



Comparative Outcomes Analysis on Low-Risk Pregnancies with or without Labor Induction

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OBJECTIVES

The rate of cesarean deliveries in the United States is between 22% to 38%. Patients who undergo cesarean procedures are at greater risk for excessive blood loss, higher birth costs, maternal mortality, and morbidity. This study aims to evaluate the risk of cesareans, overall survival, and postpartum depression within low-risk pregnant patients with labor induction compared to those without labor induction over 8 years.

METHODS

Low-risk pregnancy patients within the TriNetX federated network of de-identified electronic health record data from 2014-2022 were identified. Data collected included patients with at least one full-term pregnancy between 18-34 years of age while excluding those with comorbidities or potential complications. Patients were categorized by those who had induced labor (N=192,171) and those who did not (N=127,311). Cohorts were 1:1 propensity score-matched to adjust for confounding variables. The risk of cesarian delivery and postpartum depression were evaluated using risk ratios, while overall survival was calculated using a Kaplan-Meier analysis. All criteria were defined using ICD9/10, CPT, and RxNorm terminology.

Figure 1. Measures of Association table showing outcome of cesarean deliveries

Cohort		Cohort Statistics			
Cohort		Patients in Cohort	Patients with Outcome	Risk	
1	Induced group rev 11/17	127,058	30,610	24.091%	
2	Without Induction rev 11/17	127,058	15,341	12.074%	

Risk Difference		Risk Ratio		Odds Ratio			
Risk Difference	95 % CI	z	p	Risk Ratio	95 % CI	Odds Ratio	95 % CI
12.017%	(11.722%,12.313%)	78.7	< 0.0001	1.995	(1.96,2.031)	2.311	(2.263,2.361)

Figure 2. Kaplan-Meier table showing overall survival at 90 days

Cohort		Cohort Statistics		Survival Probability at End of Time Window	
Cohort		Patients in Cohort	Patients with Outcome	Median Survival (Days)	
1	Induced group rev 11/17	127,058	15	-	99.984%
2	Without Induction rev 11/17	127,058	14	-	99.984%

Log-Rank Test		p	
χ ²	df		
0.02	1		0.8879

Figure 3. Measures of Association table showing outcome of postpartum depression

Cohort		Cohort Statistics		
		Patients in Cohort	Patients with Outcome	Risk
1	Induced group rev 11/17	127,058	10,196	8.025%
2	Without Induction rev 11/17	127,058	5,906	4.648%

Risk Difference		Risk Ratio		Odds Ratio			
Risk Difference	95 % CI	z	p	Risk Ratio	95 % CI	Odds Ratio	95 % CI
3.376%	(3.187%,3.565%)	34.933	<0.0001	1.726	(1.674,1.781)	1.79	(1.732,1.85)

Figure 4. Baseline Characteristics table

Baseline Characteristics	Before Matching		After Matching	
	Induced	Without	Induced	Without
Mean Age ± SD at Index Event	27.12 ± 4.53	26.69 ± 4.64	26.71 ± 4.64	26.7 ± 4.64
White	62.63%	60.30%	59.02%	60.29%
Not Hispanic or Latino	45.96%	43.91%	44.12%	43.99%
Unknown Ethnicity	41.15%	38.97%	38.49%	39.04%
Unknown Race	18.63%	18.35%	20.01%	18.36%
Hispanic or Latino	12.90%	17.12%	17.39%	16.97%
Black or African American	12.74%	16.40%	16.14%	16.43%
Asian	5.36%	4.18%	4.18%	4.19%
America Indian or Alaska Native	0.30%	0.55%	0.44%	0.50%
Native Hawaiian or Other Pacific Islander	0.34%	0.23%	0.22%	0.23%

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