Association of Trimester on Management and Outcomes of Adhesive Small Bowel Obstruction During Pregnancy

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Introduction

- Adhesive small bowel obstruction (ASBO) is the third most common cause of non-obstetric laparotomy in pregnant patients.[1]
- Delayed diagnosis can have marked deleterious effects on pregnant patients that require surgical intervention with each day in delay of operation associated with increased odds of preterm labor, preterm delivery, or abortion by 13%.[2]
- Early operation is safe and does not increase maternal infectious or perinatal complications compared to non-operative management[2] emphasizing the importance of timely diagnosis and surgical intervention, but it remains unclear if the benefits of early operative management varies across pregnancy trimester.

Objective

- The objective of this study is to report the association between management and outcomes of ASBO in pregnant patients during each trimester.

Materials and Methods

- The National Inpatient Sample was queried for pregnant women diagnosed with ASBO between October 2015-December 2019.
- Patients were stratified by trimester of pregnancy and categorized into three management strategies: non-operative management (NOM), immediate surgery (within 1 hospital day of admission), or delayed surgery (>1 hospital day).
- Multivariable regression analyzed the association between management strategies and maternal/perinatal complications in each trimester.

Results

	First trimester (n = 130)	Second trimester (n = 205)	Third trimester (n = 670)
Non-operative management	115 (88%)	135 (66%)	490 (73%)
Immediate operation	‡	30 (15%)	110 (16%)
Delayed operation	‡	40 (20%)	70 (10%)

Table 1: Rates of management types by pregnancy trimester

	First trimester (n = 130)	Second trimester (n = 205)	Third trimester (n = 670)	p-value
Age	32 (28, 36)	31 (26, 32)	32 (28, 36)	0.201
vanWalraven comorbidity score	1 (0, 5)	0 (0, 5)	0 (0, 3)	0.206
Maternal complications	5 (3.8%)	30 (15%)	210 (31%)	**0.003**
Premature rupture of membranes	0 (0%)	15 (7.3%)	75 (11%)	0.172
Preterm labor	0 (0%)	‡	‡	0.725
Preterm delivery	0 (0%)	25 (12%)	45 (6.7%)	0.156
Abortion	0 (0%)	‡	‡	0.542

Table 2: Patient characteristics and complications by pregnancy trimester

	NOM (n = 740)	Immediate operation (n = 155)	Delayed operation (n = 115)	p-value
Maternal complications	170 (23%)	15 (9.7%)	60 (52%)	**0.002**
Sepsis	40 (5.4%)	‡	15 (13%)	0.28
Premature rupture of membranes	60 (8.1%)	‡	25 (22%)	0.051
Amniotic infection	‡	0 (0%)	15 (13%)	<**0.001**

Table 3: Complications by management type

Results

	Immediate Surgery			Delayed Surgery		
	OR	95% CI	p-value	OR	95% CI	p-value
Preterm delivery (Second trimester)	5.83	0.28 to 121.23	.247	16.59	1.26 to 218.50	**.034**
Maternal complications (Third trimester)	0.21	0.04 to 0.96	**.044**	2.75	0.86 to 8.83	.088

Table 4: Multivariable Logistic Regression for complications (Non-operative management versus Immediate and delayed surgery)

Discussion

- A majority of patients were treated non-operatively.
- Maternal complications are increased in patients in the third trimester.
- Delayed operation is associated with increased maternal complications.
- Our results suggest that the management of ASBO needs to be individualized based on trimester.
- When operative management is indicated, surgery should not be delayed, highlighting the need for prompt diagnosis and well-defined management strategies to improve outcomes.
- A prospective study to validate our study results will be warranted.
- Patient-centered outcomes (e.g. satisfaction level) related to the management of ASBO will be required.

References

1. Dietrich CS, Hill CC, Hueman M. Surgical diseases presenting in pregnancy. Surg Clin North Am. 2008;88(2):403-19, vii-viii.
2. Ashbrook M, Cheng V, Shah E, Matsuo K, Schellenberg M, Martin M, Inaba K, Matsushima K. Contemporary management of adhesive small-bowel obstruction during pregnancy: A nationwide analysis. 108th Annual American College of Surgeons Clinical Congress. San Diego, California, October 18, 2022.