



IN WOMEN OF ALL AGES
USING UNDERARM
COSMETICS, HOW DOES THE
USE OF ANTIPERSPIRANTS
AFFECT THE INCIDENCE OF
UPPER OUTER QUADRANT
BREAST CANCER?

Holly Squibb, PA-SIII
University of South Dakota, Physician Assistant Program

Breast Cancer

- Women have a 12.03 percent chance of being diagnosed with breast cancer at some point in life
- 182,460 women will receive a breast cancer diagnosis in 2008
 - 40,480 will die
- **Antiperspirants**
 - **Cause of breast cancer?**

Background

- 'antiperspirant' vs. 'deodorant'
 - Deodorant
 - diminishes the odor of sweat
 - Antiperspirant
 - prevents perspiration
 - Neither regulated by the FDA
 - A cosmetic product
 - Do not contain chemicals that alter the body in anyway
 - Different based on the action of the active ingredients

Background

- Aluminum compounds or salts
 - ▣ First ingredient listed on the antiperspirant
 - ▣ Give the product sweat-blocking activity
 - ▣ Genotoxic profile
 - ▣ The aluminum ions are taken into the cells of the sweat gland along with water
 - ▣ The cell begins to swell eventually squeezing the duct closed so that the sweat can no longer escape to the skin.

Underarm shaving

- Produces microscopic cuts in the underarm
 - ▣ Allowing the toxin from antiperspirants to enter the body more easily
 - ▣ Direct exposure to the body



Administrative, 2008

Upper Outer Quadrant

- According to the American College of Surgeons
 - ▣ 36% of breast cancers occur in the UOQ
 - ▣ Theory: there is a greater occurrence in the UOQ due to the greater amount of breast tissue found there
 - ▣ > 50% of the breast tissue is found in the UOQ

Kopans, 2005

Objective

- The purpose of this study
 - ▣ To determine the consequence of antiperspirant versus deodorant use in the incidence of upper outer quadrant breast cancer

Question?

- In Women of all Ages Using Underarm Cosmetics, How Does the use of Antiperspirants Affect the Incidence of Upper Outer Quadrant Breast Cancer?



Search Strategy/Selection Criteria

- Published between 2001 and 2006
- Electronic literature search
 - ▣ PubMed
- Selection Criteria
 - ▣ Studies investigating breast cancer in the upper outer quadrant in correlation with the use of underarm cosmetics
 - experimental or questionnaires

Human breast cancer cells and the effects of aluminum and antiperspirants

- Aluminum: genotoxic profile
- Underarm shaving produces microscopic cuts
 - Human breast cancer cells are resilient to high aluminum concentrations when exposed for over 2 weeks.
 - Prolonged exposure to such compounds may not play a role in the increased incidence of breast cancer
- Concluded that further research is needed

Darbre, Aluminum, Antiperspirants and Breast Cancer, 2005

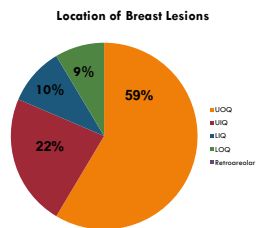
Results

- Compared the incidence of breast cancer among two different populations to determine if there is an increased incidence of breast cancer among a single population or whether the increased incidence is due solely to the fact that there is a greater amount of tissue in the UOQ of the breast
 - Data was collected from England and Wales and Scotland
 - There is a disproportionate increase in the incidence of UOQ breast cancer among women in Britain relative to the other three quadrants of the breast

Darbre, Recorded Quadrant Incidence of Female Breast Cancer in Great Britain Suggests a Disproportionate Increase in the Upper Outer Quadrant of the Breast, 2005

Results

- The increased incidence of UOQ breast cancer
 - Compared reports of diagnostic breast needle core biopsies
 - A total of 746 biopsies were used of the 843 taken
 - 349 were malignant



Lee, 2005

A relationship between underarm cosmetics and the incidence of breast cancer?

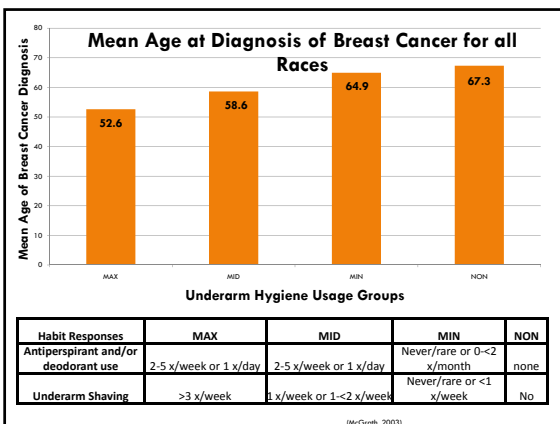
- Population-based case-controlled study
- Participants:
 - Between the ages of 20 and 74 years
 - Control subjects were women without breast cancer
- Deodorant use > antiperspirant use.
- Data gathered through in person interviews
- No increased risk of breast cancer associated with the following activities: antiperspirant or deodorant use, underarm cosmetic use among those who shaved with a razor blade or the act of shaving with a razor blade followed by the application of underarm cosmetics within 1 hour

Mirick, 2002

Results

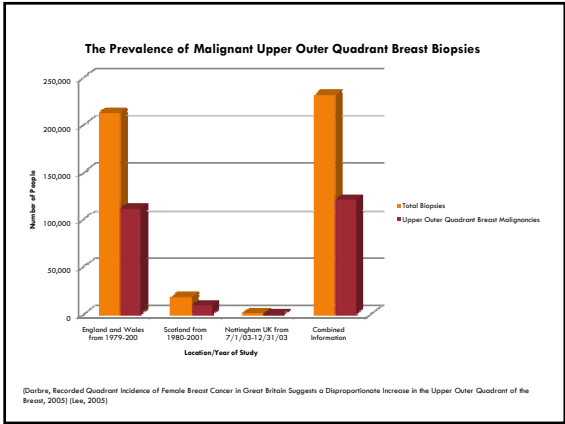
- A retrospective study of surviving female breast cancer patients from January 1, 1993 to December 31, 2003
- Written questionnaires to evaluate the women's underarm hygiene practices
- The data that was collected:
 - Demographics
 - Extent of disease
 - Age of menarche
 - Births
 - Underarm shaving
 - Use of antiperspirants or deodorant

McGrath, 2003



Habit Responses	MAX	MID	MIN	NON
Antiperspirant and/or deodorant use	2-5 x/week or 1 x/day	2-5 x/week or 1 x/day	Never/rare or 0-<2 x/month	none
Underarm Shaving	>3 x/week	1 x/week or 1-<2 x/week	Never/rare or <1 x/week	No

(McGrath, 2003)



Conclusion

- Evidence for the continued use of underarm cosmetics and underarm shaving until further research can be done

Further Research

- So many factors that are difficult to avoid
 - Need research to determine the environmental influences that can be altered to decrease a woman's risk of developing breast cancer
 - Being overweight
 - Taking birth control pills
 - Drinking alcohol
 - Not having children/having children later in life.
- What is needed
 - Superior experimental design
 - larger populations of participants

Clinical Pearls

- Warn women of their risks
- Continue breast cancer screening
 - Monthly self exams
 - Yearly provider exams
 - Palpation of the entire breast tissue
 - Find a palpation technique that works for you
 - Yearly mammograms after 40

□ Questions?
