COLORECTAL CANCER (CRC) SCREENING IN IBARAKI PREFECTURE, JAPAN. 
THE COMPARISON WITH MALES AND FEMALES USING A TWO-DAY SAMPLING METHOD

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Introduction
- In Japan, CRC screening has been a national policy for both sexes over 40 years old since 1992.
- A two days sampling method through fecal immunochemical blood test (FIT) has been widely accepted for CRC annual screening program.
  - In Ibaraki prefecture, population-based screening program from 2007 to 2012 participants over 40 years of age were screened with 2 samples of stool measured by the OC-SENSOR (Eiken, Japan) with a cut-off value of 100ng/mL (20μg Hb/g stool).
- The government aims the participation rate will be 40%.
  - Until 2005, the participation rate was only 10%.
  - The current participation rate is about 35%.

Goal of the study
- Cancer detection rates and PPV for FIT are lower for females than for males.
  - Concern that the test was failing to find CRC in females and some proposed that cut off should be changed in females.
- Is the performance of FIT in females a reflection of less cancer or the characteristics of the test?
- Should a cut-off value for determining a positive FIT be changed between males and females for more efficient CRC screening?

AIMS and METHOD
- The purpose of this study is to evaluate FIT positivity, cancer detection rates with intra-mucosal cancers, positive predictive values (PPV) with intra-mucosal cancers, invasive cancer detection rates, invasive cancer PPV, and Dukes classification for males and females.
- The data were assessed based on the χ² test.
  - The difference between two groups was judged to be statistically significant when p-value was less than 0.05.
Cancer Detection rates(%) by age, gender and method

- Male (2-day)
- Female (2-day)
- Male (1-day)
- Female (1-day)

**PPV(%) by age, gender and method**

- Male (2-day)
- Female (2-day)
- Male (1-day)
- Female (1-day)

Invasive Cancer Detection rates(%) by age, gender and method

- Male (2-day)
- Female (2-day)
- Male (1-day)
- Female (1-day)

Invasive Cancer PPV(%) by age, gender and method

- Male (2-day)
- Female (2-day)
- Male (1-day)
- Female (1-day)
Dukes classification by gender

<table>
<thead>
<tr>
<th>Dukes</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
<th>p-value</th>
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<tbody>
<tr>
<td>A intra mucosal CRC</td>
<td>273</td>
<td>50.5</td>
<td>178</td>
<td>43.6</td>
<td>p&lt;0.05</td>
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<tr>
<td>Invasive CRC</td>
<td>266</td>
<td>49.2</td>
<td>230</td>
<td>56.4</td>
<td>p&lt;0.05</td>
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<tr>
<td>A</td>
<td>139</td>
<td></td>
<td>119</td>
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<td></td>
</tr>
<tr>
<td>B</td>
<td>61</td>
<td></td>
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<tr>
<td>C</td>
<td>60</td>
<td></td>
<td>50</td>
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<td>D</td>
<td>6</td>
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</tr>
<tr>
<td>total</td>
<td>541</td>
<td></td>
<td>408</td>
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</table>

CONCLUSIONS

- The positivity was lower in females than in males.
- The incidence of total cancers was lower in females > 60 years than in males > 60 years of age.
- The incidence of invasive cancers was lower in females than in males at the age group of sixties.
- The PPV for all cancers was lower in females than in males at the age group of sixties.
- The PPV for invasive cancers was the same between females and males.
- The proportion of invasive cancers was higher in females than in males.
- Therefore, a cut-off value should not be changed between males and females.