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REVIEW ARTICLE

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Dermatological considerations for transgender and gender diverse patients: An Australian perspective

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Abstract

Transgender and gender diverse (TGD) individuals are a group that experiences significant health disparities. In the multidisciplinary management of TGD patients, dermatologists may participate in managing skin- and hair-related issues which contribute to gender affirmation and to the cutaneous sequelae of gender-affirming hormone therapy. This review aims to highlight the unique needs of TGD patients, particularly from the perspective of Australian dermatologists. We review appropriate terminology critical for TGD care, gender affirmation in the Australian healthcare landscape, dermatological considerations for TGD patients and considerations for management.

KEYWORDS

acne, dermatologic, dermatology, gender, gender identity, hair, LGBT, skin, transgender

INTRODUCTION

Transgender or gender diverse (TGD) individuals are those whose gender identity is persistently incongruent with their sex assigned at birth.[1] It is well recognised that TGD individuals experience high rates of mental health conditions. A cross-sectional survey of Australian TGD adults demonstrated that 73% self-reported a lifetime diagnosis of depression, 63% reported a history of self-harm and 43% had attempted suicide.[2] While being TGD is not a mental illness, the high rates of mental health conditions are a result of discrimination in almost all aspects of life from housing to employment, social exclusion, bullying, as well as verbal and physical assault.[2,3] Health care is no exception with over 28% of TGD Australians experiencing discrimination in medical settings.[2,4] All healthcare professionals play a critical role in creating a safe and comfortable environment, to build trust and ensure quality care for people who

are TGD. With an estimated 0.1%–2.0% of the population being TGD, dermatologists will likely be involved in their care given the relationship between endocrinology and the skin and the significant part that hair plays in gender expression.[5] Herein, we review appropriate terminology critical for TGD care, gender affirmation in the Australian healthcare landscape, dermatological considerations for TGD patients and general approaches to management.

TERMINOLOGY

Language to describe gender has evolved over time, and to ensure dermatologists can provide affirming care, it can be helpful to understand the common terminology which is summarised in Table 1. In terms of language, using an individual's correct names and pronouns is an important way to affirm gender and demonstrate understanding.[3] While their preferred name and pronoun may well differ from what was assigned to them at birth, this should be highlighted in electronic medical records. This involves ensuring that clerical, reception, nursing, allied health and medical staff are all aware of the patient's name to avoid misgendering. There are various ways to describe one's gender, including binary terms like male or female, as well as non-binary which is a descriptor in itself.[6] Alternatively, non-binary can also serve as an umbrella term encompassing any gender that is not male or

TABLE 1 Frequently used terminology (Adapted from Telfer et al.[6] and Yeung et al.[31]).

Terminology	Definition
Gender identity	An individual's innate sense of self as a male, female, non-binary or a mix of both. Unlike gender expression, gender identity is not outwardly visible. Gender identity can be congruent or incongruent with sex assigned at birth.
Gender expression	The outward presentation of one's gender expressed through behaviour, clothing, voice or other characteristics. These may or may not confirm with socially defined standards of femininity and masculinity.
Gender diverse	A term that describes individuals who do not conform with traditional binary gender identities of male and female.
Assigned male at birth	An individual that was thought to be a male when born, based on anatomical or other biological characteristics.
Assigned female at birth	An individual that was thought to be a female when born, based on anatomical or other biological characteristics.
Trans or transgender	An umbrella term for individuals whose gender is different to what was assigned or presumed at birth.
Transmasculine	A term that describes those who identify as male or non-binary and were assigned female at birth.
Transfeminine	A term that describes those who identify as either female or non-binary and were assigned male at birth.
Cisgender	A term used to describe someone whose gender identity aligns with their sex assigned at birth.
Non-binary	A term that describes an individual who does not exclusively identify as either male or female.
Gender fluid	A term used to describe someone whose gender identity varies over time.
Agender	A person who does not identify with any gender.
Brotherboy	A term used by Aboriginal and Torres Strait Islander people to describe masculine spirited people who were assigned female at birth.
Sistergirl	A term used by Aboriginal and Torres Strait Islander people to describe feminine spirited people who were assigned male at birth.
Gender dysphoria	The distress experienced by transgender persons due to the marked, persistent incongruence between gender identity and sex assigned at birth.
Gender affirmation	An umbrella term that describes the process whereby a person begins to live and thrive in congruence with their authentic gender identity.
Sex	Sex assigned to an individual at birth. It is typically based on biology (hormones/chromosomes) or anatomy (genitalia/reproductive organs).
Intersex	Difference of sexual development. Where individuals are born with external and/or internal genitalia that vary from typical male or female genitalia or a typical chromosomal pattern.
Social transition	The process of altering gender expression to correlate with gender identity.
Medical transition	The process of altering physical characteristics through gender-affirming hormone therapy or surgery to align with their gender identity.

