

Primary care considerations of adult post-op male-to-female (MTF) transsexuals.

Abstract

Since the advancement of sex reassignment surgery (SRS), providing primary care services under a single-gender model is impossible. In cases where adult biological males have completed SRS, addressing medical issues becomes convoluted and how to proceed with a comprehensive medical work-up is challenging. This article reviews current medical evidence of risks that affect physical exam, labs/imaging and pharmacotherapy in order to make recommendations for improving the quality of primary care for these individuals. Surgical treatments have frequent complications and blend anatomical and physiological features, but are advantageous in diagnostic sonography. Hormonal therapy can provide protection against osteoporosis but increase incidence of venous thromboembolism (VTE). A primary care provider (PCP) should consult the SRS surgeon, focus on the anatomy present and perform standard screenings for age. Lab tests must be interpreted without recognized normal values for transsexuals and medications affecting hormones should be avoided. Until further research establishes medical guidelines for adult post-op MTF transsexuals, clinicians must use their best judgment to prevent negative outcomes.

1. Introduction

Primary care providers (PCPs) must be knowledgeable in a wide array of areas to fulfill their responsibility of providing care to assorted maladies. Patients depend on PCPs to assess signs and symptoms, diagnose illnesses, screen for disease states, initiate treatment of acute ailments, manage chronic disorders, educate on health promotion and risk reduction, and when necessary, make appropriate referrals to other professionals. Additionally, PCPs must deliver these aforementioned services to a highly diverse client base, seeing patients of all ages, races, sexes, socioeconomic status and cultural backgrounds. In cases where biologically male adult patients have completed sex reassignment surgery (SRS), addressing medical issues (particularly those involving genitourinary matters) becomes convoluted and how to proceed with a comprehensive medical work-up is challenging. This article will review what current medical evidence supports, based on risk factors of this population, as appropriate to include in a full physical assessment, how labs/imaging should be utilized as diagnostic tools, and pharmacological interactions that should be taken into consideration in treatment plans of adult post-op male-to-female (MTF) transsexuals. Although hormone therapy is a significant aspect of care for transsexuals, this article will not focus on management of hormonal regimens; rather it will highlight instances when hormonal therapy has a notable impact on clinical decision making.

2. Background

With experience, clinicians become more comfortable managing healthcare concerns based on self-formulated algorithms that have led to positive outcomes for patients in the past. As medical science advances, pieces of these algorithms must be

altered, replaced, or in some cases removed from the realm of possibilities. This principle holds true for adult post-op MTF transsexual patients. Before the development of SRS, a patient could be physically examined and treated irrespective of their self-identified gender. Now, a set primary care work-up for neither biological males nor females can be directly applied thereto. When care is guided by the biological sex of the patient, female anatomical structures will be neglected. Conversely, if the perceived gender of the patient dictates treatment, screening tests for distinctly male diseases such as prostate-specific antigen (PSA) are overlooked. Furthermore, PCPs must now make a distinction between general medical complaints and those that could have an association with the patient's transsexuality. Lack of comprehension of these complexities endangers the lives of adult post-op MTF transsexuals by decreasing their quality of care. As with other medically underserved groups, adult post-op MTF transsexuals are susceptible to incomplete assessments, misdiagnosis, ineffective treatment plans, negative outcomes, and premature death.

3. Epidemiology

In the United States, estimating the number of transsexual persons is difficult to determine because prevalence studies focusing on this specific population have not been executed. However, the number of persons who pursue SRS has been estimated to be roughly 1 in 30,000 assigned males and 1 in 100,000 assigned females.¹ Data compiled in the Netherlands over two decades reports a higher prevalence, nearer to 1 in 10,000 assigned males and 1 in 30,000 assigned females.² Regardless of precise figures, the number of biological males undergoing SRS far outweigh that of biological females and are subsequently more likely to surface in a primary care practice.

