

Introduction

- sPTB occurs in ~14-15 million pregnancies, with rates continuously rising
- Predicting sPTB allows high risk women to be appropriately managed with prophylactic interventions
- Prophylactic interventions include cervical cerclage, progesterone and the insertion of an Arabin pessary
- Established methods of predicting sPTB include cervicovaginal fetal fibronectin (qfFn) concentrations and ultrasound measurements of cervical length (CL)
- Limited data on the predictive value of these tests in women with an Arabin pessary

Aims

- To determine the clinical use of qfFn and CL measurements to predict sPTB in women treated with an Arabin pessary

Methods

- Secondary analysis of prospectively collected data from 3 sPTB prevention specialised services
- Cases comprised of pregnant women fitted with an Arabin pessary. The matched control group was pregnant women attending the same clinics who had not received an Arabin pessary
- Receiver operating characteristic (ROC) curves for prediction of birth <34 and <37 weeks' gestation were generated for qfFn and CL measurements combined for both study groups.

Results

July 2015- April 2020: 51 women received an Arabin pessary and had a qfFn test result. Of these, 8 women were excluded (no pregnancy outcome, n=3; iatrogenic labour before 37 weeks gestation, n=5). 43 cases were analysed.

	Pessary N=43	Control N=43
BMI, mean (STD)	25.2 (5.7)	28.9(6.2)
Ethnicity, n (%)		
- European	19 (44%)	13 (30%)
- Black African/Caribbean	18 (42%)	20 (47%)
- Asian	4 (9%)	3 (7%)
- other	2 (5%)	4 (9%)
Previous spontaneous SPTB <37 weeks, n (%)	16 (37%)	16 (37%)
Previous PPROM (<37 weeks), n (%)	13 (30%)	13 (30%)
Previous late miscarriage (16-23+6), n (%)	7 (16%)	25 (58%)
Previous cervical surgery, n (%)	18 (42%)	7 (16%)
Index pregnancy		
Antepartum comorbidity, n (%)	3 (7%)	11 (26%)
Labour augmented, n (%)	6 (14%)	10 (23%)
PPROM, n (%)	9 (%)	2 (5%)
GA at delivery, mean (STD)	36.9 (4.2)	37.0 (4.1)
Onset of Labour, n (%)		
- Spontaneous	28 (65%)	30 (70%)
- Induced	6 (14%)	11 (26%)
- No labour	7 (16%)	2 (5%)
- N/A	2 (5%)	0
Mode of Birth, n (%)		
- Elective CS	5 (12%)	2 (5%)
- Spontaneous vaginal	25 (58%)	24 (56%)
- Emergency CS prior to labour	2 (5%)	0
- Instrumental vaginal	4 (9%)	5(12%)
- Emergency CS in labour	6 (14%)	10 (23%)
- NA	0	1 (2%)
Pregnancy outcome, n (%)		
- Live birth	42 (98%)	41 (95%)
- Still birth	1 (2%)	1 (2%)
- NA	0	1 (2%)