female. This may include terms such as genderfluid, genderqueer, demi-boy, demi-girl, transmasculine, transfeminine, agender and many more terms. First Nations people may use the term sistergirl and brotherboy.[7] Membership to multiple minority groups may see cumulative barriers to treatment.[8] While gender diversity is an ancient concept and part of many First Nation's cultures, information pertaining to the lived experiences and needs of TGD Indigenous Australians is sparse.[7] The health disparities and needs of this group are a small but growing area of research that requires further attention.[9-12]

GENDER-AFFIRMING CARE IN AUSTRALIA

Several Australian guidelines exist to inform clinicians about gender-affirming care. Specific detail outlining the process of gender-affirming care in Australia can be found in the Australian standards of care for TGD children and adolescents,[6] the Australian position statement on the hormonal management of adult TGD individuals[13] and the Australian informed consent standards of care for gender-affirming hormone therapy.[14] Gender-affirming care often involves a multidisciplinary team to assess an individual's gender incongruence and support them through social, medical and legal affirmation pathways (if desired) with psychological and peer support. The provision of gender-affirming care can be lifesaving for TGD people.[15-18] Social transition typically involves the disclosure of one's gender identity to others, changes in gender expression and changes in names or pronouns. Some may subsequently pursue medical intervention through hormonal or surgical management. Other specific supports available for TGD individuals include vocal training, psychological care and fertility counselling for patients commencing gender-affirming hormones (GAH).[6] It should be noted that pathways to affirm gender are individual, and not everyone will desire social, legal, medical or surgical interventions.

Puberty suppression involves the use of gonadotropin-releasing hormone (GnRH) analogues to suppress endogenous oestrogen and testosterone to halt the development of secondary sexual characteristics.[6] Puberty suppression is most-effective when commenced at Tanner stage 2 as it allows individuals to explore their gender nonconformity and development before induction of less reversible GAH treatment (Table 2).[6,19] While the development of secondary sexual characteristics is prevented, adolescents continue to undergo linear growth and emotional and cognitive development.[6,20,21] The primary concern with the commencement of GnRH analogues in early adolescence is diminished bone density due to sex steroid deficiency[22]; however, recent data suggest that this appears to be restored after commencement of GAH.[23] Australian guidelines recommend an initial assessment of bone mineral density and monitoring throughout treatment.[6] Criteria for adolescent commencement of puberty suppression are outlined in Australian standards of care.[6] In Australia, GnRH analogues may be prohibitively costly as they are not listed on the Pharmaceutical Benefits Scheme (PBS) for puberty suppression in association with gender affirmation.

GAH therapy with oestrogen or testosterone is used to induce the onset of secondary sexual characteristics to feminise or masculinise an individual's appearance. It is consistently associated with reduced depressive symptoms and psychological distress.[24-26] For Australian adults, medical affirmation does not require a diagnosis of gender dysphoria, with increasing emphasis being placed on an informed consent model of care.[13,14,27] These protocols allow for primary care physicians to perform initial medical, mental health and risk assessments and organise referral for specialist consultation where required. The physiological effects of GAH treatment offer varying reversibility (Table 2), and as such, further criteria must be satisfied for individuals under 18 years seeking treatment. GAH therapies and GnRH analogues available in Australia are summarised in Table 3.

