First Trimester Biochemical Tests: Can We Predict Fetal Sex?
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INTRODUCTION
• Pregnant women, along with her partner and family, are often keen to know the sex of their unborn child.
• Current practice commonly relies upon the USS, CVS, amniocentesis or non-invasive prenatal tests (NIPT).
• USS scan vary in accuracy, depending on technique and gestational age.
• In the UK, women have their first scan between 11-13 weeks, often wanting to know fetal sex.
• It is normally about 5 months before they get to know the fetal sex from USS.
• A paper by NJ Cowans shows significant sex differences in BHCG and PAPP-A, but it does not correlate the sex with the screening results.

AIM
Determine if there are male and female differences of AFP, β-hCG, PAPP-A, NT levels from combined screening results.

METHODS
• Analysis of the combined screening results from 2164 women tested at Queen Charlotte’s and Chelsea Hospital, London.
• A multivariate analysis was performed and results were compared to gender at delivery.

RESULTS

<table>
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<th>For Both Sex (MoM)</th>
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<tbody>
<tr>
<td>AFP</td>
<td>0.43 - 3.25</td>
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<tr>
<td>β-hCG</td>
<td>0.22 - 10.55</td>
</tr>
<tr>
<td>NT</td>
<td>0.48 - 2.82</td>
</tr>
<tr>
<td>PAPP-A</td>
<td>0.02 - 5.06</td>
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Average MoM for each screening test

- Of the babies whose sex was known:
  - 891 were male and 975 female.
  - One female stillborn, 43 (2%) were twins, 18 (1%) miscarried and 13 (1%) had a termination (for congenital abnormalities).
  - We had no outcome for 10% of the screening results.
  - Excluding couples with congenital abnormalities we calculated the standard deviation and using T-test calculated the P value’s.

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<table>
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<tr>
<th>P-Value</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>AFP</td>
<td>&lt;0.0001</td>
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<tr>
<td>β-hCG</td>
<td>1.000</td>
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<tr>
<td>NT</td>
<td>0.303</td>
</tr>
<tr>
<td>PAPP-A</td>
<td>0.759</td>
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CONCLUSION
• We found that there is no difference between the BHCG, NT or PAPP to predict the sex of the baby.
• The AFP is higher in male babies and this is statistically significant. (P< 0.01)
• No level of AFP above which male gender could be identified
• We do not believe that these values are enough for accurate estimation of the fetal sex

REFERENCE