

## Background

- Preterm birth rates for twin pregnancies in United States in 2015 for <37, <34 and <32 weeks were 59%, 17% and 9% respectively
- Monochorionic diamniotic (MC/DA) twins have higher incidence of preterm birth, mostly due to fetal indications.
- A short transvaginal cervical length (TVCL) in twin pregnancies has been associated with increased risk of PTB
- TVCL cut off to calculate the risk of preterm birth in twin pregnancies stratified by chorionicity has not been determined

## Objective

To compare the mean and additional midtrimester TVCL screening cut offs in monochorionic diamniotic (MC/DA) twins and dichorionic diamniotic (DC/DA) twins and to assess the relationship between the TVCL values and spontaneous preterm birth (SPTB)

## Study Design

- Multicenter retrospective cohort
- Prospectively collected database
- Inclusion criteria: All diamniotic twin gestations who underwent routine TVCL exam between 18 0/7 to 23 6/7 weeks from 1/2010 to 6/2016
- Exclusion criteria: fetal reduction before 14 weeks to singleton, monoamniotic pregnancies, women who received progesterone, pessary, or cerclage
- Primary outcome was SPTB <37 weeks by TVCL stratified by chorionicity
- Secondary outcome was SPTB at <34, 32, and <28 weeks by TVCL stratified by chorionicity, gestational age at delivery and indications for delivery: maternal and fetal.
- Analysis: t-test, Fisher's exact test and multivariable logistic regression.

## Results

- 580 women with diamniotic twin pregnancies underwent TVCL screening between 18 0/6 and 23 6/7 weeks. 175 (30.2%) were MC/DA pregnancies and 405 (69.8%) were DC/DA pregnancies
- The mean TVCL was significantly lower in the MC/DA (32.5±10.1) compared to the DC/DA (34.9±7.7) (MD -2.40 mm, 95% CI -4.07 to -0.73), Figure 1
- TVCL was significantly shorter in MC/DA at different cut off values (Table 2)
- MC/DA twin pregnancies had a significantly higher incidence of SPTB <34 weeks (29.7% vs 20.0%; aOR 1.69, 95% CI 1.13 to 2.54) Table 3
- For any given TVCL measured between 18 0-7 and 23 6/7 weeks, gestational age at delivery for MC/DA pregnancies was about 2 weeks earlier compared to the DC/DA pregnancies (MD -2.1 weeks; ANCOVA P <0.001)

## Results

**Table 1.** Maternal characteristics stratified by chorionicity

	MC/DA N= 175 (30.2%)	DC/DA N= 405 (69.8%)	p value or MD 95%CI
Maternal age (years)	31.2±4.7	32.0±5.1	0.10
>35 years	46 (26.3%)	111 (27.4%)	0.78
BMI	26.5±5.5	26.1±7.0	0.46
Multiparity	111 (63.4%)	254 (62.7%)	0.87
Prior SPTB	15 (8.6%)	33 (8.1%)	0.87
Smoking	22 (12.6%)	51 (12.6%)	0.98
GA at TVCL (weeks)	20.9±7.4	20.6±8.8	0.30 (-1.09 to 1.69)

**Table 2.** TVCL measurement stratified by chorionicity

	MC/DA N= 175 (30.2%)	DC/DA N= 405 (69.8%)	aOR or MD (95% CI)
TVCL (mm)	32.5±10.1	34.9±7.7	-2.40 mm (-4.07 to -0.73)
>30mm	146 (83.4%)	357 (88.1%)	0.68 (0.41 to 1.12)
≤30mm	29 (16.6%)	48 (11.9%)	1.48 (1.03 to 2.43)
≤25mm	26 (14.9%)	35 (8.6%)	1.84 (1.07 to 3.17)
≤20mm	18 (10.3%)	19 (4.7%)	2.33 (1.19 to 4.56)
≤15mm	11 (6.3%)	12 (3.0%)	2.31 (1.03 to 5.67)
≤10mm	8 (4.6%)	8 (2.0%)	2.38 (0.88 to 6.44)
≤5mm	7 (4.0%)	4 (1.0%)	4.18 (1.21 to 14.46)