To raise serum testosterone concentrations to the typical male reference range, standard doses and formulations of testosterone therapy used in masculinising GAH therapy are equivalent to those used in hypogonadal men.[3,13] Some non-binary individuals assigned female at birth may desire lower doses of testosterone therapy to induce more gradual changes or a more androgynous appearance. Testosterone therapy at standard doses induces facial and body hair growth, roughening of skin, menstrual suppression, increases in muscle bulk and redistribution of fat to a more android pattern (see Table 2).[6,13,19] There is also an irreversible lowering of voice pitch. PBS-listed testosterone treatment must be provided by or in consultation with a paediatrician, endocrinologist, urologist or sexual health physician.[13]

Feminising GAH typically involves oestradiol therapy to raise serum oestradiol concentrations and antiandrogen therapy to lower serum testosterone concentrations to the typical female reference range.[13,19] Antiandrogen therapy is often prescribed as an adjunct to oestradiol therapy to decrease further masculinising changes. Feminising GAH will typically reduce facial and body hair growth (but not remove it altogether), soften skin, reduce sexual function, reduce muscle bulk and increase body fat.[19] Changes induced by prior male puberty such as lowered voice, bone structure and height are unchanged with feminising GAH.[19]

TABLE 2 Effects of gender-affirming hormones (Adapted from Telfer et al.,[6] Hembree et al.[19] and Cheung et al.[13]).

Feminising hormone therapy (oestradiol ± antiandrogens)					**Masculinising hormone therapy (testosterone)**				
Physiological effects					**Physiological effects**				
Effect	**Onset**	**Maximum**	**Reversibility**	**Adverse effects**	**Effect**	**Onset**	**Maximum**	**Reversibility**	**Adverse effects**
Redistribution of body fat	3–6 months	2–3 years	Likely	• Thromboembolic disease • Myocardial infarction • Stroke • Weight gain • Hypertriglyceridaemia • Prolactin elevation	Skin oiliness and acne	1–6 months	1–2 years	Likely	• Polycythaemia • Acne • Sleep apnoea • Dyslipidaemia (increased triglyceride and LDL levels; decreased HDL levels)
Decrease in muscle mass and strength	3–6 months	1–2 years	Likely		Facial and body hair growth	6–12 months	4–5 years	Unknown	
Softening of skin and decreased oiliness	3–6 months	Unknown	Likely		Scalp hair loss	6–12 months		Unknown	
Decreased libido	1–3 months	3–6 months	Likely		Increased muscle mass and strength	6–12 months	2–5 years	Likely	
Decreased spontaneous erections	1–3 months	3–6 months	Likely		Fat redistribution	1–6 months	2–5 years	Likely	
Breast growth	3–6 months	2–3 years	Not possible		Cessation of menses	1–6 months		Likely	
Decreased testicular volume	3–6 months	2–3 years	Unknown		Clitoral enlargement	1–6 months	1–2 years	Unknown	
Decreased sperm production	Unknown	>3 years	Unknown		Vaginal atrophy	1–6 months	1–2 years	Unknown	
Decreased terminal hair growth	6–12 months	>3 years	Possible		Deepening of voice	6–12 months	1–2 years	Not possible	
Scalp hair	Variable								
Voice changes	None								

TABLE 3 Available gender-affirming hormone therapies in Australia (Adapted from AusPATH[14]).

Therapy	Delivery	Trade name	Dosing	PBS
Feminising hormones				
Oestradiol	Oral	Progynova Zumenon Estrofem	2–10 mg daily	Yes
	Transdermal patch	Estradot Estraderm MX	100–150 μg/24 h changed twice weekly	Yes
	Transdermal gel	Sandrena EstroGel	1–2 mg daily 2–4 pumps daily	Yes No
Anti-androgen therapy				
Cyproterone acetate	Oral	Androcur	12.5–25 mg twice weekly	Yes
Spironolactone	Oral	Aldactone Spiractin	100–200 mg daily	Yes
Masculinising hormones				
Testosterone undecanoate	Intramuscular injection	Reandron	1000 mg 12 weekly (with initial 2 doses 6 weeks apart)	Yes
Testosterone	Transdermal patch	Androderm	5 mg patch	Yes
	Transdermal gel	Testogel (1%)	50 mg daily	Yes
	Transdermal gel	Testavan (2%)	23 mg daily	Yes
	Transdermal cream	Androforte (5%)	2 mL daily	Yes
Testosterone enanthate	Intramuscular	Pimoteston	250 mg, 2 weekly	No
Testosterone esters	Intramuscular	Sustanon	250 mg, 4 weekly	No
Gonadotropin-releasing hormone analogues				
Goserelin	Subcutaneous implant	Zoladex	10.8 mg every 3 months	No
Leuprorelin	Intramuscular injection	Lucrin	22.5 or 30 mg injection every 3–4 months	No
Triptorelin	Intramuscular injection	Diphereline	22.5 mg injection every 6 months	No

