Atypical Hyperplasia
Hyperplasia

- Rapid cell proliferation
- Tissue engorgement

Four categories
Hyperplasia

- Four categories

Simple
- Endometrium contains hyperplastic colony

Complex
- Hyperplastic colony reaches beyond endometrium

Usual
- Hyperplastic cells are healthy in shape and function

Atypical
- Hyperplastic cells serve no function and appear deformed
Hyperplasia

- Simple
  - Usual
  - Atypical
- Complex
  - n/a
Breast Anatomy

Female reproductive accessory

External Anatomy

• nipple
• areola

Internal Anatomy

• fatty tissue
• mammary glands
• milk ducts
Breast Anatomy

- Mammary glands
- Lobules
- Alveoli
Hyperplasia of the Breast

- Occurs in lobules or milk ducts
- Harmless unless complex, atypical
- Precursor to carcinoma in breast

- Premalignant
  - rapid, clustered proliferation
  - nonuniform appearance
  - cells lack function
Prevention

Three tests are used by health care providers to screen for breast cancer:

1. Mammogram
2. Clinical Breast Exam
3. Magnetic Resonance Imaging (MRI) for High Risk Women
SCREENING: MAMMOGRAMS
Assess Patient’s history and its contribution to patient risk

- Complete Lymph Node exam
- Visual Breast Examination: any abnormalities

Check for Palpitations on hands and pressure points

- Document findings and record plan of action
The American Cancer Society states: “Most of the published guidelines state only relative risk data for atypical hyperplasia or a lower lifetime risk, such as 15 %, which does not qualify them for screening MRI.”
Atypical Hyperplasia of the Breast- Risk Assessment and Management

Article’s Conclusions: Currently, atypical hyperplasia confers an absolute risk of later breast cancer of 30\(^\text{1}\)
Guidelines for high-risk women should be updated:

- To include women with atypical hyperplasia; screening MRI should be considered an option for them.
- Education regarding chemoprevention.
- Need more quality-control studies to ensure the application of standardized pathological criteria.

**ARTICLE RECOMMENDATION:**

- Identify new biomarkers that can predict different subtypes of breast cancer and varying time frames of risk.
Modulate genes involved with breast development, regulation of menstrual cycle. Prolonged exposure increases incidence of breast cancer and various uterine lesions.
Nonetheless some women still get Breast Cancer

Potential Treatment Options:

There are preventive treatments, non invasive and invasive methods:
Estrogen Receptors: ERα and ERβ

Ligand-dependent nuclear receptors ERα and ERβ have high affinities to estradiol which causes effects within cells.⁹
Schematic of estrogen and its regulatory function in target cells.
Selective Estrogen Receptor Modulators (SERMs)

SERMs are a class of compounds which can act in some tissues as estrogens (agonist), but block estrogen actions in others (antagonist). Different SERMs induce distinct structural changes in the receptors. ⁵
Tamoxifen

Most widely used SERM antiestrogen for management of breast cancer. Blocks action of estrogen in cancerous cells.⁴
ER antagonist in breast and agonist in bone, but is not an agonist in the uterus.\textsuperscript{2} However, there is increased risk of venous thromboembolism and fatal stroke.\textsuperscript{11}
ERMs

Does not alleviate hot flushes and night sweats associated with estrogen loss. ERMs are infrequently prescribed and used. For patients, there were documentations of reluctance.
About Maine Medical Center:

- Maine Medical has recently implemented the use of Radioactive Seed Localization.
Health Care Disparities

• Socio-economic
• Racial
• Geographical

Amongst Citizens, Aliens, Permanent Residents, etc.

• Employed/ unemployed
Racial Disparities in Health Outcomes for Black Women in Memphis, Tennessee

Based on Data from: 2014 Racial Disparity in Breast Cancer Mortality Study


- During the first 5-year interval (1990-1994), the Black rate was 46.3 and the White rate was 36.4, which produced a rate ratio of 1.27 (statistically significant).
- During the last 5-year interval (2005-2009), the Black rate was 44.3 and the White rate was 21.0, which produced a rate ratio of 2.11 (statistically significant).
Racial Disparities are not Specific to Memphis.

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During the first 5-year interval (1990-1994), the Black rate was 45.1 and the White rate was 36.5, which produced a rate ratio of 1.24 (statistically significant). During the last 5-year interval (2005-2009), the Black rate was 45.6 and the White rate was 26.7, which produced a rate ratio of 1.71 (statistically significant).
Racial Disparities in Health Outcomes for Black Women in Houston, Texas

Based on Data from: 2014 Racial Disparity in Breast Cancer Mortality Study


- During the first 5-year interval (1990-1994), the Black rate was 46.4 and the White rate was 40.2, which produced a rate ratio of 1.15 (statistically significant).
- During the second 5-year interval (1995-1999), the Black rate was 42.3 and the White rate was 36.1, which produced a rate ratio of 1.18 (statistically significant).
- During the third 5-year interval (2000-2004), the Black rate was 40.2 and the White rate was 34.4, which produced a rate ratio of 1.17 (statistically significant).
- During the last 5-year interval (2005-2009), the Black rate was 44.8 and the White rate was 29.7, which produced a rate ratio of 1.51 (statistically significant).

* Significant difference in the Black:White rate ratio
Theories on the Origins of the Disparity

Key Factors that led to this racial disparity

1. Differential Access to Screening,
2. Quality of the screening process
3. Access to Treatment
4. Quality of Treatment

NOTE: Although the death rates declined for both white and black women in the United States as a whole over this time period, the white death rate decreased twice as much as the black death rate.¹¹
For the Curious Biology enthusiasts….

• Yes—There is a difference in incidence rates.

Mortality is 77% higher among African American women compared with white women (11.0 vs 6.3 deaths per 100,000).

Breast cancer in African American women: higher grade, later stage at diagnosis, and worse survival even after controlling for stage at diagnosis.
Examples of Disparities

• Breast cancer is the main cause of cancer deaths for Hispanic women.\textsuperscript{10}

• Invasive breast cancer (BC) is one of the predominant diseases in older women.\textsuperscript{9}

• In Los Angeles County, advanced Breast cancer diagnosis was more likely in areas that had a larger proportion of minority racial or ethnic groups or low median household income.\textsuperscript{9}
Conclusion

Need to implement new screening methods.

Need new policies to be enacted to decrease health disparities.

Need more education initiatives.

Need to stress the powerful conclusions that meta-analyses can provide.
References