Table 1: Demographic data of cases and controls

qfFn

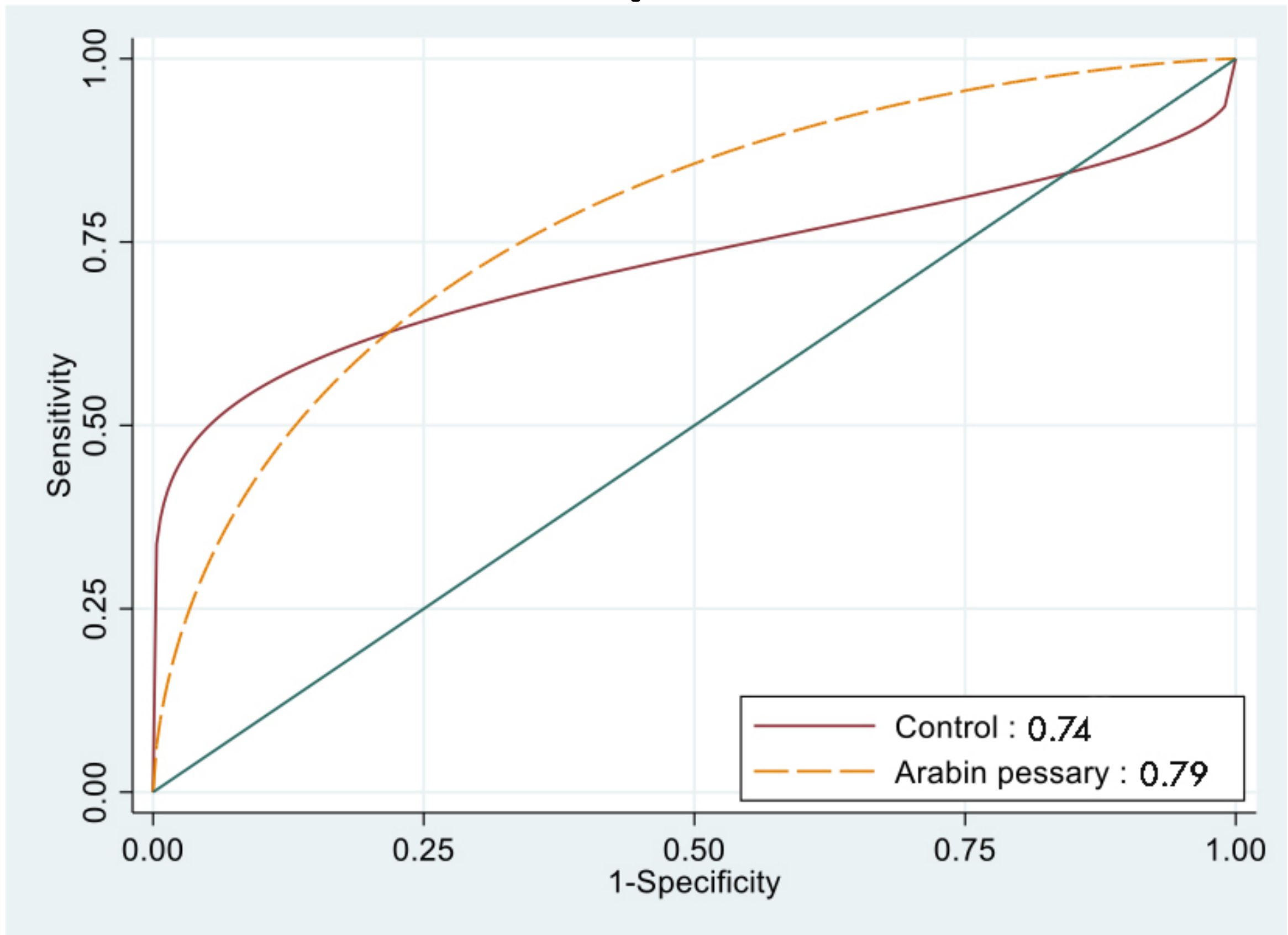


Figure 1: Receiver operator curve for qfFn in Arabin Pessary and control groups to predict sPTB<34 weeks.

- qfFn was a good predictor of sPTB in cases with an Arabin pessary (Area under the curve [AUC], 0.79
- AUC of cases and controls at 34 weeks gestation showed no significant difference (p=0.58)

Group	qfFn prediction ROC AUC, 95% CI		CL prediction ROC AUC, 95% CI	
Arabin Pessary cases sPTB<34 weeks	0.79*	0.62-0.90	0.60*	0.43-0.76
Control sPTB<34 weeks	0.74	0.48-0.96	0.76	0.63-0.88

