



Does ethnicity and timing of induction in postdate pregnancy affect maternal and fetal outcome? : A cross sectional study from the National Obstetrics Registry Malaysia



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OBJECTIVES

In Malaysia, a postdate pregnancy is any pregnancy that extends beyond 40 weeks gestation. Various colleges recommend inducing postdates pregnancies by 14 days; and this is supported by several studies showing that induction of labour at or from 41 weeks reduces perinatal morbidity without increasing caesarean section (CS) rates or other adverse outcomes. In Malaysia there is some anecdotal evidence suggesting that Indians may benefit from earlier induction. The Malaysian CPG on induction, however, does not recommend any variation in the timing based on ethnicity. Some hospitals practice induction at 40 weeks +3 days for the Indians, 40 weeks +6 days for the Malays and Chinese. Others induce everyone at 41 weeks. Unfortunately, the question has not been formally examined. The NOR data provides an opportunity to correct this oversight.

RESULTS

Around 20% of all pregnancies are postdated. There was no evidence that there was an ethnicity, gestational age interaction effect for any outcome. However, later gestational age was significantly associated with increasing odds of NICU admission and fetal distress. Postdate Chinese neonates had significantly lower odds of NICU admission than Malay.

CONCLUSION

This study did not show race to gestation interaction effect for any of the outputs. We may not be seeing a drop in quality of outcomes as it may be that each baby is being induced at just the right time.

REFERENCE

1. Induction of labour for improving outcomes for women, WHO
2. Induction of labour for improving birth outcomes for women at or beyond term, Cochrane review, 2007 Gulmeaglu AM, Middleton P

METHODS

This is a retrospective cohort study using data from the National Obstetrics Registry (NOR). NOR is a clinical data base that compiles obstetric data from 14 tertiary hospitals in Peninsular and East Malaysia. Specific variables were analysed against the 3 major ethnic groups in Malaysia namely Malay, Chinese and Indians to see if timing of induction by ethnicity has any significant association with outcomes. The study period was from 1st January 2011 to 31st Dec 2012. The analysis was performed using STATA statistical software. Descriptive statistics were obtained initially followed by simple logistic regression; p-values < 0.05 were treated as significant.

Sample frame/exclusion criteria – gestational age >40+3, Malay Indian and Chinese ethnic mothers only. Outcome variables that were explored were Apgar <7 at 1 and 5 minutes, Fetal distress and admission to NICU, Fresh and macerated stillbirths. The general analytic strategy used multinomial logistic regression. Ethnicity, gestational age, and the interaction of ethnicity by gestational age were treated as the principle explanatory variables. Other factors were treated as covariates.

