The global burden of androgen excess

Educational Slide Kit
Module 1

The AWARE group is a panel of independent physicians with an expert interest in androgen excess in women. Formation of the AWARE group and its ongoing work is supported and funded by Bayer AG.
1. Which of these typical skin symptoms of androgen excess is the most commonly used marker?

   A. Seborrhea
   B. Hirsutism
   C. Acne
   D. Alopecia
2. How often can hirsutism be present in women with androgen excess?

A. In 2 out of 10 women
B. In 4 out of 10 women
C. In 6 out of 10 women
D. In 8 out of 10 women
3. How frequently does alopecia occur in women with androgen excess due to PCOS?

A. Women with PCOS are not affected by alopecia
B. 1 out of 3 women are affected
C. 1 out of 5 women are affected
D. 1 out of 10 women are affected
4. When looking at the impact of hyperandrogenic skin symptoms, what proportion of women with hirsutism also report anxiety symptoms?

A. Women with hirsutism are rarely affected by anxiety
B. Approximately 25% of women are affected by anxiety
C. Approximately 50% of women are affected by anxiety
D. Approximately 75% of women are affected by anxiety
Module content

• Defining androgen excess and its prevalence
• The burden of androgen excess
• Hyperandrogenic skin symptoms impact on:
  • Quality of life
  • Health and wellbeing
  • Healthcare systems
Defining androgen excess
Androgen excess in women can be characterised by either clinical symptoms of hyperandrogenism and/or biochemical hyperandrogenism.  

**Clinical hyperandrogenism**  
Clinical hyperandrogenism, where the pilosebaceous unit has increased sensitivity to normal serum androgen levels and causes hyperandrogenic skin symptoms.

**Biochemical hyperandrogenism**  
Biochemical hyperandrogenism, where there is excessive production and/or secretion of androgens, which may be of ovarian or adrenal origin.

Prevalence and presentation of androgen excess
Androgen excess* is the most common reproductive endocrine disorder in women\(^1\)

*Biochemical and/or clinical

- It affects up to **1 in 5** women of reproductive age\(^2\)

- The **majority** of women with hyperandrogenism (80–85%) have polycystic ovary syndrome (PCOS)\(^3,4\)

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Women can present with a combination of different symptoms\textsuperscript{1,2}

In some cases, women present with all four hyperandrogenic skin symptoms, described as the \textit{SAHA syndrome}\textsuperscript{3,4}

Hirsutism is the most commonly used marker for diagnosis of androgen excess\(^1\)

- It is present in up to **8 out of 10** women with androgen excess\(^1\)*
  Indicated by excess body or facial terminal (coarse) hair growth in females in a male-like pattern\(^2\)
- Prevalence varies according to ethnicity\(^2\)

*Depending on criteria for definition and population studies

Acne is an extremely common, chronic skin condition\textsuperscript{1,2}

- Acne is caused by androgen excess in approximately \textbf{1 in 6} women\textsuperscript{3}

Alopecia in women is most commonly caused by androgen excess\(^1\)

- Affects approximately **1 in 3** of women with PCOS\(^2\)
- Characterised by overall thinning of scalp hair mainly in frontal and parietal areas\(^1\)
- Commonly presents with other skin symptoms of androgen excess\(^1\)

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Seborrhea can also present as a symptom of androgen excess\(^1\)

- Often occurs alongside other skin symptoms of androgen access (SAHA syndrome)\(^1\)
- Presents in approximately **1 in 5** women with hyperandrogenism
- Is a useful marker of androgen metabolic disorders\(^2\)

The burden of androgen excess
Both hirsutism and acne can significantly and negatively impact on quality of life and cause anxiety and depression\(^1-3\).

Alopecia has a negative effect on self-esteem, psychological wellbeing and body image\(^3\).

Hirsutism can significantly and negatively impact on quality of life\(^1\)

Effect measured by Dermatology Life Quality Index (DLQI)

- Extremely large (21-39): 19.8%
- Very large (11-20): 35%
- Moderate (6-10): 13.5%
- Small (2-3): 21.4%
- None (0-1): 10.3%

DLQI: Dermatology Quality of Life Index

Hirsutism negatively affects multiple health-related quality of life domains\(^1\)

- 75% of women report anxiety\(^2\)
- 30% of women report depression\(^2\)
- 29% of women report both anxiety and depression\(^2\)

Clinically important depression and anxiety have been reported in **18%** and **44%** of acne patients respectively\(^4\).
Androgen excess due to biochemical hyperandrogenism may have long-term impact on general health\textsuperscript{1-3}

- With increasing age, there is a change in presenting symptoms and health implications


- Women with abnormalities in androgen metabolism may have accompanying anovulation and/or polycystic ovary syndrome (PCOS)
- These have reproductive and metabolic implications if left untreated
Androgen excess represents a significant financial burden to healthcare systems¹

<table>
<thead>
<tr>
<th>Symptoms included in literature review</th>
<th>Prevalence (%)</th>
<th>Annual cost in millions US$ (% of total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial evaluation</td>
<td></td>
<td>99 (2.3)</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menstrual dysfunction/abnormal uterine bleeding</td>
<td>75</td>
<td>1350 (30.9)</td>
</tr>
<tr>
<td>Hirsutism*</td>
<td>70</td>
<td>622 (14.2)</td>
</tr>
<tr>
<td>Infertility</td>
<td>50</td>
<td>533 (17.2)</td>
</tr>
<tr>
<td>Type 2 diabetes</td>
<td>7.2</td>
<td>1766 (40.4)</td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td></td>
<td><strong>4370</strong></td>
</tr>
</tbody>
</table>

* Treatment of hirsutism includes both cosmetic and hormonal therapies but does not take into account management of psychological and QoL impact or women’s own expenditure on treatment

Conclusions

• Androgen excess affects up to 1 in 5 women of reproductive age\(^1\)

• Presenting symptoms include hyperandrogenic skin symptoms (Seborrhea, Acne, Hirsutism and Alopecia) alone or in combination with menstrual irregularities and infertility\(^2,3,4\)

• It is associated with significant quality of life impairment and negative quality of life\(^5,6,7\)

• Although data is limited, evidence shows it can be a significant economic burden\(^8\)

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