Antenatal Serological Results in Women from Mainland China

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Introduction

- Antenatal serological tests
  - rubella, syphilis and hepatitis B surface antigen are routinely performed for pregnant local residents

- Starting from 1\textsuperscript{st} Feb 2007, there has been an increasing trend of early booking of obstetric service by women normally residing in Mainland China

- There is accumulating data indicating that this group of women from Mainland China has a pattern of serological results that is different from local residents.
Objectives

- To compare antenatal serological results of pregnant women from Mainland China with that of their local counterparts.
- Discuss the implications of such differences.
How

- Antenatal data for the year 2006 and 2007 was retrieved from the corporate laboratory information system databases.
- Pregnant women from Mainland China were identified by a specific set of temporary-allocated identity number.
- Proportions were compared by the chi-squared test.
- Continuous data were compared by the t-test.
- The two-tailed P-value of <0.05 indicated significant difference.
Results

From 2006 to 2007,
- 8037 pregnant local residents
- 1066 pregnant women from Mainland China

Consecutive data were analyzed for:
- Age
- Syphilis status
- Rubella antibody status
- Hepatitis B surface antigen Status
Age

Pregnant local residents were significantly older (mean age 31.3) than those from Mainland China (mean age 28.2) \( (p<0.01) \).

<table>
<thead>
<tr>
<th>Age</th>
<th>Hong Kong</th>
<th>Mainland</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>31.3</td>
<td>28.2</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>≤20</td>
<td>1.47%</td>
<td>3.28%</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>21-30</td>
<td>39%</td>
<td>60.7%</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>31-40</td>
<td>57.8%</td>
<td>30.9%</td>
<td>&lt;0.001**</td>
</tr>
</tbody>
</table>

* t-test; ** chi-sq test
## Positive serological test for syphilis

<table>
<thead>
<tr>
<th>Age</th>
<th>Hong Kong</th>
<th>Mainland</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>0.32%</td>
<td>1.2%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>≤20</td>
<td>0.8%</td>
<td>0</td>
<td>0.47</td>
</tr>
<tr>
<td>21-30</td>
<td>0.255%</td>
<td>1.05%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>31-40</td>
<td>0.36%</td>
<td>1.88%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*chi-squared
Impact: Increased positive syphilis screening results - Mothers

- More Procedures: More confirmatory tests
- More post-treatment tests: Following treatment, serological tests should be performed at monthly intervals until delivery

Work increased by 4X
Impact: increased positive syphilis screening results – Babies

- To address **Congenital syphilis**
- More Intervention: Infants born to sero-positive mothers are treated with antibiotics.
- More Follow-up tests: Post-treatment serological tests and clinical assessment, usually serial.

Work increased by 4X
### Negative rubella antibody status

<table>
<thead>
<tr>
<th>Age</th>
<th>Hong Kong</th>
<th>Mainland</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>4.22%</td>
<td>16.38%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>≤20</td>
<td>9.23%</td>
<td>7.14%</td>
<td>0.86</td>
</tr>
<tr>
<td>21-30</td>
<td>3.89%</td>
<td>16.6%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>31-40</td>
<td>4.2%</td>
<td>17.4%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*chi-squared*
Impact: Negative Rubella Results

- More counseling:
- To instruct: avoid patients who have this illness.
- To instruct: no effective treatment for rubella during pregnancy, nor is there an effective way to prevent rubella in a susceptible woman who was exposed to the illness.
- To explain: vaccine is not recommended during pregnancy
- To explain: The possible risk of vertical transmission
- To explain: pregnancy termination may be needed, especially if primary infection occurs prior to 16 weeks’ gestation

Work increased by 4X
### Positive hepatitis B surface antigen

<table>
<thead>
<tr>
<th>Age</th>
<th>Hong Kong</th>
<th>Mainland</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>8.14%</td>
<td>12.75%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>≤20</td>
<td>6.4%</td>
<td>12.12%</td>
<td>0.001</td>
</tr>
<tr>
<td>21-30</td>
<td>8.24%</td>
<td>12.9%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>31-40</td>
<td>8.14%</td>
<td>12.5%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*chi-squared
Impact: Positive hepatitis B surface antigen

- More Intervention at / shortly after birth: Hepatitis B vaccine, HBIG treatment, Complete infant vaccination series at 0, 1-2, 6 months.
- More Follow-up tests: HBsAg and anti-HBs testing of infant at aged 9-15 months.

Work increased by 1.5X
Conclusion

Pregnant women: HK versus Mainland

- There is difference in the serological status of the three infectious disease
- This will derive:
  - more treatment
  - more tests
  - more counseling
  - More follow-up tests
Thoughts

- Residents: Local versus Mainland
- Different population immunization programs
- Immigrants will dilute the population effect of local immunization programs (such as hepatitis B)
Thank you

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