

The Role of Osteoprotegerin in Fetal Growth and Gestational Age

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Introduction

What is Amniotic Fluid?

- Amniotic fluid (AF) is a novel marker of fetal growth
- Osteoprotegerin (OPG) is a glycoprotein that regulates skeletal development
- OPG is detectable in AF (Lonergan et al. 2003)
- OPG has not been linked to fetal growth outcomes



Objectives

- **Purpose:**

- Determine **sensitivity** of plasma vs. cell culture assays of Biomedica Gruppe ELISA kit for measurement of AF OPG
- **Feasibility study** to establish AF OPG as a biomarker of skeletal development

- **Hypothesis:**

- OPG levels in human AF can be used as a biomarker of **fetal growth**
- There is a **relationship** between OPG levels in 60 2nd trimester AF samples and fetal birth weight

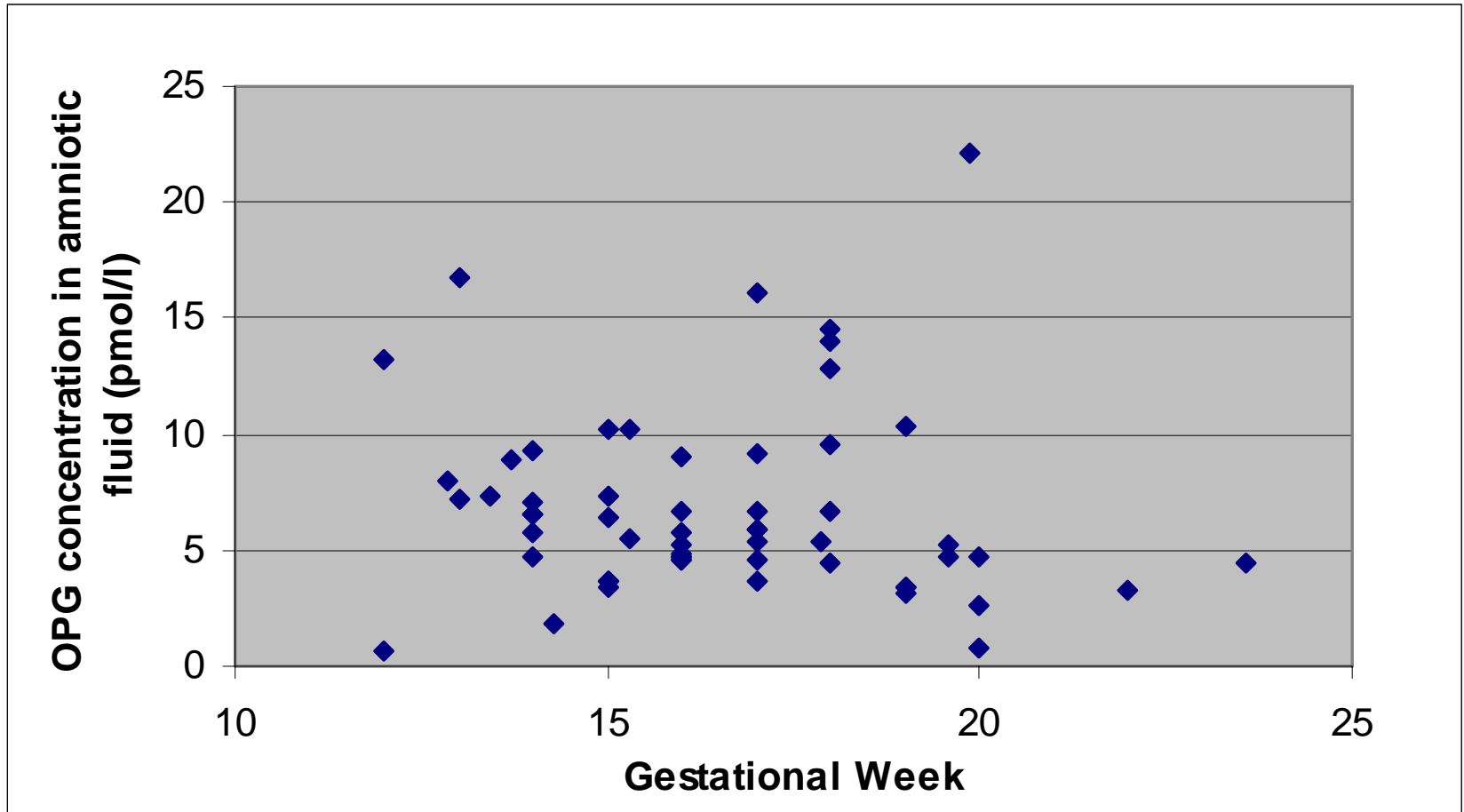


Methodology