SUPPORTING GENDER-DIVERSE PATIENTS AND THE ROLE OF DERMATOLOGISTS

Dermatologists require appropriate awareness to provide supportive and transparent care to TGD people. It has been demonstrated within the Australian literature that poor experiences with healthcare environments are correlated to poorer mental health outcomes for TGD individuals.[28]

As with cisgender patients, TGD patients require accessible health care that provides autonomy, confidentiality and patient safety in a non-judgemental manner.[29] Open-mindedness and knowledge about TGD health concerns are qualities that TGD patients value in healthcare providers. While symbolic gestures such as stickers, flags or brochures may broadcast a culturally safe environment, provider professionalism, knowledgeability, confidentiality and sensitivity supersede such displays.[30] When relevant to medical care, asking patients about their gender identity, pronouns and sexual behaviours can demonstrate inclusiveness and quash implicit bias of heterosexuality or cisgender being the norm.[29] A prefacing statement such as 'Our clinic is an inclusive and safe space for all our patients. We routinely ask all our patients this', may help normalise these questions.[31] Alternatively, in the emergency department setting it has been demonstrated that sexual and gender-diverse patients may prefer to provide sexual orientation and gender identity information through non-verbal self-report over verbal collection.[32] Diversity should be reflected in patient intake forms, electronic medical records and documentation.[31] Using an individual's preferred name and pronouns is essential towards developing therapeutic rapport with TGD patients. Confirmation of pronouns and gender identity at each consult may demonstrate cultural understanding for patients who are still exploring their gender identity or identify as gender fluid.[33] For younger patients, confidential time without parents may be required to allow for open discussions of gender identity, sexuality and practices when relevant to medical care. For clinically indicated examinations, the Australian Professional Association for Trans Health (AusPATH) guidelines recommend a trauma-informed approach.[14]

Additional attention should be provided to sensitivity, transparency, consent and acknowledgement of cultural and historical gender issues.

DERMATOLOGICAL CONSIDERATIONS IN TESTOSTERONE THERAPY

Acne vulgaris

While the management of acne in TGD individuals largely follows that of established guidelines,[34] certain considerations may address their distinct concerns. Of particular importance to patients receiving masculinising GAH, androgens are well known to affect sebum production in the pilosebaceous unit.[35] A retrospective comparative cohort study of 46,507 TGD and cisgender adults demonstrated that the incidence of acne in TGD patients receiving masculinising GAH was 2.4 times higher than in cisgender women and 4.1 times higher than in cisgender men.[36] A retrospective cohort of 988 transgender adults found that the prevalence of acne increased from 6.3% to 31.1% following the initiation of masculinising GAH.[37] The rate of diagnosis peaked in the first 6 months of initiation, highlighting the necessity of early dermatological intervention. Risk factors for acne vulgaris in transmasculine patients include younger age of GAH initiation, serum testosterone levels >630 ng/dL (21.9 nmol/L) and current smoking.[37,38] Transmasculine individuals may perform chest binding to relieve gender dysphoria but may result in acne as well as other cutaneous adverse effects including pain, pruritis, infection, miliaria, contact dermatitis and scarring.[39]

While the management of acne in TGD individuals largely reflects existing guidelines for cisgender patients, we summarise therapeutic considerations unique to TGD patients. For mild to moderate acne, treatments may include benzoyl peroxide, topical retinoids or topical/oral antibiotics. More frequent liver monitoring has been suggested in patients commencing tetracyclines alongside testosterone therapy due to the theoretical risk of hepatotoxicity.[40]

Notably, the oestrogen levels in combined oral contraceptive pills (COCs) do not prevent masculinisation and can be safely used alongside testosterone therapy in TGD individuals.[41] Furthermore, the continuous use of COC typically provides menstrual suppression which may relieve dysphoria in transmasculine individuals. Before commencement, patients should be counselled on the risks and benefits of using COCs for either acne treatment and/or contraception. Associations of COCs with the female gender and adverse effects such as breast tenderness or menstrual spotting may compromise gender dysphoria and patients may refuse treatment.[42] Of note, low-dose oestrogen (20 μg of ethinyl oestradiol) may prevent optimal accrual of bone mass in adolescents and a higher dose of 30–35 μg may be preferred.[41]