*Significant difference between qfFn and CL ROC areas

Cervical length

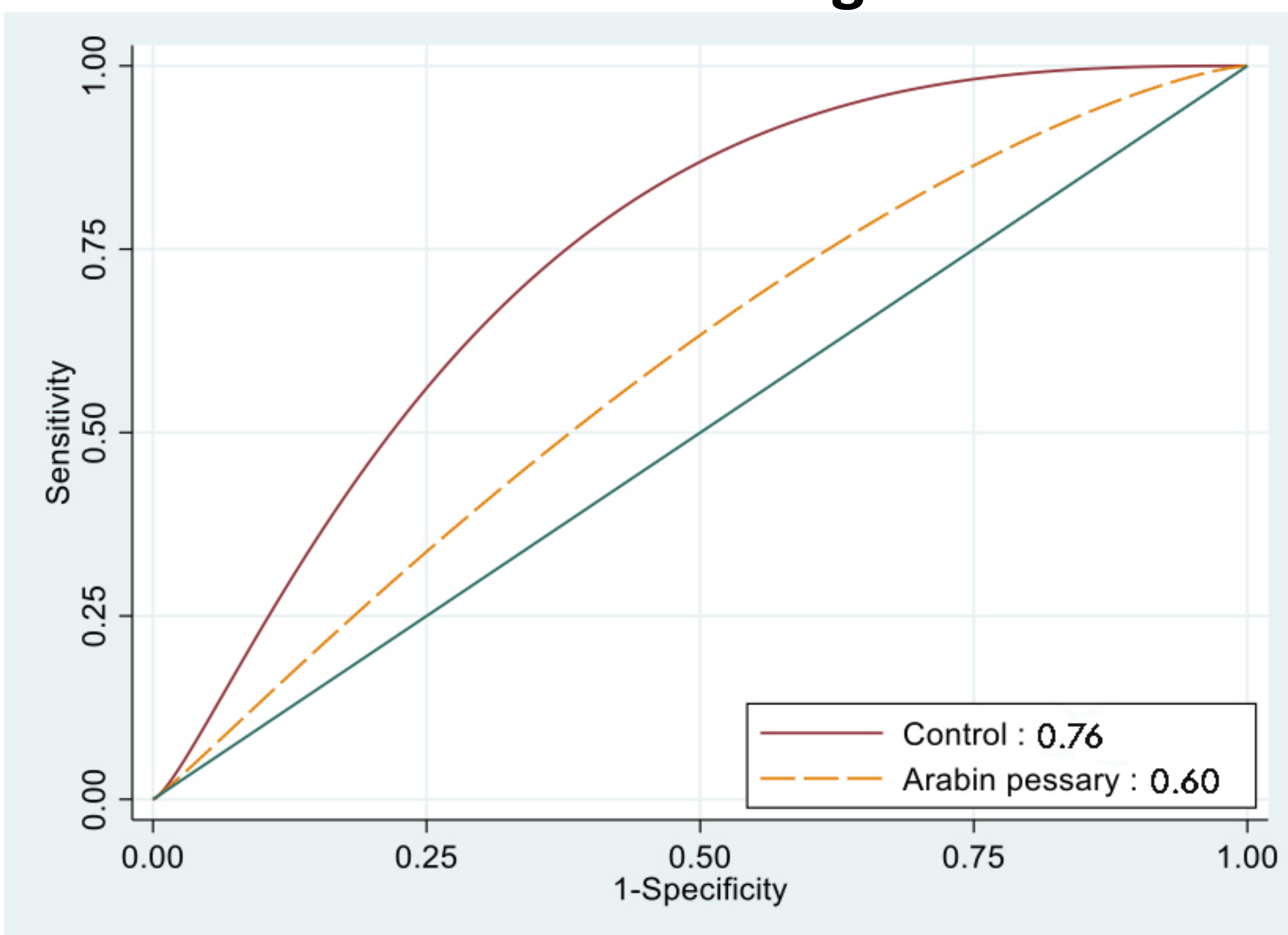


Figure 2: Receiver operator curve for CL in Arabin Pessary and control groups to predict sPTB<34 weeks

- CL did not give good prediction for sPTB at 34 weeks gestation (AUC, 0.60)
- CL in Arabin pessary group was significantly lower than that of the control group at 34 weeks gestation (p=0.0694)

When comparing the accuracy of qfFn and CL prediction of sPTB<34 weeks' gestation in the Arabin pessary cases, the p-value was 0.003

Table 2: Accuracy of qfFn and CL measurements in the prediction of sPTB in Arabin pessary cases and control groups for delivery in <34 weeks.

Conclusion

- qfFn is equally reliable in women with and without an Arabin pessary:** Arabin pessary causes increased vaginal discharge, however we have shown that this does not impact qfFn readings.
- qfFn accurately predicts sPTB in women with an Arabin pessary**
- Cervical length measurements are less accurate in women with an Arabin pessary:** This could be explained by the technical difficulty of visualising the cervix with the Arabin pessary in situ. This test should therefore be used with caution in these women.

References