When an adult post-op MTF transsexual seeks primary care it is important for the provider to have a basic understanding of the requisite therapeutic journey of transitioning from one sex to another, being mindful that every patient is unique and soliciting a detailed medical history is indispensable. The World Professional Association for Transgender Health (WPATH) publishes Standards of Care (SOC), providing clinical guidance for health professionals to assist transsexual, transgender, and gender nonconforming people with safe and effective pathways to achieving lasting personal comfort with their gendered selves, in order to maximize their overall health, psychological well-being, and self-fulfillment.³ The typical narrative following the WPATH SOC begins when the patient accepts their transgender identity and is evaluated by a mental health professional. The mental health professional must then explore the extent to which the patient has experienced distress from incongruence of their gender identity and their sex at birth, known as gender dysphoria. A formal diagnosis of mental disorder, currently termed Gender Identity Disorder (GID) in the DSM-IV-TR (though likely to be renamed in the DSM V revision), can then be made if all criteria are met.¹ These four criteria are:

- 1) Long-standing and strong identification with another gender
- 2) Long-standing disquiet about the sex assigned or a sense of incongruity in the gender-assigned role of that sex
- 3) The diagnosis is *not* made if the individual also has physical intersex characteristics.
- 4) Significant clinical discomfort or impairment at work, social situations, or other important life areas.

The mental health professional may then consider initiating triadic gender affirmation therapy, comprised of psychotherapy, hormonal therapy and SRS. Psychotherapy should include full-time real life experience living as the gender with which the patient identifies, demonstrated by acquiring a gender-identity-appropriate first name, maintaining employment/student/community volunteer status, and documented evidence that other people are aware of the patient's new role.⁴ After a period of no less than 3 months, the patient may begin hormone therapy and non-genital cosmetic interventions such as electrolysis, rhinoplasty, thyroid chondroplasty, facial remodeling, liposuction and speech therapy. Consultation with a second mental health professional is necessary before referral to a surgeon can be made.⁴ The newly released 7th version of the WPATH SOC lists minimum eligibility criteria that should be met before performing any SRS and includes:

- 1) Persistent, well documented gender dysphoria;
- 2) Capacity to make a fully informed decision and to consent for treatment;
- 3) Age of majority in a given country;
- 4) If significant medical or mental health concerns are present, they must be well controlled;
- 5) 12 continuous months of hormone therapy as appropriate to the patient's gender goals (unless the patient has a medical contraindication or is otherwise unable or unwilling to take hormones).
- 6) 12 continuous months of living in a gender role that is congruent with their gender identity;

Once all prerequisites have been fulfilled, medical referral can be made to one of the estimated fewer than 30 surgeons who have experience performing SRS. A transsexual surgeon is usually Board-certification as a urologist, gynecologist, plastic surgeon or general surgeon with additional supervised training in SRS techniques.⁵

5) Surgical Treatment Options

Once an adult biological male patient suffering from GID decides to undergo SRS, there are numerous surgical options available depending on the degree to which they wish to transition, their overall fitness for surgery, and their ability to private pay as SRS procedures are not covered under most insurance plans. One of the most predominant operations requested earlier in the process is breast augmentation. Breasts display an outward expression of femininity and allow a MTF transsexual to enjoy a greater congruence between their psychological gender and their physique. The remaining surgical possibilities described here may be performed either individually or simultaneously. A patient may choose to have their testicles excised (bilateral orchiectomy), eliminating the source of androgen production and the need for anti-androgen therapy. Removal of the penis (penectomy) without creation of a neovagina is known as “nullification” and placement of a new urethral opening permits urination in a seated position. Yet, simply removing male genitalia may not be as psychologically or physically gratifying to a MTF transsexual as complete SRS. Thus, creation of a vaginal cavity can be achieved through two accepted autologous techniques. The most common, penile vaginoplasty, inverts the skin of the penis to line the inner wall of the neovagina.⁵ Scrotal skin grafts are used to help achieve an acceptable depth of the neovagina if necessary. A second method, colovaginoplasty, whereby a pedicled

rectosigmoid transplant serves as the source of tissue, can be employed if penile vaginoplasty fails or is not possible.⁵

There are risks and benefits to each of these procedures. A penile vaginoplasty produces a sensitive neo-clitoris from a preserved portion of the glans penis, however, requires use of vaginal dilation stents to prevent neovaginal stricture and collapse.⁶ On the other hand, a colovaginoplasty provides natural lubricant but may necessitate the use of a tampon or sanitary pad at all times.⁷ A feature common of both vaginoplasty methods is repositioning of the intact prostate gland anterior to the neovagina.⁵ Follow-up labiaplasty using scrotal skin achieves an aesthetic comparable to biological females. Nevertheless, these anatomical changes undoubtedly impact risk factors for certain afflictions.

