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Objective
The purpose of this study was to evaluate the effect of vanishing twin (VT) on 1st and 2nd trimester maternal serum markers and nuchal translucency (NT).

Method
- Secondary analysis of a multicenter prospective cohort study in 12 institutions
- Total 5,188 cases
  - 3,616 cases: adopted serum markers
  - 56 cases with VT (1.55%)
  - 3,560 cases with normal singleton
- All VT was found during 1st trimester
- NT in the 1st trimester
- 1st trimester serum marker
  - Pregnancy associated plasma protein A (PAPP-A)
- 2nd trimester serum marker
  - Alpha-fetoprotein (AFP)
  - Total beta human chorionic gonadotrophin (β-hCG)
  - Unconjugated estriol (uE3)
  - Inhibin A

Result
- Cases with VT had higher MoM of following markers;
  - AFP
  - Inhibin A
- After adjustment for maternal age, pre-pregnancy BMI, and mode of conception.
  - The differences in the concentrations of AFP and inhibin A remained significant

Conclusion
In conclusion, VT can be considered as an adjustment factor for risk assessment in the 2nd trimester serum screening test.

Table. Median MoM of serum makers and NT in pregnancies with a vanishing twin and singleton control pregnancies

<table>
<thead>
<tr>
<th>Serum marker</th>
<th>Singleton</th>
<th>Vanishing twin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>median MoM</td>
<td>Number</td>
</tr>
<tr>
<td>PAPP-A</td>
<td>2359</td>
<td>0.990 (0.700-1.386)</td>
</tr>
<tr>
<td>AFP</td>
<td>3445</td>
<td>0.980 (0.809-1.220)</td>
</tr>
<tr>
<td>beta-hCG</td>
<td>2954</td>
<td>1.040 (0.743-1.425)</td>
</tr>
<tr>
<td>uE3</td>
<td>2954</td>
<td>0.970 (0.790-1.185)</td>
</tr>
<tr>
<td>Inhibin A</td>
<td>2951</td>
<td>1.010 (0.766-1.291)</td>
</tr>
<tr>
<td>NT</td>
<td>2702</td>
<td>1.400 (1.100-1.700)</td>
</tr>
</tbody>
</table>

* Median (Interquartile range)
** Adjusted by maternal age, pre-pregnancy BMI, and mode of conception

Figure. The multiple of median (MoM) of the AFP (A) and inhibin A (B) in vanishing twin group and normal singleton group