For individuals with the potential for pregnancy, COCs may be particularly useful if they are being considered for retinoid therapy. Isotretinoin has demonstrated safety and efficacy in transgender males.[43] While hepatotoxicity has been theorised as a complication of concomitant isotretinoin and testosterone therapy, increased frequency of liver screening has not been advocated as the proposed risk is modest.[40] Thus, isotretinoin may be safely initiated in patients receiving GAH without modifications to standard monitoring. Notably, testosterone is not an effective form of contraception and does not preclude TGD patients from conceiving. Isotretinoin and testosterone are category X and D teratogens respectively and patients require ongoing monitoring for pregnancy. Dermatologists should consider the impacts of pregnancy testing on gender dysphoria and ensure sensitivity around these discussions if there is any sexual activity with sperm-producing partners.[44] Emergency contraception should not interfere with GAH therapy and may be safely used by TGD individuals.[41] The association between isotretinoin and adverse mental health outcomes including suicidal ideation remains controversial.[45] Nevertheless, the cumulative mental health impacts of severe acne and being a gender minority warrant closer surveillance in TGD people. Monitoring of adverse mental health outcomes while on isotretinoin becomes increasingly complex in those commenced on COCs due to its association with suicide in cisgender females.[46] Depressive symptoms may vary based on the amount and type of progestogen in the contraceptive pill.[47] As such, dermatologists should liaise with an individual's psychiatrist for a proper mental health assessment prior to initiation of isotretinoin. While general advice for TGD patients to see a psychiatrist or psychologist is provided at the time of assessment for GAH, it is not mandatory to obtain GAH therapy.

Androgenetic alopecia

Hair is an essential aspect of gender expression, and the impacts of hair loss may be particularly profound for TGD individuals. Androgens may induce growth in the beard, axillae and pubis as well as increase rates of androgenetic alopecia (AGA). AGA is a common disorder of hair loss that affects up to 80% of cisgender males by the age of 80.[48] Masculinising GAH therapy may increase facial and body hair growth but may induce AGA in genetically predisposed individuals.[49] Notably, this typically masculine feature may be reaffirming in some transmasculine patients

but for others, it may be undesirable. A recent retrospective cohort study of 37,826 patients demonstrated that TGD patients receiving masculinising GAH therapy were 2.5 times more likely to develop AGA as compared to cisgender women.[50]

While the literature regarding the treatment of AGA in TGD populations is modest to date, regimens similar to that with the cisgendered population may be recommended. A critical aspect of embarking on AGA treatment is the assessment of patient expectations and realistic treatment goals.[48] The goals of treatment are to arrest hair miniaturisation and improve density. In Australia, Therapeutic Goods Administration-approved therapies include topical minoxidil 5% and oral finasteride. 'Off-label' treatments include systemic minoxidil (oral or sublingual) and dutasteride.[51] Alternative options include camouflage sprays, wigs and more invasive techniques such as hair transplantation.

Topical minoxidil 5% foam or solution has been recommended as a first-line therapy for both transmasculine and transfeminine patients with AGA.[52] For low-dose oral minoxidil, dosages ranging from 1.25 to 5 mg have been proposed in transmasculine patients and a lower dose of 0.25 mg in transfeminine patients to mitigate the risk of off-site hypertrichosis.[53] Oral finasteride 1 mg daily is the most common treatment prescribed by Australian dermatologists for male AGA,[51] however, poses a theoretical risk of interference with testosterone therapy.[40] Changes in muscle mass and fat redistribution may take up to 5 years to develop and as such, the commencement of oral finasteride after 5 years of commencing masculinising GAH has been proposed as a conservative approach.[40] However, a retrospective study of 10 transmasculine patients demonstrated universal improvement by one grade on the Norwood–Hamilton scale after an average of 5.5 months of finasteride 1 mg daily without interference with masculinising GAH.[54] Response varies in cisgender males with oral finasteride 1 mg daily arresting hair loss in 95% of men and only 66% and 5% achieving moderate and marked hair regrowth, respectively.[55] While the efficacy of oral finasteride in transfeminine patients is not reported in the literature, it has been recommended as a first-line therapy for AGA in transfeminine patients.[52] As with isotretinoin, it is important to consider pregnancy in TGD patients with child-bearing potential as finasteride can cause abnormal development of genitalia in a male fetus.[56] In a recent meta-analysis, once daily 0.5 mg oral dutasteride demonstrated superior efficacy compared with 5 mg oral finasteride for male AGA in terms of changing total hair count after 24 weeks.[57] Adverse effects of both medications include temporary sexual dysfunction and rare neuropsychiatric events including depression, anxiety disorder, panic attacks and suicidal thoughts.[51] Notably, while spironolactone may be a useful treatment to consider in AGA or acne in transfeminine patients, it should not be used in patients on masculinising hormones therapy.[41] This is due to its androgen receptor antagonism and interference with exogenous testosterone treatment. Available physical therapies include platelet-rich plasma and low-level light therapy.[58] However, evidence in current literature for such physical therapies in TGD individuals is limited. The severity and serial progress of AGA should be assessed via non-sex-specific tools such as global photography, the Bouhanna Classification or the Basic and Specific Classification.[40]