6) Review of Literature

Complications from a complex SRS are common in adult post-op MTF transsexuals.⁸ A prognostic study of MTF SRS outcomes in a single surgeon practice in the UK analyzed 222 case-notes from 1994-2004, identifying epidemiological data, the number and type of perioperative problems, early results at outpatient review, late occurring problems and patient satisfaction. At follow-up, an average of 56 days, 82.2% had an adequate vaginal depth (M=13cm) and 6.1% had developed vaginal stenosis. Three (1.7%) patients had a vaginal prolapse, two (1.1%) had a degree of vaginal skin flap necrosis and one (0.6%) was troubled with vaginal hair growth. In 86.3% of the patients, the neoclitorises were sensitive. There was urethral stenosis in 18.3% of the patients and 5.6% complained of spraying of urine.⁸ These results are highly specific to the operative technique of one surgeon and frequencies may not be accurate of all post-

op cases but do offer insight into the types of issues that can arise. This study also has limitations in that the longest follow-up case report incorporated was post-op day 351 with all other information being gained by telephone interviews at a response rate of 30%, leaving questions of its validity for patients who are many years removed from their SRS.

Other studies have investigated aspects in which the neovagina is similar to a vagina of biological women. Weyers et al. concluded that the penile skin-lined neovagina of transsexual women can reflect the cytological findings present in biological women.⁹ In this study, a Pap smear of the apex of the neovagina showed nucleated squamous cells in 72% of cases, but “normal” cervical cytology, with superficial, intermediate and parabasal cells, as well as Döderlein bacilli, was found in only 4% of transsexual women. Bacterial vaginosis (BV) was found in 50% of subjects without a correlation to inflammation, unlike well-known evidences in biological women. Concomitant colonization of *Candida* and *Gardnerella* and a positive test for HPV was seen in one patient.⁹ Using the same subjects as this cytology study, a separate analysis of the microflora of the penile skin-lined neovagina of transsexual women revealed mixed aerobic and anaerobic species usually found either on the skin, in the intestines or in BV.¹⁰ A cotton-tipped swab was rolled against the mid-portion of one lateral wall of the neovagina and then immediately smeared on a plain glass slide. The smears were then Gram stained and examined under oil immersion at a magnification of 1000 by a single observer. The most abundant species of the neovaginal bacterial community included *S. epidermidis*, *S. anginosus* groups, *E. faecalis*, *M. curtisii* and *B. ureolyticus*. The pH of the neovagina was consistently elevated (mean 5.8; range 5.0–

7.0), somewhat similar to what is observed with premenarchal girls.¹⁰ Both of these studies were limited by a significant lack of power (n=50) and did not make clinical recommendations for appropriate neovaginal hygiene practices that may reduce incidences of irritation and discharge.

It has also been shown that the neoanatomy of an adult post-op MTF transsexual affords a distinct advantage in evaluation of prostatic disease.¹¹ A study in 2007 assessed feasibility and diagnostic performance of prostate examination through transvaginal palpation and transvaginal ultrasound in 50 transsexual women (TSW). Speculum and digital vaginal examinations were performed by a gynecologist while transvaginal ultrasound of the prostate was performed by a radiologist. A regular digital vaginal examination was possible in 44% of the patients. In 48% of the patients, the prostate was palpable, whereas the prostate was visible on transvaginal ultrasound in 94%. Mean prostate volume was 14 mL, calcifications were present in 33%, but none had cysts. Capsule of the prostate was well delineated in 74% and seminal vesicles were visualized in 80%. The study found no correlation between the palpability of the prostate and the actual size of the prostate or patient age; rather the length and tissue rigidity of the neovagina.¹¹ The authors advised that in cases where prostatic enlargement is suspected, such as in prostate carcinoma or benign prostatic hyperplasia (BPH), transvaginal palpation is of poor clinical value but transvaginal ultrasound allows for proper assessment.¹¹

One study determined that there is an instance when a transsexual's course of therapy provides a protective effect for developing osteoporosis, as compared to the general population.¹² Mueller and Zollver evaluated 84 MTF transsexuals who were

following a cross-sex hormone therapy regimen for any changes in body composition or bone mineral density using GRH agonists and intramuscular estrogens. After 12 and 24 months of 17- β estradiol hormone therapy, significant changes in the parameters were noted. There was an increase in body mass index (BMI), fat mass, and bone mineral density (BMD) in the lumbar spine, and no effect observed on femoral BMD. This result indicates that there is low risk for developing osteoporosis in MTF transsexuals who receive adequate estrogen hormone substitution, even in the absence of testosterone.¹² One case of DVT occurred during this study, attributed to hormone levels not being measured immediately before administration of the estradiol causing a level higher than that of typical physiological range. If these elevated hormones were sustained longer than the length of the study (24 months), the adverse effects may have overshadowed the optimistic verdict.

