

# A RETROSPECTIVE ANALYSIS OF SHOULDER DYSTOCIA TO GESTATIONAL DIABETES MELLITUS.



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## BACKGROUND REVIEW

Shoulder dystocia is an obstetric emergency that is poorly predicted. Incidence varies from 0.6% to 1.4 % in babies weighing 2500- 4000g and higher in babies weighing more than 4000g.

## OBJECTIVES

This is a retrospective review to study the incidence of shoulder dystocia in Malaysian tertiary hospitals.

## METHODS

Data was obtained from the National Obstetrics Registry and the study period was from 1<sup>st</sup> January 2011 to 31<sup>st</sup> December 2012. A total of 260,959 cases from 14 state hospitals in Malaysia were analyzed. Statistical analysis was performed using IBM SPSS statistics version 20 and variables were assessed by simple logistics regression.

Variables	2011		2012	
	n	(%)	n	(%)
Age, Mean(SD)	30.3	(5.70)	29.8	(5.28)
Ethnicity				
Malay	180	(76.6)	172	(76.4)
Chinese	13	(5.5)	11	(4.9)
Indian	9	(3.8)	13	(5.8)
Others	12	(5.1)	12	(5.3)
Not Available	21	(8.9)	17	(7.6)
Marital status				
Unmarried	3	(1.3)	2	(0.9)
Married	221	(98.7)	216	(99.1)
Citizenship status				
Citizen	213	(90.6)	208	(92.4)
Non-citizen	22	(9.4)	17	(7.6)

Table I: Demographic statistics of variables

Variables	2011		2012	
	n	(%)	n	(%)
Birthweight				
<1000	2	(0.2)	-	-
1001-1500	-	-	-	-
1501-2000	-	-	-	-
2001-2500	1	(0.0)	1	(0.0)
2501-3000	16	(0.0)	13	(0.0)
3001-3500	59	(0.1)	39	(0.1)
3501-4000	106	(0.8)	106	(0.8)
>4000	51	(1.3)	66	(1.8)
Gravida				
1	43	(18.4)	35	(15.6)
2 to 5	175	(74.8)	173	(76.9)
>5	16	(6.8)	17	(7.6)
Blood Group				
O	82	(34.9)	77	(34.2)
A	62	(26.4)	58	(25.8)
B	73	(31.1)	67	(29.8)
AB	14	(6.0)	13	(5.8)
Not Available	4	(1.7)	10	(4.4)
Previous shoulder dystocia				
Yes	2	(0.9)	2	(0.9)
No	227	(99.1)	223	(99.1)
BMI (WHO)				
<18.5	4	(1.7)	2	(0.9)
18.5-24.9	72	(30.8)	52	(23.1)
25.0-29.9	92	(39.3)	84	(37.3)
30.0-34.9	45	(19.2)	56	(24.9)
35.0-39.9	18	(7.7)	19	(8.4)
>40	3	(1.3)	12	(5.3)
Type of Delivery				
Vaginal	189	(80.4)	191	(84.9)
Instrumental	36	(15.3)	30	(13.3)
Caesarean	5	(2.1)	3	(1.3)
Not Available	5	(2.1)	1	(0.4)
POA				
<24	-	-	1	(0.4)
25-28	-	-	-	-
29-32	-	-	2	(0.9)
33-36	8	(3.4)	9	(4.0)
37-40	157	(66.8)	179	(79.6)
>40	70	(29.8)	34	(15.1)
Conducted by				
Specialist	40	(17.0)	49	(21.8)
Medical Officer with > 6 months O&G experience	128	(54.5)	129	(57.3)
Medical Officer with < 6 months O&G experience	14	(6.0)	6	(2.7)
Staff Nurse	27	(11.5)	27	(12.0)
Community nurse/ Government Midwife / JD	8	(3.4)	5	(2.2)
Other Medical Officer (House officer)	12	(5.1)	7	(3.1)
Others	1	(0.4)	1	(0.4)
Not Available	5	(2.1)	1	(0.4)

Table II: Descriptive statistics of variables

Variables	2011			2012		
	Crude OR	(95% CI)	P value	Crude OR	(95% CI)	P value
Age	1.05	(1.03,1.07)	< .001	1.03	(1.01,1.06)	0.004
Body Mass Index	1.05	(1.03,1.07)	< .001	1.07	(1.06,1.09)	< .001
Parity	1.06	(1.01,1.11)	0.010	1.11	(1.03,1.18)	0.003
Ethnicity			0.001			0.018
Malay	1.00	(ref.)		1.00	(ref.)	
Chinese	0.79	(0.45,1.38)		0.73	(0.40,1.34)	
Indian	0.72	(0.37,1.41)		1.05	(0.60,1.84)	
Others	0.37	(0.21,0.67)		0.47	(0.26,0.84)	
<b>Mother - complications</b>						
Genital Tract Trauma			0.609			< .001
No	1.00	(ref.)		1.00	(ref.)	
Yes	0.92	(0.67,1.27)		1.87	(1.43,2.47)	
Primary Postpartum Hemorrhage			0.173			0.077
No	1.00	(ref.)		1.00	(ref.)	
Yes	2.21	(0.71,6.92)		2.80	(0.90,8.79)	
<b>Baby - complications</b>						
None			< .001			< .001
No	1.00	(ref.)		1.00	(ref.)	
Yes	0.04	(0.02,0.06)		0.03	(0.02,0.04)	
Asphyxia			< .001			< .001
No	1.00	(ref.)		1.00	(ref.)	
Yes	8.82	(5.02,15.49)		10.63	(6.27,18.02)	
Birth Injuries			NA*			< .001
No				1.00	(ref.)	
Yes				34.71	(8.27,145.70)	

Table III: Factors associated with shoulder dystocia using simple logistic regression

Note: OR = Odds Ratio;

CI = Confidence Interval;

\* The assumptions of Simple Logistics Regression were not met, there must be at least two cases for each category of the dependent.

