FEMINIZING HORMONE THERAPY

The goal of hormone therapy in trans women is to reduce the endogenous effects of testosterone and to induce female secondary sex characteristics. Physiologically, this requires a suppression of endogenous androgens and the addition of estrogen. This treatment results in both reversible and irreversible feminization.3

ESTROGEN

Estrogen acts directly on estrogen receptors to initiate feminization. It is usually the focus of hormonal transition for trans women. At SHC, oral estradiol (Estrace) is prescribed most often because it has a preferable safety profile compared to conjugated estrogen (e.g. Premarin), and is covered by the ODB program with an EAP request. Some report faster breast development with injectable estrogens. The starting dose of estrogen can be maintained for 1-2 months, after which a dose increase can be considered barring any concerning effects. In clients over 50 years old who have been on estrogen for several years, doses may be reduced to those administered to post-menopausal cis women (i.e. 0.025 – 0.05 mg patch).

RELATIVE SAFETY

Transdermal estradiol seems to be safer than oral estradiol, have fewer hepatic side effects and is thus recommended for clients over 40 or with risk factors for cardiovascular or thromboembolic disease.4

PRECAUTIONS

All reasonable measures should be taken to reduce the risks associated with estrogen therapy.5 Suggested measures to minimize risks associated with listed precautions may be found in the Guidelines and Protocols for Hormone Replacement Therapy and Primary Health Care for Trans Clients.

PREVENTIVE CARE

Trans women maintained on feminizing hormone therapy have unique preventive care needs and recommendations. An Adapted Preventive Care Checklist for trans women that can be used at the point of care can be found in the Guidelines and Protocols for Hormone Replacement Therapy and Primary Health Care for Trans Clients.

ABSOLUTE CONTRAINDICATIONS

1. Unstable ischemic cardiovascular disease
2. Estrogen-dependent cancer
3. End stage chronic liver disease
4. Psychiatric conditions which limit the ability to provide informed consent
5. Hypersensitivity to one of the components of the formulation

ANTI-ANDROGEN

Spironolactone has traditionally been used preferentially as it was thought to have a superior safety profile. This practice has recently come into question as it has been anecdotally noted that adequate anti-androgen effects are achievable at lower doses of cyproterone at which adverse effects are less likely. Thus the choice of anti-androgen should be made individually for each client based on their medical history and preference regarding respective side effect profiles.

Following orchiectomy (+/- vaginoplasty), most trans women will not require androgen suppression. The androgen-blocker can be tapered over the course of 4-6 weeks.

Formulations and recommended doses of estrogens and anti-androgens

<table>
<thead>
<tr>
<th>Formulations</th>
<th>Starting Dose</th>
<th>Maximum Dose</th>
<th>Cost* (4 weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spironolactone</strong></td>
<td>50 - 100 mg OD</td>
<td>200 mg BID</td>
<td>$16.56 - $40.58</td>
</tr>
<tr>
<td><strong>Cypromterone</strong></td>
<td>12.5 - 25 mg OD</td>
<td>50 mg OD</td>
<td>$32.98 - $101.92</td>
</tr>
<tr>
<td><strong>Conjugated Estrogen</strong></td>
<td>0.625 mg OD</td>
<td>1.25 mg OD</td>
<td>$20.01</td>
</tr>
<tr>
<td><strong>Estriodol (oral)</strong></td>
<td>1 - 2mg OD</td>
<td>4 mg OD</td>
<td>$18.53 - $40.14</td>
</tr>
<tr>
<td><strong>Estradiol Patch (transdermal)</strong></td>
<td>0.1 mg OD / apply path 2x/week</td>
<td>0.2 mg OD / apply path 2x/week</td>
<td>$39.97 - $69.95</td>
</tr>
<tr>
<td><strong>Estradiol valerate injectable (IM)</strong></td>
<td>10mg q 2/52</td>
<td>10mg q 1/52</td>
<td>$14.20 - $28.40</td>
</tr>
</tbody>
</table>

* Price quotes provided by www.pharmacy.ca. represent the price for 4 weeks’ supply of a generic brand of medication where available (unless indicated otherwise). Prices include a usual and customary dispensing fee of $9.99 ($10.99 for Pace), which may vary from pharmacy to pharmacy. Accurate as of February 4th, 2015.

**estradiol valerate IM must be prepared by a compounding pharmacy, price quote provided by Pace Pharmacy

For more information, please visit www.rainbowhealthontario.ca/trans-health-connection

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The degree and rate of physical effects is dependent on the dose and route of administration, as well as client-specific factors such as age, genetics, body habitus and lifestyle.

Standard monitoring of estrogen administration should be employed at baseline, 1, 3, 6, and 12 months. This should include a functional inquiry, targeted physical exam, bloodwork, and health promotion/ disease prevention counselling as indicated.

Testosterone level may be the most useful test for monitoring in trans women; for many clients, the goal will be to achieve the suppression of testosterone into the female range. That said, the client may have clinically relevant results without total suppression of testosterone because of androgen blockade, which is not easily measured.

Estradiol levels are of variable utility in monitoring feminizing therapy given the wide cyclical variation in cis women. Most clients attain considerable feminization at estradiol levels between 200-500 pmol/L. According to the Endocrine Society Guidelines, serum estradiol levels should not exceed the mean daily level for cis women (approximately 700 pmol/L).

EFFECTS AND EXPECTED TIME COURSE OF A REGIMEN CONSISTING OF AN ANTI-ANDROGEN AND ESTROGEN

Hormone treatment results in both reversible and irreversible feminization.

<table>
<thead>
<tr>
<th>PHYSICAL EFFECTS</th>
<th>REVERSIBILITY</th>
<th>ONSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softening of skin/decreased oiliness</td>
<td>Reversible</td>
<td>3-6 months</td>
</tr>
<tr>
<td>Body fat redistribution</td>
<td>Reversible/Variable</td>
<td>3-6 months</td>
</tr>
<tr>
<td>Decreased muscle mass/strength&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Reversible</td>
<td>3-6 months</td>
</tr>
<tr>
<td>Thinned/slowed growth of body/facial hair&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Reversible</td>
<td>6-12 months</td>
</tr>
<tr>
<td>Male Pattern Baldness&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Reversible</td>
<td>1-3 months</td>
</tr>
<tr>
<td>Breast growth</td>
<td>Irreversible</td>
<td>3-6 months</td>
</tr>
<tr>
<td>Decreased testicular volume</td>
<td>Variable</td>
<td>3-6 months</td>
</tr>
<tr>
<td>Decreased libido</td>
<td>Variable</td>
<td>1-3 months</td>
</tr>
<tr>
<td>Decreased spontaneous erections</td>
<td>Variable</td>
<td>1-3 months</td>
</tr>
<tr>
<td>Decreased sperm production</td>
<td>Variable</td>
<td>variable</td>
</tr>
<tr>
<td>Erectile Dysfunction</td>
<td>Variable</td>
<td>variable</td>
</tr>
</tbody>
</table>

a) Estimates represent published and unpublished clinical observations
b) Significantly dependent on amount of exercise
c) Complete removal of male facial and body hair requires electrolysis, laser treatment, or both
d) No regrowth, loss stops

EXPECTED ONSET AND MAXIMUM EFFECT

EXPECTED ONSET | MAXIMUM EFFECT
--- | ---
3-6 months | 3-6 months
3-6 months | 3-6 months
1-3 months | 1-3 months
variable | variable
6-12 months | variable

MONITORING STRATEGIES & DOSE ADJUSTMENTS

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Clinical effects are the goal of therapy, not specific lab values

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