A systematic review and meta-analysis sought to summarize the available evidence of the effects of cross-sex hormone use on the cardiovascular risk of transsexual individuals.¹³ Eligible studies must have clearly stated that individuals used sex steroids for at least 3 months and provided a comparison between intervention and control groups or a pre–post intervention comparison. Articles were included regardless of their publication status, language or size. Review articles, commentaries and letters that did not contain original data were excluded. Randomized control trials and observational studies totaling 1471 MTF participants were evaluated for cardiovascular events, venous thromboembolism (VTE), fasting serum lipid fractions and blood pressure. Cross-sex hormone use was associated with statistically significant increases in fasting serum triglycerides. HDL-cholesterol increased in subjects receiving estrogens

but did not reach statistical significance. Data about patient important outcomes (death, stroke, MI, VTE) was sparse and inconclusive but did suggest higher incidences in MTF transsexuals.¹³ The authors neglected to make clinical recommendations, citing low-quality evidence, downgraded due to methodological limitations of included studies, imprecision and heterogeneity and instead encouraged providers to share the uncertainty with patients when making treatment decisions.

7) Summary/Recommendations

When an adult post-op MTF transsexual presents to the clinic for primary care services, even the most experienced provider may find it challenging to conduct a thorough medical work-up. A general rule is to approach the patient as a practitioner would a post-menopausal female. Before proceeding with the encounter, consult with the surgeon who performed the SRS for specifics on their preferred technique and obtain any information that could influence clinical decisions. Also, remember that these are “expert patients” whom are well aware of the changes and problems that they are likely to face.⁴ Every aspect of the encounter should then be dissected and appropriate modifications implemented into the physical exam, diagnostic or screening labs/images and pharmacotherapy plans.

Physical Exam: When conducting a physical exam on an adult post-op MTF transsexual, focus on the anatomy present and what is standard based on their chronological age. Unless there is an immediate medical need, sensitive elements of the exam (particularly breast, genital and rectal exam) should be delayed until strong clinician-patient rapport has developed.¹⁴ Taking feminizing hormones may increase the risk of breast cancer for MTF transsexuals when compared to biological males, but

the risk is likely significantly decreased when compared to biological females.⁴ Screening mammography is advisable in patients over age 50 with additional risk factors (e.g., estrogen and progestin use > 5 years, positive family history, BMI >35).¹⁴ The prostate is not removed in MTF SRS and a checkup should proceed as it would for biological males, bearing in mind that transvaginal ultrasound has more clinical value than palpation.¹¹ There is no evidence to suggest that neovaginal cytology screening is beneficial.⁹ However, if the glans penis has been used to create a neocervix, Pap smear should follow guidelines for biological females.¹⁴ Test all sexually active transgender patients yearly for gonorrhea, chlamydia, and syphilis by using neovaginal as well as urethral swabs.⁴ Be vigilant for recto-neovaginal and urethra-neovaginal fistulae as well neovaginal prolapse.

Labs/Imaging: Laboratory testing can be problematic under current systems. Most requisition forms ask for the sex of the patient in order to provide PCPs with normal ranges for the results. Normal values specifically for adult post-op MTF transsexual persons have not been established and there is no consensus about how sex should be recorded on lab requests. PSA levels may be falsely low even in the presence of prostate cancer due to deficiencies in androgens, and after a baseline measurement may not be necessary.¹⁴ On a CBC, HGB and HCT will be decreased compared to biological males but does not indicate anemia.¹⁵ An annual fasting lipid profile is recommended. Treat hyperlipidemia to an LDL goal of <3.5 mmol/L for low-moderate risk patients and <2.5 mmol/L for high risk patients.¹⁴ Adult post-op MTF transsexuals are at a decreased risk for osteoporosis, but consider DEXA scans for patients over age 60 who are status post SRS greater than 5 years.¹² Estrogen therapy increases risk for

VTE.¹³ Weigh benefits of a daily aspirin in patients with compounding factors (age >40, smokers, sedentary lifestyle).