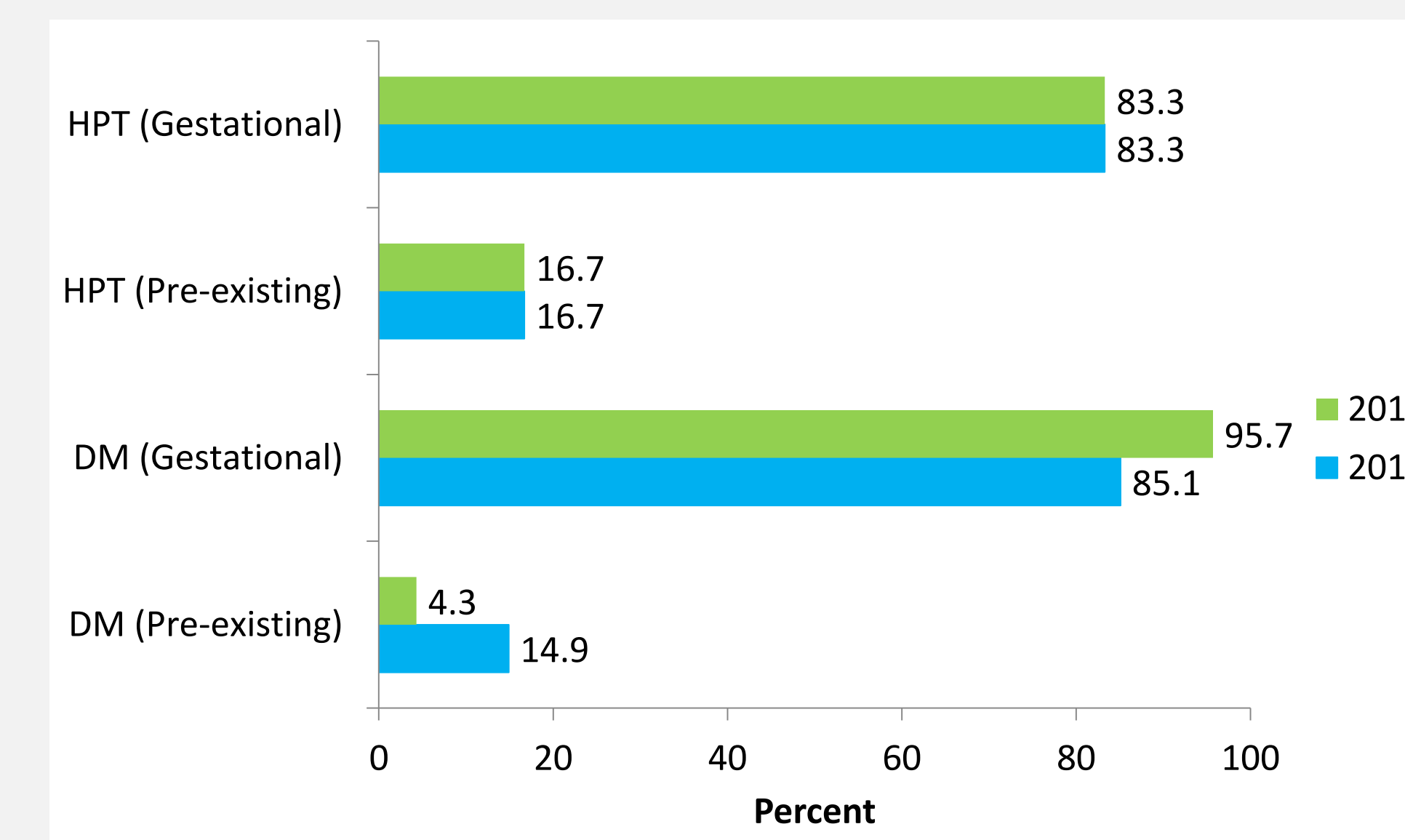


Figure I: Medical Problem

## RESULTS

A total of 235 cases in 2011 and 225 in 2012 were reviewed. The incidence of shoulder dystocia was 0.17% to 0.18%, which was lower in comparison to other studies. 75% of the cases occurred in women with a BMI of 25 to 29.9 and more in both years. More than 90% of women who had shoulder dystocia had Gestational Diabetes Mellitus (GDM) and more than 80% had Gestational hypertension in 2012. Shoulder dystocia was 20x more common with GDM than Pre-existing Diabetes Mellitus in 2012. The mean age of women was 30 years and commonly seen in women with BMI of 25.0-29.9.

Genital tract trauma was not significantly associated with shoulder dystocia in 2011 but was statistically significant in 2012, OR 1.87, 95% CI (1.43-2.47) was significantly increased in those with shoulder dystocia. Almost all cases didn't have a history of previous shoulder dystocia and 75% of cases were handled by doctors.

## CONCLUSION

Women at risk of shoulder dystocia are those in their thirties, overweight, obese with underlying GDM and gestation Hypertension. One third of women in this study, however were not overweight but complicated with shoulder dystocia. Women with GDM should be counselled for good glycaemic control during pregnancy. All categories of staff handling women in labour must be adequately trained to anticipate, diagnose and manage this obstetric emergency.