DERMATOLOGICAL CONSIDERATIONS IN OESTROGEN AND ANTIANDROGEN THERAPY

Acne vulgaris

While patients who are commenced on masculinising GAH often see worsening acne, TGD individuals initiating feminising GAH often see improvements in acne due to reduced sebum production.[35] However, feminising GAH may predispose patients to xerosis, placing patients at increased risk of irritation when commencing topical acne treatments. General skin care measures with frequent emollients and less frequent application of topical treatments may be helpful.

Spironolactone is often used as a component of feminising GAH due to its competitive inhibition against testosterone binding to cutaneous adverse receptors. It may also be a helpful treatment. Dermatologists should prescribe and manage spironolactone treatment in partnership with gender care providers to balance optimal dosages for both acne and gender affirmation while minimising adverse effects.[41] Adverse effects of spironolactone include polyuria, diarrhoea, dizziness, breast enlargement and tenderness, headache and nausea.[59] Access to safe restrooms may be of concern due to increased urinary frequency. TGD patients undergoing feminising GAH who have recalcitrant acne should be considered for endocrine evaluation for hormone dose titration and to rule out hyperandrogenic states.[40]

Hair

Persistent hirsutism

Feminising GAH exerts a degree of hair reduction through decreased growth rate and thickness, favouring reduction in body hair as compared to facial hair.[49] Subsequently,

gender-affirming procedures are required for further feminisation. Gender-affirming hair removal represents the most commonly performed facial procedure among transfeminine individuals.[60] A survey demonstrated that 85% of transwomen desired hair removal, with 94% indicating the face as the indicated site of excess hair.[61] Gender-affirming hair removal may be associated with improved mental health outcomes and well-being.[62,63] Twice daily application of topical eflornithine may reduce facial hair although is no longer sold commercially in Australia and must be privately compounded.[64] Longer-lasting hair removal techniques such as laser depilation or electrolysis may obviate the need for frequent shaving, waxing or chemical depilation. However, it is important to note that barriers to these procedures include significant costs and healthcare providers' experience with treating transgender individuals.[61]

Androgenetic alopecia

Spironolactone may be a helpful treatment for AGA in transfeminine patients. It is widely used off-label as a treatment for AGA in cisgender women, improving hair density in 30% and arresting progression in 90%.[65] As such, spironolactone up to 200 mg/day may be considered in the treatment of AGA in transfeminine patients.[52] As with the spironolactone in acne, dosages should be managed in conjunction with gender care providers.

GENDER-AFFIRMING PROCEDURES

In addition to hormonal therapy, patients may elect to undergo gender-affirming surgeries. This includes chest reconstructive surgery (colloquially termed 'top surgery') and genital surgery (known as 'bottom surgery').[6] Chest reconstructive surgery involves the removal or enhancement of breasts to better align with an individual's gender identity. Genital surgery seeks to align gender identity through the construction of a neophallus or neovagina in transmasculine or transfeminine individuals, respectively. The construction of a neophallus and neourethra commonly involves harvesting skin from the forearm or anterolateral thigh whereas the construction of a neovagina typically uses penile or scrotal skin.[66]