Pharmacotherapy: When possible, avoid prescribing medications that have an effect on hormone levels. Some familiar drugs that will increase hormone levels include fluoxetine, diltiazem, verapamil, itraconazole, clarithromycin, erythromycin and substances like grapefruit juice and Vitamin C. Hormone levels may be decreased by smoking cigarettes, carbamazepine, phenytoin, phenobarbital, phenylbutazone, sulfipyrazone, rifampin, and dexamethasone. Patients who are taking HIV meds will have significant fluctuations in their hormone levels.¹⁶

PCPs are vastly aware of the unique circumstances that every patient presents. Providing care to adult post-op MTF transsexuals is a challenge that will become increasingly common in medicine as SRS becomes a more widely accepted and accessible treatment option. Staying current on recommendations for this population is essential but quality research on the topic of transsexual health is deficient. This article calls attention to a few issues that PCPs may encounter in practice but absolute medical evidence based on irrefutable research has yet to be achieved. Until such time, best scientific and clinical judgment must be used in the consideration of these patients. Adult post-op MTF transsexuals should be empowered to become involved in their own care but PCPs must have the humility to be educated themselves. It is the responsibility of every clinician to show compassion for their needs and provide guidance to ensure that the best possible care is being delivered.

References

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (Text Revision)*. American Psychiatric Publishing; 2000.
2. Van Kesteren PJM, Asscheman H, Megens JAJ, Gooren LJG. Mortality and morbidity in transsexual subjects treated with cross-sex hormones. *Clinical Endocrinology*. 1997;47(3):337-343.
3. World Professional Association of Transgender Health. *Standards of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People, Version 7*. 2011.
4. Jain A, Bradbeer C. Gender identity disorder: treatment and post-transition care in transsexual adults. *Int J STD AIDS*. March 1, 2007 2007;18(3):147-150.
5. Bowman C, Goldberg J. Care of the patient undergoing sex reassignment surgery (SRS). *International Journal of Transgenderism*. 2007;9(3/4):135-166.
6. Soli M, Brunocilla E, Bertaccini A, Palmieri F, Barbieri B, Martorana G. Male to female gender reassignment: modified surgical technique for creating the neoclitoris and mons veneris. *J Sex Med*. Jan 2008;5(1):210-216.
7. Minto C, Creighton S. Vaginoplasty. *The Obstetrician and Gynaecologist* 2003;5:84-89.

8. Goddard JC, Vickery RM, Qureshi A, Summerton DJ, Khoosal D, Terry TR. Feminizing genitoplasty in adult transsexuals: early and long-term surgical results. *BJU Int.* Sep 2007;100(3):607-613.
9. Weyers S, Lambein K, Sturtewagen Y, Verstraelen H, Gerris J, Praet M. Cytology of the 'penile' neovagina in transsexual women. *Cytopathology.* Apr 2010;21(2):111-115.
10. Weyers S, Verstraelen H, Gerris J, et al. Microflora of the penile skin-lined neovagina of transsexual women. *BMC Microbiol.* 2009;9:102.
11. Weyers S, Decaestecker K, Verstraelen H, et al. Clinical and transvaginal sonographic evaluation of the prostate in transsexual women. *Urology.* Jul 2009;74(1):191-196.
12. Mueller A, Zollver H, Kronawitter D, et al. Body Composition and Bone Mineral Density in Male-to-Female Transsexuals During Cross-Sex Hormone Therapy Using Gonadotrophin-Releasing Hormone Agonist. *Exp Clin Endocrinol Diabetes.* Feb 2011;119(2):95-100.
13. Elamin MB, Garcia MZ, Murad MH, Erwin PJ, Montori VM. Effect of sex steroid use on cardiovascular risk in transsexual individuals: a systematic review and meta-analyses. *Clinical Endocrinology.* Jan 2010;72(1):1-10.
14. Feldman J, Goldberg J. Transgender Primary Medical Care: Suggested Guidelines for Clinicians in British Columbia. *Trans Care.* 2006.

15. Sobralske M. Primary Care Needs of Patients Who Have Undergone Gender Reassignment. *J Am Acad Nurse Pract.* 2005;17(4).
16. Williamson C. Providing care to transgender persons: a clinical approach to primary care, hormones, and HIV management. *J Assoc Nurses AIDS Care.* May-Jun 2010;21(3):221-229.