for postgraduate bodies to acknowledge the need for education, integrate it into current training and look towards the development of national guidelines.

Conclusions

In the future, it is likely that the number of transgender patients presenting for non-gender affirming surgeries will increase. There are several important perioperative considerations that must be taken into account when caring for these patients. Education and the development of guidelines on this subject can only serve to improve the quality of care provision and ensure the safety of this patient cohort.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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