Dermatological considerations in gender-affirming surgery

Prior to undergoing bottom surgery, patients require permanent preoperative hair removal from donor sites. Intravaginal hair growth may occur following skin-lined vaginoplasty.[67] Vaginal hair growth may lead to intravaginal irritation, infection, hairball formation, concretions of body fluids, excessive discharge, formation of keratin granulomas and overall poorer satisfaction with surgical outcomes.[39,40] It is recommended to wait for 3 months following the final hair removal treatment to confirm no hair regrowth before proceeding with surgery.[67] Laser hair removal may be preferred over electrolysis due to greater efficiency, less pain, better tolerability and decreased cost.[68,69] Intravaginal condyloma, squamous cell carcinoma (SCC) and lichen sclerosis have been reported in neovaginas.[39]

As with all surgical procedures, scarring is inevitable, and patients may seek a dermatology review. Silicone dressings during scar aftercare may improve the cosmesis of surgical wounds. Fractional resurfacing lasers may allow for scar remodelling and improvement of texture while vascular lasers may reduce the erythematous component.[69] Significantly hypertrophic or keloid scars may be treated with intralesional corticosteroids.[69] Surgical dictum proposes the avoidance of surgery while on oral isotretinoin therapy due to altered or delayed wound healing; however, the evidence in support of this remains inconclusive.[45] Nevertheless, dermatologists should collaborate with multidisciplinary teams to optimise surgical timelines.

MINIMALLY INVASIVE PROCEDURES FOR GENDER AFFIRMATION

Dermatologists may also play a further role in offering minimally invasive gender-affirming procedures for TGD patients.[60,66] Neurotoxins and dermal fillers may be used to achieve a modest restructuring of facial features that match gender identity.[66] In transmasculine patients, neurotoxin placement in the medial and lateral frontalis may flatten the brow to induce a conventionally masculine appearance. In contrast, neurotoxin in the medial frontalis and superolateral orbicularis oculi muscle may create a more feminine arch of the brows. Softening of the masseters and buccinators may result in a more feminine appearance.[66] Depending on the application site, fillers may square the jawline, enlarge cheekbones or provide lip volume.[66] Minimally invasive procedures in gender affirmation should not be viewed as cosmetic treatment but rather as medically necessary care.[40]

OTHER CONSIDERATIONS

In the only Australian study of its kind, HIV was reported among 3.5% of transgender men attending sexual health

TABLE 4 Summary of treatment considerations in transgender and gender diverse individuals.

	Masculinising hormones		Feminising hormones	
	Changes	**Management considerations**	**Changes**	**Management considerations**
Skin and acne	Increased sebum production with likely worsening of acne	• Acne management largely follows established treatment algorithms • Need for early dermatological intervention • Chest binding may contribute to acne • Use of tetracyclines alongside testosterone therapy may require liver monitoring • Combined oral contraceptive pills are safe to use and do not prevent masculinisation—may be considered as contraception alongside isotretinoin • Antiandrogens such as spironolactone should be avoided • Isotretinoin can safely be initiated in patients on testosterone therapy—close mental health monitoring is recommended • Isotretinoin may impact surgical wound healing in gender-affirming surgery	Decreased sebum production with likely improvement in acne	• Higher risk of xerotic skin and worsening of eczema – general skin care measures are helpful • Some patients may still have persistent acne • Acne management largely follows established treatment algorithms • Spironolactone use can be considered, and dosages may be managed in conjunction with gender care providers • Referral for endocrine evaluation should be considered in recalcitrant acne
Androgenetic alopecia	May occur in genetically predisposed individuals	• Topical minoxidil 5% foam or solution is recommended • Oral minoxidil dosages from 1.25 to 5 g • Oral finasteride and dutasteride may be considered but poses a theoretical risk of interference with testosterone therapy • Antiandrogens such as spironolactone should be avoided • Platelet-rich plasma and low-level light therapy may be considered • Severity and progress of androgenetic alopecia should be assessed with non-sex-specific tools	Previous androgenetic alopecia may persist	• Topical minoxidil 5% foam or solution is recommended • Oral minoxidil dosages of 0.25 mg have been suggested to mitigate risk of off-site hypertrichosis • Oral finasteride and dutasteride may be considered • Spironolactone up to 200 mg/day may be considered in AGA management and be prescribed in partnership with gender care providers • Platelet-rich plasma and low-level light therapy may be considered • Severity and progress of androgenetic alopecia should be assessed with non-sex-specific tools
Hair growth	Increase in facial and body hair growth	• Permanent hair removal is necessary for phalloplasty	Facial hair may persist despite oestrogen therapy	• Permanent hair removal is necessary for vaginoplasty • For persistent hair, laser depilation or electrolysis may obviate the need for frequent shaving, waxing or chemical depilation
Gender-affirming surgery	Hair removal may be necessary for bottom surgery Postoperative scars are inevitable	• Isotretinoin may impact surgical wound healing in gender-affirming surgery—dermatologists should collaborate with multidisciplinary teams to optimise surgical timelines • Preoperative and postoperative hair removal may be considered in gender-affirming surgery • Postoperative scars may be addressed with silicon dressings, fractional resurfacing laser, pulsed dye laser or intralesional corticosteroids	Hair removal may be necessary for bottom surgery Postoperative scars are inevitable	• Isotretinoin may impact surgical wound healing in gender-affirming surgery—dermatologists should collaborate with multidisciplinary teams to optimise surgical timelines • Permanent preoperative hair removal is required from donor sites—3 months is recommended before proceeding with surgery • Laser hair removal may be preferred due to greater efficiency, less pain, better tolerability and lower cost • Intravaginal condyloma, squamous cell carcinoma and lichen sclerosis have been reported in neovaginas • Postoperative scars may be addressed with silicon dressings, fractional resurfacing laser, pulsed dye laser or intralesional corticosteroids
Minimally invasive gender affirmation	Further procedures may contribute to gender-affirming care	• Neurotoxins and dermal fillers may be used to achieve modest restructuring of facial features and achieve patient's unique aesthetic goals	Further procedures may contribute to gender-affirming care	• Neurotoxins and dermal fillers may be used to achieve modest restructuring of facial features and achieve patient's unique aesthetic goals
Other considerations		• Higher risk of HIV—screening and prevention should be based on anatomy-specific sexual behaviours • Other dermatoses reported in TGD populations include hidradenitis suppurativa		• Higher risk of HIV—screening and prevention should be based on anatomy-specific sexual behaviours • Other dermatoses reported in TGD populations include testosterone blockade melasma, systemic lupus erythematosus and pseudofolliculitis barbae

