Breast Cancer Epidemiology in Asia

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Disclosure slide

• I have nothing to declare
Trends in Breast Cancer Incidence

http://globocan.iarc.fr/factsheets/cancers/breast.asp
Trends in age-standardised 5-year net survival by region and country

Estimated Cancer Incidence and Mortality 2015
National Cancer Center: ganjoho.jp 28/04/2015

Incidence

Mortality

Site
-- Stomach
-- Colorectal
-- Lung
-- Prostate
-- Breast
-- Liver
-- Pancreas
Figure 6.1.1: Age-Standardised Incidence Rates for Female Breast Cancer, 1975-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>75-79</th>
<th>80-84</th>
<th>84-88</th>
<th>90-94</th>
<th>95-99</th>
<th>00-04</th>
<th>05-09</th>
<th>10-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASR</td>
<td>23.8</td>
<td>27.7</td>
<td>34.1</td>
<td>40.1</td>
<td>48.7</td>
<td>57.8</td>
<td>60.1</td>
<td>64.7</td>
</tr>
</tbody>
</table>
Overview of 2012 Hong Kong Cancer Statistics

Leading cancer types (*both genders combined*)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Site</th>
<th>No. in 2012</th>
<th>No. in 2002 (rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All sites</td>
<td>27,848</td>
<td>21,861</td>
</tr>
<tr>
<td>1</td>
<td>Lung</td>
<td>4,610</td>
<td>3,941 (1)</td>
</tr>
<tr>
<td>2</td>
<td>Colorectum</td>
<td>4,563</td>
<td>3,519 (2)</td>
</tr>
<tr>
<td>3</td>
<td>Breast</td>
<td>3,522</td>
<td>2,076 (3)</td>
</tr>
<tr>
<td>4</td>
<td>Liver</td>
<td>1,790</td>
<td>1,576 (4)</td>
</tr>
<tr>
<td>5</td>
<td>Prostate</td>
<td>1,631</td>
<td>912 (7)</td>
</tr>
</tbody>
</table>

Cancer Registration in Hong Kong
Courtesy to Dr. Chow, WC
Figure 5a. Trends in Female Breast Cancer Incidence Rates* by Race and Ethnicity, US, 1975-2008

*Rates are age adjusted to the 2000 US standard population. Rates for Asian American/Pacific Islanders, Hispanic/Latinos, and American Indian/Alaska Natives are 3-year moving averages.

Source: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute. Data for whites and African Americans are from the 9 SEER registries and were adjusted for reporting delays. Data for other races/ethnicities are from the 13 SEER registries. For Hispanics, incidence data do not include cases from the Alaska Native Registry. Incidence data for American Indians/Alaska Natives are based on Contract Health Service Delivery Area (CHSDA) counties.
Age-specific breast cancer incidence in Japan
Age-specific breast cancer incidence in UK

Source: cruk.org/cancerstats
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Age-specific breast cancer incidence in USA

Figure 1. Age-specific Female Breast Cancer Incidence (2004-2008) and Mortality (2003-2007) Rates

Sources: Incidence: North American Association of Central Cancer Registries. Mortality: National Center for Health Statistics, Centers for Disease Control and Prevention, as provided by the Surveillance, Epidemiology, and End Results Program, National Cancer Institute.

American Cancer Society, Surveillance Research, 2011
Age-specific breast cancer incidence in Singapore

Figure 6.1.2: Age-Specific Incidence Rates for Female Breast Cancer, 2010-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Age-specific rate (per 100,000 per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-19</td>
<td>0.1</td>
</tr>
<tr>
<td>20-29</td>
<td>4.8</td>
</tr>
<tr>
<td>30-39</td>
<td>43.8</td>
</tr>
<tr>
<td>40-49</td>
<td>140.2</td>
</tr>
<tr>
<td>50-59</td>
<td>196.2</td>
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<tr>
<td>60-69</td>
<td>226.5</td>
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<tr>
<td>70-79</td>
<td>221.6</td>
</tr>
<tr>
<td>80+</td>
<td>178.4</td>
</tr>
</tbody>
</table>
Changes in breast cancer incidence according to stage

Japan

Korea


Changes in breast cancer incidence according to nodal status: Japan

Breast cancer incidence according to stage: USA

*Rates are two-year moving averages and age adjusted to the 2000 US standard population.

Data source: Surveillance, Epidemiology, and End Results (SEER) Program, 9 SEER Registries, National Cancer Institute.

American Cancer Society, Surveillance Research, 2011
RFS stratified by Stage: Japan

![Graph showing RFS stratified by stage in Japan](image-url)

- **Logrank**
  - Stage I: \( p = 0.0371 \)
  - Stage II: \( p < 0.0001 \) \( p < 0.0001 \)
  - Stage III: \( p < 0.0001 \) \( p < 0.0001 \) \( p < 0.0001 \)

- **From Initial Treatment (Years)**
  - 0, 1, 2, 3, 4, 5

- **Censored**

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RFS stratified by nodal status: Japan

![Graph showing RFS stratified by nodal status](image-url)
RFS stratified by ER/HER2: Japan

![Graph showing RFS stratified by ER/HER2: Japan]

<table>
<thead>
<tr>
<th>Logrank</th>
<th>ER+ HER2+</th>
<th>p&lt;0.0001</th>
<th>ER+ HER2+</th>
<th>p&lt;0.0001</th>
<th>ER+ HER2+</th>
<th>p=0.6429</th>
<th>ER+ HER2+</th>
<th>p=0.0003</th>
<th>ER+ HER2+</th>
<th>p=0.0015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ER- HER2-</td>
<td>p&lt;0.0001</td>
<td>Triple Negative</td>
<td>p&lt;0.0001</td>
<td>ER- HER2+</td>
<td>p=0.0015</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Initial Treatment (Years)</td>
<td>ER+ HER2+</td>
<td>ER+ HER2+</td>
<td>ER- HER2+</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Censored</td>
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</table>

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Issues

• US mass screening (Dense breast)
• Risk factors: Soy Isoflavones, Exercise..
Sensitivity and specificity of mammography and adjunctive ultrasonography to screen for breast cancer in the Japan Strategic Anti-cancer Randomized Trial (J-START): a randomised controlled trial

US for Mass-screening

• Between July, 2007, and March, 2011, women aged 40–49 years
• 42 study sites Nationwide in Japan
• Randomized : MMG + US vs MMG twice in 2 years
• PE: Sensitivity, specificity, cancer detection rate
• 72 998 women enrolled
J-START Results

• Sensitivity was significantly higher in the intervention group (91.1% vs 77.0%, p=0.0004), whereas specificity was lower (87.7% vs 91.4% p<0.0001)

• More cancers were detected in the intervention group (184 [0.50%] vs 117 [0.32%], p=0.0003) and were more frequently stage 0 and I (144 [71.3%] vs 79 [52.0%], p=0.0194)

• Adjunctive ultrasonography increases sensitivity and detection rate of early cancers
Soy Isoflavone Intake and Breast Cancer Risk: Meta-analysis

Premenopausal

Postmenopausal
Conclusions

• BC incidence is increasing rapidly in Asia
• Postmenopausal BCs are less frequent in Asia
• Early stage BCs (Stage 0/I) are increasing
• Survival has been improved in each subtype
• Mass screening with US increases the sensitivity and detection rate compared with MMG alone
• Isoflavones intake may be lowering BC incidence in Asia
THANK YOU