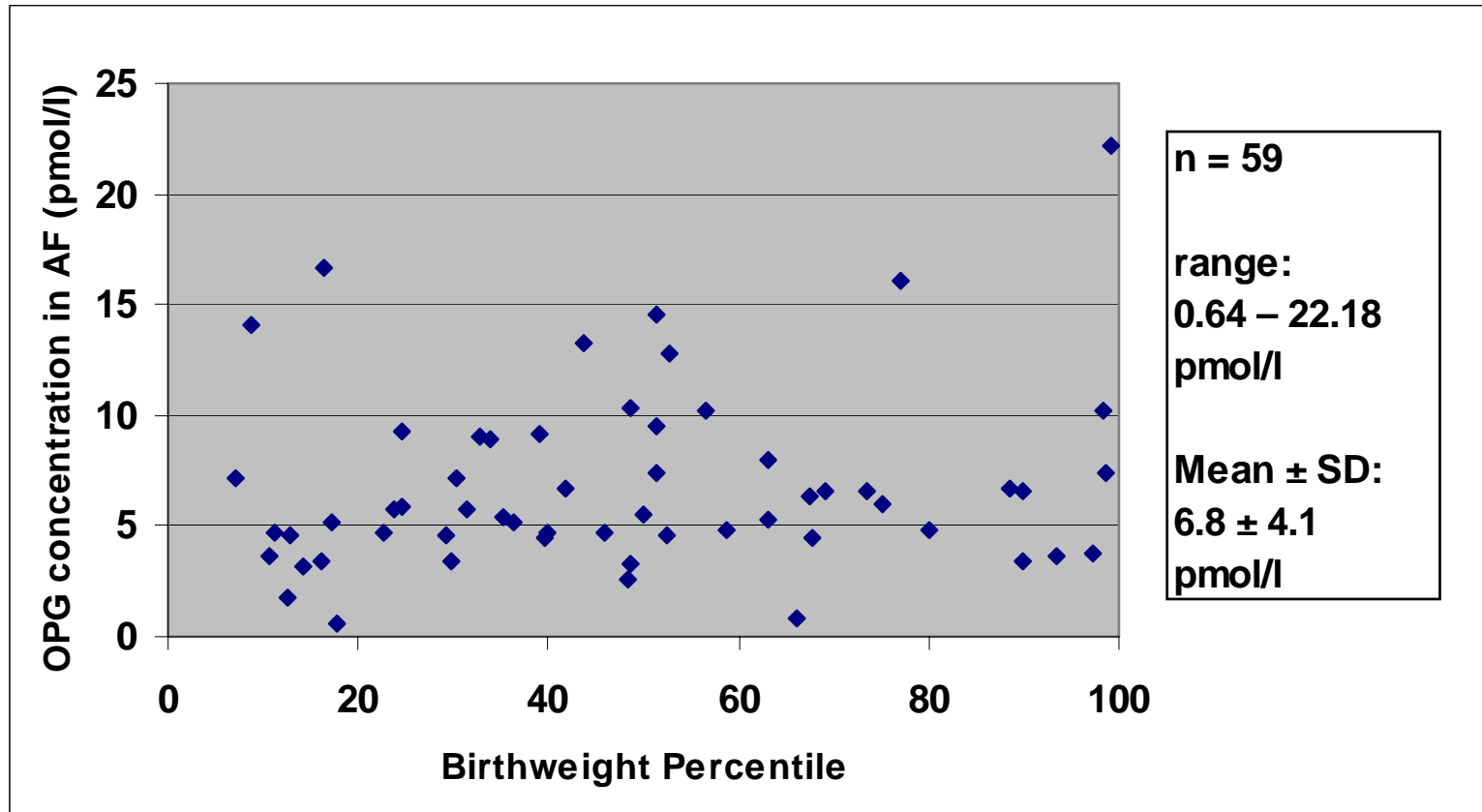
- 2nd trimester AF samples (n=59)
 - Sampled at gestational weeks 12 – 23.5 ($\bar{X} = 16.5 \pm 2.5$ wk)
 - Included babies of various birth weights
- Enzyme Linked ImmunoSorbent Assay (ELISA)
 - Cell Culture Assay used for measuring AF
- Standard curve fitting/data extrapolation performed using **GraphPad Prism**



AF OPG concentration between 10 and 25 weeks gestation



AF OPG concentration vs. Fetal Birth Weight



Conclusions

- OPG is detectable in AF using a modified ELISA
- Wide range of OPG concentrations in AF
- Promising biomarker of fetal growth



Future Work

- Continued recruiting of new subjects and more advanced statistical analysis
- Association of OPG concentration with ultrasound measurements of fetal growth and maternal dietary intake



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