The Incidence of Fetal Congenital Anomalies in Teenage Pregnancy in Srinagarind Hospital, Khon Kaen University

Introduction

* The majority of previous studies on the association between maternal age and congenital anomalies have focused on the strong association between advanced maternal age and chromosomal defects.


Introduction

* Congenital anomalies are leading cause of fetal, neonatal death and childhood morbidity.


Introduction

* Teenage pregnancy was associated with increased risk of
  * central nervous system anomalies (1.08%)
  * gastrointestinal anomalies (1.39%)
  * musculoskeletal anomalies (1.06%).


Introduction

* Based on 3% of the estimated 135 million births that occur yearly, more than 10,000 children are estimated to be born daily with congenital anomalies worldwide.


Introduction

* The neonates of the teenage pregnancy showed higher number of complications than adult mothers.

* Teenage pregnancy had higher incidence of congenital anomalies (1.5%) than adult mothers (1.1%).

Objectives

* This study was conducted to evaluate the incidence and types of fetal congenital anomalies among pregnant teenagers at Srinagarind Hospital, Khon Kaen University, Thailand.

Study Design

Retrospective descriptive study

Materials and Methods

• The medical records of pregnant teenagers who delivered in Srinagarind Hospital, Khon Kaen University during January 2003 to April 2013 were reviewed.

Materials and Methods

• Abstracted data included
  * Baseline characteristics of patients
  * Incidence of fetal congenital anomalies
  * Types of fetal congenital anomalies.

• Adult pregnant women were excluded from the present study (more than 20 years old).

Statistical Analysis

• Descriptive statistics were used for reporting
  * Demographic data
  * Incidence of fetal congenital anomalies
  * Types of fetal congenital anomalies among teenage pregnancy.

• A 95% confidence interval (CI) were calculated to determine the precision of data.

Results

• The records of 1,497 pregnant teenagers were reviewed.

• Fetal congenital anomaly was detected in 51 women.

• Incidence of fetal congenital anomaly was 3.41% (95% CI, 2.54 - 4.45%).
# Results

## Table 1. Baseline Characteristics of participants

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age, SD (years)</td>
<td>17.4 (1.5)</td>
</tr>
<tr>
<td>Gravidity</td>
<td></td>
</tr>
<tr>
<td>Primigravidity</td>
<td>46 (90.2)</td>
</tr>
<tr>
<td>Multigravidity</td>
<td>5 (9.8)</td>
</tr>
<tr>
<td><strong>BMI (kg/m²)</strong></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>=&lt; 18.50</td>
</tr>
<tr>
<td>Normal</td>
<td>18.50 - 24.99</td>
</tr>
<tr>
<td>Overweight</td>
<td>≥ 25.00</td>
</tr>
<tr>
<td>Obese</td>
<td>≥ 30.00</td>
</tr>
<tr>
<td><strong>Underlying disease</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>50 (98.0)</td>
</tr>
<tr>
<td>Hemoglobin E trait</td>
<td>1 (2.0)</td>
</tr>
</tbody>
</table>

## Table 2. Incidence and types of fetal congenital anomalies among pregnant teenager at Srinagarind Hospital (N=51)

<table>
<thead>
<tr>
<th>Types of congenital anomalies</th>
<th>Number (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulatory/respiratory anomalies</td>
<td></td>
</tr>
<tr>
<td>Congenital cystic adenomatoid</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td>malformation</td>
<td>0.002-0.37</td>
</tr>
<tr>
<td>Hypoplastic left heart</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td>Conjoint twins</td>
<td>0.002-0.37</td>
</tr>
<tr>
<td>Single umbilical artery</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td>Hydrops fetalis</td>
<td>2 (0.13)</td>
</tr>
<tr>
<td></td>
<td>0.02-0.48</td>
</tr>
<tr>
<td>Gastrointestinal anomalies</td>
<td>22 (1.47)</td>
</tr>
<tr>
<td>Gastroschisis</td>
<td>20 (1.34)</td>
</tr>
<tr>
<td>Omphalocele</td>
<td>2 (0.13)</td>
</tr>
<tr>
<td>Renal agenesis</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td>Bladder outlet obstruction</td>
<td>2 (0.13)</td>
</tr>
<tr>
<td>Polycystic kidney disease</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td>Nephroblastoma</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td></td>
<td>0.002-0.37</td>
</tr>
</tbody>
</table>

## Discussion

It is generally acknowledged that advanced maternal age (above 35 years old) is associated with increased risk of adverse birth outcome and congenital anomalies.
**Discussion**

*The information on the association of teenage pregnancy with increased congenital anomalies is not widely known.*


**Discussion**

*The incidence of congenital anomalies in our study was 3.41 % (95% CI, 2.54-4.45%).


**Discussion**

*The most common congenital anomalies was

- Gastrointestinal defects (1.47%)
- Central nervous system anomalies (1.13%)
- Circulatory and respiratory anomalies (0.40%).


**Discussion**

*The incidence of congenital anomalies in our study was 3.41 % (95% CI, 2.54-4.45%).

*Compared with previous study conducted in Bangkok, Thailand to evaluate the outcomes of teenage pregnancy

*The incidence of fetal anomalies in our study was slightly higher (3.4% versus 1.5%).


**Discussion**

*The most common type of congenital anomalies in our study was fetal gastroschisis (1.34%).

*Similarly, a previous study conducted by Eckmann-Scholz et al also noted that fetal gastroschisis was the most common fetal congenital anomalies among pregnant teenagers (1.41%).


**Discussion**

*Difference of the incidence of congenital anomalies may be secondary to a difference of patients’ characteristics of each setting population.*


**Discussion**

*Previous study conducted among US pregnant adolescents reported that the most common congenital anomalies was

- Musculoskeletal anomalies (0.51%)
- Circulatory and respiratory anomalies (0.22%)
- Urogenital anomalies (0.20%)
- Gastrointestinal anomalies (0.12%)
- Central nervous system anomalies (0.09%), respectively.

Discussion

- The common gastrointestinal anomalies noted in such series were gastroschisis or omphalocele (0.07%) which was notably low when compared to our study.
- The type distribution anomalies vary between each population.

Limitations

- Retrospective data collection, some potential factors associated with the background risk of fetal congenital anomalies among the study population could not be determined.

Discussion

- The underlying mechanisms by which teenage pregnancy may contribute to an increased risk of congenital anomalies remained unknown and merits for further study.

Limitations

- This study derived from hospital-based data.
- Some congenital anomalies were discovered after postpartum period i.e. minor heart defects, the incidence reported herein may be slightly underestimated.

Conclusion

- The incidence of fetal congenital anomaly was 3.41%.
- The most common congenital anomaly was gastrointestinal defected (1.47%).
- The most common type-specific anomaly was fetal gastroschisis (1.34%).

Conclusion

- Our findings have direct implications for determining an appropriateness of prenatal counseling among pregnant teenagers.
Thank you!