Table shows ethnicity and gestational age interaction effect with outcomes

		Apgar 5 min Score						P value ^a			Apgar 1 min Score						P value ^a
		<7		>7		OR	(95% CI)				<7		>7		OR	(95% CI)	
Race		n	%	n	%				n	%	n	%					
	Malay	2334	1.3	171904	98.7	1.000		0.811		9840	5.6	165015	94.4	1.000		0.088	
	Chinese	262	1.7	15452	98.3	1.360	(0.53 3.51)		1023	6.5	14777	93.5	1.549	(1.02 2.36)			
	Indian	201	1.6	12178	98.4	1.110	(0.39 3.19)		876	7.1	11537	92.9	1.292	(0.81 2.06)			
Gestational Week	40+3	47	1.1	4335	98.9	1.000		0.300	40+3	245	5.6	4155	94.4	1.000		0.013	
	40+4	44	1.2	3623	98.8	1.338	(0.85 2.12)		40+4	212	5.8	3463	94.2	1.152	(0.93 1.43)		
	40+5	28	0.9	3205	99.1	1.015	(0.61 1.69)		40+5	146	4.5	3100	95.5	0.965	(0.76 1.22)		
	40+6	34	0.9	3551	99.1	1.040	(0.64 1.69)		40+6	195	5.4	3412	94.6	1.007	(0.81 1.26)		
	40+7	46	1.2	3865	98.8	1.256	(0.80 1.98)		40+7	213	5.4	3711	94.6	1.069	(0.86 1.32)		
	40+8	40	1.4	2909	98.6	1.610	(1.01 2.56)		40+8	156	5.3	2801	94.7	1.060	(0.84 1.34)		
	40+9	25	1	2362	99.0	1.086	(0.63 1.87)		40+9	168	7.0	2227	93.0	1.443	(1.15 1.81)		
	40+10	28	1.5	1834	98.5	1.729	(1.03 2.90)		40+10	117	6.3	1748	93.7	1.367	(1.06 1.76)		
	>=40+11	63	1.1	5500	98.9	1.321	(0.87 2.02)		>=40+11	332	6.0	5244	94.0	1.100	(0.90 1.34)		
Race * Gestational Week								0.995								0.166	
Note : ^a Simple Logistics Regression; OR = odds ratio; 95% CI = 95% confidence interval.								Note : ^a Simple Logistics Regression; OR = odds ratio; 95% CI = 95% confidence interval.									
# Adjusted with HPT, DM, Heart Disease, Body Weight, Congenital Anomaly								# Adjusted with HPT, DM, Heart Disease, Body Weight, Congenital Anomaly									
		FSB						P value ^a			NICU						P value ^a
		Yes		No		OR	(95% CI)				Yes		No		OR	(95% CI)	
Race		n	%	n	%				n	%	n	%					
	Malay	354	0.2	179718	99.8	1.000		>0.999		15778	8.9	160742	91.1	1.000		0.026	
	Chinese	33	0.2	16091	99.8				1108	7.0	14624	93.0	0.483	(0.28 0.84)			
	Indian	50	0.4	12645	99.6				1141	9.1	11369	90.9	0.784	(0.49 1.24)			
Gestational Week	40+3	2	0.0	4471	100.0	1.000		0.515	40+3	315	7.2	4068	92.8	1.000		<0.001	
	40+4	3	0.1	3740	99.9	1.676	(0.28 10.16)		40+4	234	6.4	3450	93.6	0.867	(0.71 1.05)		
	40+5	1	0.0	3301	100.0	0.755	(0.07 8.37)		40+5	185	5.7	3040	94.3	0.839	(0.68 1.03)		
	40+6	2	0.1	3688	99.9	1.198	(0.17 8.66)		40+6	234	6.5	3389	93.5	0.905	(0.75 1.10)		
	40+7	6	0.2	3989	99.8	3.607	(0.72 18.00)		40+7	236	6.0	3680	94.0	0.857	(0.71 1.04)		
	40+8	2	0.1	3001	99.9	1.636	(0.23 11.69)		40+8	192	6.5	2754	93.5	0.920	(0.75 1.12)		
	40+9	3	0.1	2441	99.9	3.124	(0.52 18.84)		40+9	153	6.4	2239	93.6	0.863	(0.70 1.07)		
	40+10	3	0.2	1905	99.8	3.141	(0.51 19.27)		40+10	93	5.0	1782	95.0	0.674	(0.52 0.87)		
	>=40+11	11	0.2	5751	99.8	3.485	(0.76 15.96)		>=40+11	285	5.1	5343	94.9	0.616	(0.51 0.74)		
Race * Gestational Week								>0.999								0.430	
Note : ^a Simple Logistics Regression; OR = odds ratio; 95% CI = 95% confidence interval.								Note : ^a Simple Logistics Regression; OR = odds ratio; 95% CI = 95% confidence interval.									
# Adjusted with HPT, DM, Heart Disease, Body Weight, Congenital Anomaly								# Adjusted with HPT, DM, Heart Disease, Body Weight, Congenital Anomaly									
		MSB						P value ^a			Fetal Distress						P value ^a
		Yes		No		OR	(95% CI)				Yes		No		OR	(95% CI)	
Race		n	%	n	%				n	%	n	%					
	Malay	890	0.5	179182	99.5	1.000		>0.999		18700	10.4	161372	89.6	1.000		0.457	
	Chinese	60	0.4	16064	99.6				1808	11.2	14316	88.8	0.855	(0.55 1.34)			
	Indian	86	0.7	12609	99.3				2051	16.2	10644	83.8	0.796	(0.53 1.19)			
Gestational Week	40+3	5	0.1	4468	99.9	1.000		0.645	40+3	625	14	3848	86	1.000		<0.001	
	40+4	4	0.1	3739	99.9	0.636	(0.15 2.70)		40+4	530	14.2	3213	85.8	1.039	(0.85 1.26)		
	40+5	1	0.0	3301	100.0	0.308	(0.04 2.65)		40+5	463	14	2839	86	1.006	(0.82 1.23)		
	40+6	1	0.0	3689	100.0	0.270	(0.03 2.33)		40+6	567	15.4	3123	84.6	1.006	(0.83 1.22)		
	40+7	2	0.1	3993	99.9	0.247	(0.03 2.13)		40+7	582	14.6	3413	85.4	1.020	(0.84 1.23)		
	40+8	4	0.1	2999	99.9	0.997	(0.24 4.22)		40+8	497	16.6	2506	83.4	1.165	(0.95 1.42)		
	40+9	1	0.0	2443	100.0	0.395	(0.05 3.42)		40+9	397	16.2	2047	83.8	0.974	(0.79 1.20)		
	40+10	3	0.2	1905	99.8	1.362	(0.32 5.84)		40+10	283	14.8	1625	85.2	1.013	(0.80 1.28)		
	>=40+11	11	0.2	5751	99.8	1.075	(0.36 3.21)		>=40+11	739	12.8	5023	87.2	0.640	(0.54 0.76)		
Race * Gestational Week								>0.999								0.575	
Note : ^a Simple Logistics Regression; OR = odds ratio; 95% CI = 95% confidence interval.								Note : ^a Simple Logistics Regression; OR = odds ratio; 95% CI = 95% confidence interval.									
# Adjusted with HPT, DM, Heart Disease, Body Weight, Congenital Anomaly								# Adjusted with HPT, DM, Heart Disease, Body Weight, Congenital Anomaly									