Prevalence, Incidence, and Risk Factors for GERD in Pregnancy

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Background

- Previous studies have estimated the prevalence of GERD in pregnancy to be 30-50%.[1,2]
- Several studies were limited by small sample sizes and the use of non-validated tools for assessment of GERD symptoms.[3,4]
- Prevalence, incidence, risk factors and distress for GERD in pregnancy have not been assessed during each trimester using a validated instrument.

Aims

- To examine the prevalence, incidence and risk factors for GERD in pregnancy
- To examine distress related to GERD in pregnancy

Methods

150 pregnant women were recruited from 3 Obstetrics and Gynecology practices in Ann Arbor, Michigan between April 2003 to June 2004.

Inclusion criteria

- Less than 12-5/7 weeks gestation
- 18 years and older

Exclusion criteria

- Greater than 12-6/7 weeks gestation
- Documented gastric or duodenal ulcer

Data Collection during each trimester and the postpartum period

- Brief medical profile
- Self administered GSAS-Distress Version questionnaire *(Gastroesophageal reflux disease Symptom Assessment Scale)*
  - Validated questionnaire assessing presence and distress of GERD symptoms
  - Internal consistency and reliability (r=.95)[5,6]
  - 15 symptoms with distress scale of 0, 1, 2, 3
- Medical records data extraction

Results

TABLE 1 Demographics

Age (years)	
Mean (SD)	29 years (5.4)
Race	
White	122 (82%)
Non-White	27 (18%)
Gestational type	
Singleton	146 (98%)
Twin	3 (2%)
Attrition	
Pregnancy loss	8 (5%)
Transfer of care	8 (5%)

TABLE 2 Analysis of Predicators of GERD during pregnancy

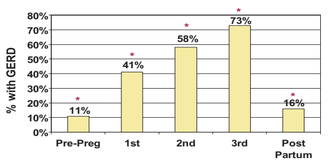
Risk Factors	First trimester		Second trimester		Third trimester	
	Coefficent	p	Coefficent	p	Coefficent	p
BMI	.046	.054†	.054	.047*	.028	.0367*
Age	-.081	.015*	-.090	.012*	-.003	.937

† BMI approached significance as a predictor of GERD in the first trimester and was significant in the second and third trimesters.

* There was an inverse relationship between age and GERD except during the 3rd trimester, when the prevalence of GERD was highest (78%).

• There was no significant relationship between fundal height and GERD.

FIGURE 1 Prevalence in GERD in Pregnancy



The pravalence of GERD increased with each trimester of pregnancy and decreased in the postpartum period (p<.0001).

TABLE 3 Multiple Variable Linear Regression Analysis of Predictors of Distress

Risk Factors	First trimester		Second trimester		Third trimester		Postpartum	
	Unstandardized coefficent	p	Unstandardized coefficent	p	Unstandardized coefficent	p	Unstandardized coefficent	p
Body Mass Index	.011	.055	.012	.020*	.014	.027*		
Age	-.026	.000*	-.024	.001*	-.007	.434		
Diagnosis of GERD before pre-pregnancy	.262	.034*	.471	.000*	.381	.008*	.122	.045*

† With each unit increase in BMI or maternal age, the unstandardized coefficient reflects the amount of increase or decrease in the GSAS distress score.

- BMI approached significance as a predictor of distress related to GERD in the first trimester and was significant in the second and third trimesters.
- There were no significant differences in the following variables related to GSAS Distress Scores
  - Smoking before or during pregnancy
  - Alcohol consumption before pregnancy
  - Caffeine consumption before pregnancy
  - H. Pylori exposure
  - Parity - 0 or more than 1 delivery
- An additional multivariate anlaysis was done which adjusted for confounding variables. The only predictor that remained statistically significant was prior diagnosis of GERD before pregnancy. BMI and age were no longer statistically significant.

FIGURE 2 Incidence of GERD in pregnancy

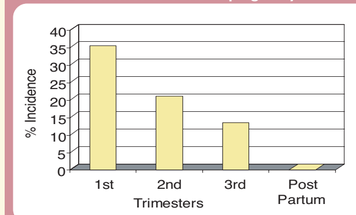
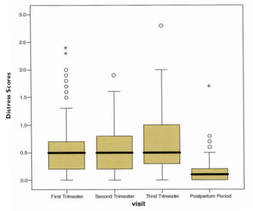


FIGURE 3 GSAS Distress Scores During Pregnancy



Since distress scores were low and did not have a normal distribution, the boxplot provides a clearer visual tool to display the median and variance in distress scores. In addition, because the scores were not normally distributed, we used the nonparametric Wilcoxon signed rank tests and Bonferroni correction for multiple comparisons for each test. Again ranked scores for 2nd and 3rd trimester visits were significant (p< .001) as were ranks between the postpartum visit and all other visits (p<.001).

Conclusions

- The prevalence of GERD increased during pregnancy and reached a peak of 73% during the third trimester.
- The incidence of GERD was highest during the first trimester of pregnancy (36%) and decreased during the second (21%) and third trimesters (14%).
- History of GERD before pregnancy was the only consistently significant predicator for developing GERD distress in pregnancy.
- Distress related to GERD was low overall during pregnancy, however mean distress scores increased significantly between the 2nd and 3rd trimesters and (p<0.005).
- Screening of patients with a prior history of GERD could identify those who are more likely to develop GERD and experience a higher level of distress during pregnancy.

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