

Abstract

Objective: To identify the incidence of spontaneous preterm birth (SPTB) and indications for delivery in women with twin pregnancy stratified by chorionicity (monochorionic diamniotic and dichorionic diamniotic pregnancy).

Study Design: Multicenter retrospective cohort of all consecutive twin gestations from 2010 to 2017. They were stratified by chorionicity monochorionic diamniotic and dichorionic diamniotic pregnancy: Primary outcome was SPTB < 37 weeks. Secondary outcome was SPTB at <34, 32, and <28 weeks, gestational age at delivery and indications for delivery: maternal and fetal. Analysis: t-test, Fisher’s exact test and multivariable logistic regression.

Results: 510 women with twin pregnancies were identified. 158 (30.9%) were monochorionic diamniotic pregnancies; and 352 (69.0%) were dichorionic pregnancies. The gestational age at delivery was significantly shorter in the monochorionic compared to the dichorionic group of about 2 weeks (MD -2.20 weeks, 95% CI -2.76 to -1.64). Twins with a monochorionic pregnancy had a significantly higher risk of SPTB <37, <34 and <32 weeks. They also have higher incidence of fetal indication for delivery and increased spontaneous onset of labor at any given gestational age. Maternal complications were similar on both types of twin pregnancies **Conclusion:** Twins with monochorionic pregnancy had a higher rate of SPTB <37, <34 and <32 weeks and fetal indications for preterm delivery compared with dichorionic pregnancies. This information will assist in counseling patients with twin pregnancy regarding their individual, maternal, fetal and SPTB risk at different gestational ages.

Background

- Preterm birth rates for twins in United States in 2015 for <37 , <34 and <32 weeks were 59%, 17% and 9%.
- Multiple gestations are at increased risk for both SPTB and indicated PTB due to maternal and fetal reasons
- Monochorionic diamniotic (MC/DA) twins have higher incidence of preterm birth, mostly due to fetal indications
- Spontaneous preterm birth (SPTB) by chorionicity has not been clearly determined

Objective

To identify the incidence of spontaneous preterm birth (SPTB) and indications for delivery in women with twin pregnancy stratified by chorionicity

Study Design

- Multicenter retrospective cohort
- Inclusion criteria: All diamniotic twin gestations delivered from 1/2010 to 6/2016
- Exclusion criteria: fetal reduction before 14 weeks to singleton, monoamniotic pregnancies
- Primary outcome was SPTB <37 weeks stratified by chorionicity MC/DA and DC/DA pregnancy
- Secondary outcome were SPTB at <34, 32, and <28 weeks stratified by chorionicity MC/DA and DC/DA pregnancy, gestational age at delivery and indications for delivery: maternal and fetal.
- Analysis: Fisher’s exact test and multivariable logistic regression. P value <0.05 was considered significant

Results

- 510 women with twin pregnancies were identified
- 158 (30.9%) were MC/DA pregnancies, and 352 (69.0%) were DC/DA pregnancies
- Maternal demographics were not significantly different (Table 1)
- The gestational age at delivery was significantly earlier in the MC/DA compared to the DC/DA group by about 2 weeks (MD -2.20 weeks, 95% CI -2.76 to -1.64)
- MC/DA twin pregnancies had a significantly higher risk of SPTB <37, <34 and <32 weeks. (Table 2)
- Twins with a MC/DA pregnancy have higher incidence of fetal indication for delivery and increased spontaneous onset of labor (Table 3)
- Maternal complications were similar in both types of twin pregnancies

Results

Table 1. Maternal characteristics stratified by chorionicity

	MC/DA N= 158 (30.9%)	DC/DA N= 352 (69.0%)	P value
Maternal age (years)	31.2±4.5	32.4±4.7	0.45
>35 years	41 (25.9%)	100 (28.4%)	0.32
BMI	26.7±6.2	26.4±6.3	0.67
Nulliparity	100 (63.3%)	228 (64.8%)	0.57
Prior SPTB	11 (7.0%)	26 (7.4%)	0.81
Smoking	20 (12.7%)	50 (14.2%)	0.14

Tables 2. Pregnancy outcomes stratified by chorionicity

	MC/DA N= 158 (30.9%)	DC/DA N= 352 (69.0%)	aOR (95% CI) or MD (95% CI)
GA at delivery (weeks)	34.1±2.9	36.3±3.1	-2.20 weeks (-2.76 to -1.64)
PTB <37 weeks	89 (56.3%)	176 (50.0%)	1.22 (1.05 to 1.97)
PTB <34 weeks	56 (35.4%)	80 (22.7%)	1.85 (1.09 to 3.15)
PTB <32 weeks	21 (13.3%)	35 (9.9%)	1.35 (1.07 to 2.47)
PTB <28 weeks	10 (6.3%)	14 (4.0%)	1.55 (0.91 to 4.12)
SPTB <37 weeks	83 (52.5%)	160 (45.5%)	1.17 (1.04 to 1.87)
SPTB <34 weeks	50 (29.7%)	70 (20.5%)	1.69 (1.07 to 3.11)
SPTB <32 weeks	18 (11.4%)	28 (8.0%)	1.41 (0.74 to 2.97)
SPTB <28 weeks	8 (5.1%)	11 (3.1%)	1.61 (0.61 to 4.99)

Data are presented as mean ± standard deviation or number (percentage) MC/DA: monochorionic diamniotic pregnancy, DC/DA: dichorionic diamniotic pregnancy
GA: gestational age, BMI: body mass index, PTB: preterm birth, SPTB: spontaneous preterm birth; aOR: adjusted odd ratio; MD: mean difference, CI: confidence interval

Results

Table 3: Indications for delivery stratified by chorionicity

	MC/DA N= 158 (30.9%)	DC/DA N= 352 (69.0%)	aOR (95% CI) or MD (95% CI)*
Maternal indication	26 (16.4%)	45 (12.8%)	1.30 (0.67 to 3.11)
Fetal indication	21 (13.3%)	17 (4.8%)	3.00 (1.5 to 6.03)
Combined	3 (1.9%)	2 (0.6%)	3.06 (0.5 to 23.95)
Planned at term	10 (6.3%)	95 (27.0%)	0.35 (0.20 to 0.76)
Spontaneous onset of labor	98 (62.1%)	193 (54.8%)	1.27 (1.15 to 2.17)

aOR: adjusted odd ratio; MD: mean difference.
*Adjusted for all variables reported in Table 1

Conclusions

Monochorionic diamniotic pregnancies had:

- Higher incidence of spontaneous onset of labor
- Higher rates of SPTB at any gestational age
- Higher incidence of fetal indications for preterm delivery compared with dichorionic pregnancies.

This information will assist in counseling patients with twin pregnancy regarding their individual SPTB risk

References

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