clinics and 5.7% of transgender women as compared to 1.2% among cisgender heterosexual patients.[70] At-risk TGD individuals should receive screening and prevention based on anatomy-specific sexual behaviours.[39] Australian guidelines stratify patient risk based on behavioural practices and describe when HIV pre-exposure prophylaxis (PrEP) may be offered or considered.[71] PrEP demonstrates effectiveness for transgender women as both daily and on-demand dosage.[71]

Transdermal hormone patches may very rarely cause an allergic contact dermatitis and cutaneous reactions to patches most often turn out to be irritant contact dermatitis.[72] Management strategies include shorter application intervals, pre-application of topical corticosteroids and changing patch application site.[73] Switching from transdermal administration to an alternative mode of delivery may also be considered. Photosensitisation may occur with oestradiol or spironolactone therapy. Other dermatoses that have been reported in TGD populations include testosterone blockade melasma, exacerbations of hidradenitis suppurativa, systemic lupus erythematosus and pseudofolliculitis barbae.[74-76] In the management of these dermatoses, dermatologists should consider treatment in the context of GAH therapy and patient goals. Clinicians must avoid blanket statements regarding a reduction in GAH therapy. For instance, when addressing hidradenitis suppurativa in a transmasculine patient, advising a reduction of testosterone is unlikely to be conducive to a supportive therapeutic relationship. It is also important to consider the associated psychosocial context of being a gender minority individual which can exacerbate conditions and affect compliance with treatment where dermatologists may require an interdisciplinary approach to managing chronic dermatological conditions.

Current evidence suggesting the role of GAH therapy in cutaneous malignancy is modest. A nationwide, retrospective cohort in the Netherlands demonstrated no evidence of GAH therapy affecting incidence of SCC and melanoma.[77] A cross-sectional study from the United States demonstrated that compared to cisgender males, gender non-conforming individuals but not transgender men or women had a higher self-reported lifetime prevalence of skin cancer.[78] A hypothesis of greater skin cancer risk behaviour in this population has been proposed.

CONCLUSION

The provision of quality care in TGD patients is multidisciplinary and dermatologists play a crucial role in providing supportive and inclusive care. Understanding the unique dermatological needs of TGD individuals, including the effects of GAH therapy on skin health is essential for effective management (Table 4). By fostering a safe and respectful environment, Australian dermatologists may contribute to the improved health outcomes of TGD patients.

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