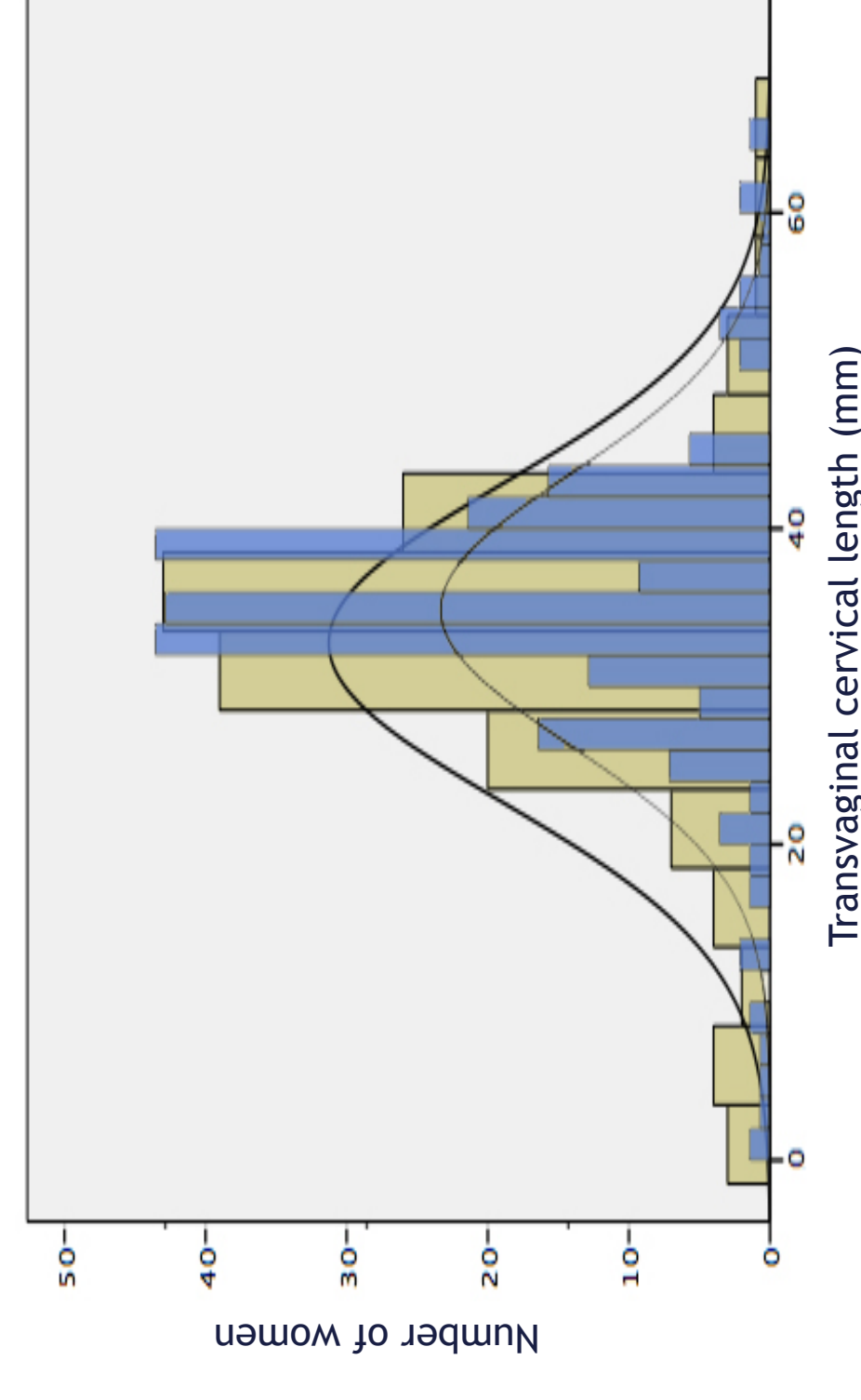
**Table 3.** Pregnancy outcomes stratified by chorionicity

	MC/DA N= 175 (30.2%)	DC/DA N= 405 (69.8%)	aOR or MD (95% CI)
GA at delivery (weeks)	34.0±3.2	36.2±2.9	-2.20 (-2.75 to -1.65)
SPTB <37 weeks	93 (53.1%)	182 (44.9%)	1.39 (1.13 to 1.90)
SPTB <34 weeks	52 (29.7%)	81 (20.0%)	1.69 (1.13 to 2.54)
SPTB <32 weeks	20 (11.4%)	32 (7.9%)	1.50 (0.83 to 2.71)
SPTB <28 weeks	8 (4.6%)	12 (3.0%)	1.67 (0.70 to 5.03)
Indication for delivery			
Maternal	30 (17.1%)	65 (16.1%)	1.05 (0.55 to 1.70)
Fetal	22 (12.6%)	20 (4.9%)	2.49 (1.34 to 5.63)
Spontaneous onset of labor	108 (61.7%)	195 (48.1%)	1.74 (1.21 to 2.49)

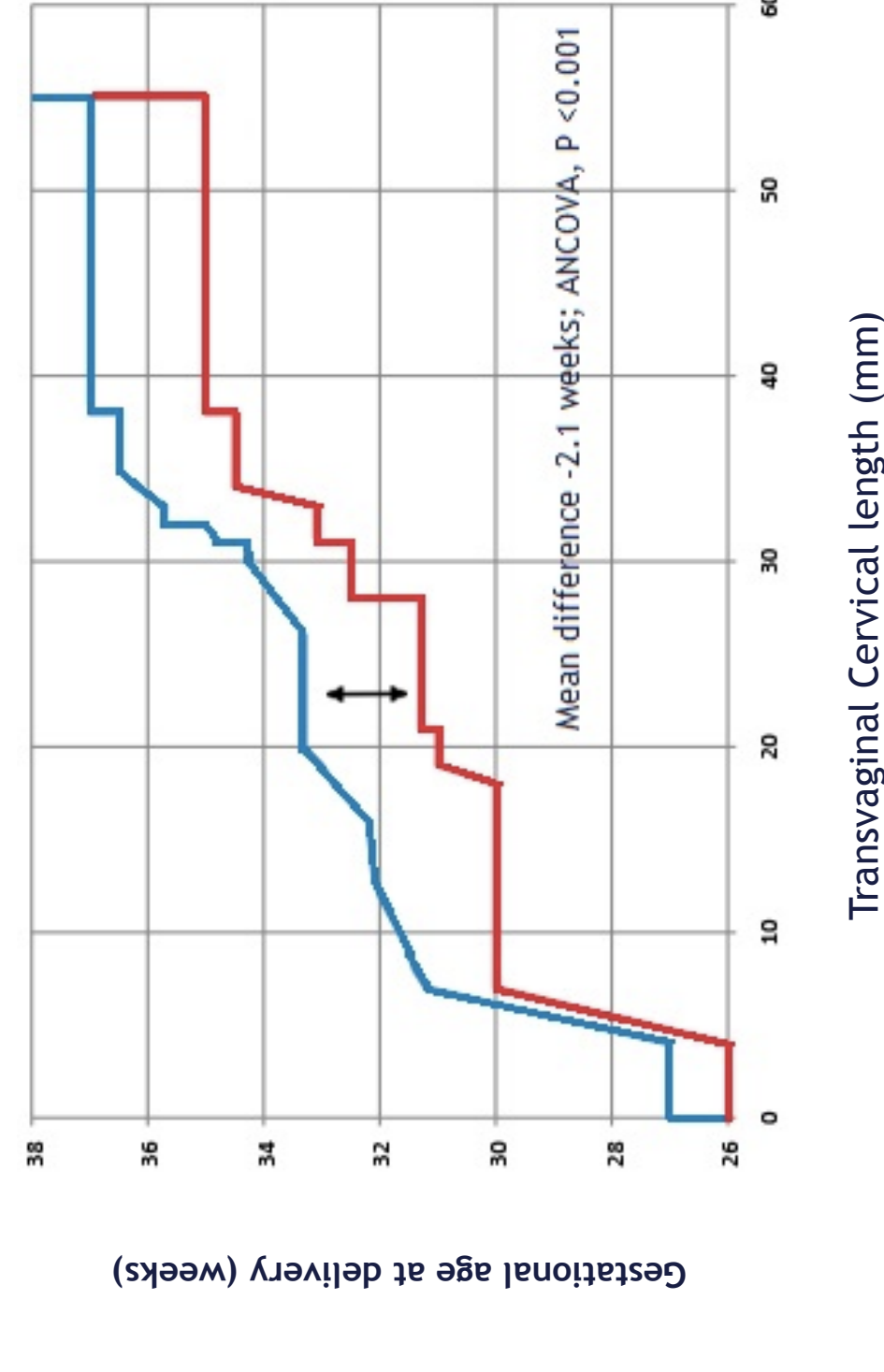
Data are presented as mean ± standard deviation or number (percentage). MC/DA: monochorionic diamniotic. DC/DA: dichorionic diamniotic. BMI: body mass index. SPTB: spontaneous preterm birth; GA: gestational age. TVCL: transvaginal ultrasound length. aOR: adjusted odds ratio. MD: mean difference. CI: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

## Results

**Figure 1:** Distribution of TVCL between 18 0/7 to 23 6/7 weeks. Yellow boxes MC/DA pregnancy. Blue boxes: DC/DA pregnancies



**Figure 2:** Relationship between TVCL between 18 0/7 to 23 6/7 weeks and gestational age at delivery in MC/DA (red line) and DC/DA pregnancy (blue line)



## Conclusion

**Monochorionic diamniotic twins have shorter midtrimester TVCL and earlier GA of delivery at any given TVCL compared to Dichorionic diamniotic twin pregnancies**

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