

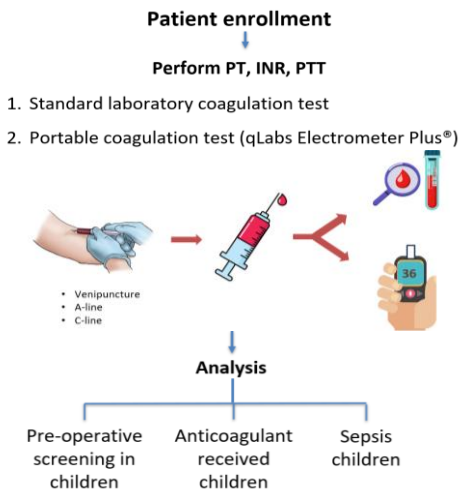
Background: Point-of-care (POC) coagulation tests offer faster results than standard methods, making them potentially useful for managing acute bleeding or monitoring anticoagulants. However, studies evaluating their accuracy have shown inconsistent results, especially in pediatric populations.

Aim: To evaluate the accuracy of POC-coagulation testing compared to standard coagulation tests (SCT) and to identify its limitations in pediatrics.

Methods:

Study design and participants: A cross-sectional study enrolled children ≤ 18 years. Patients who received antiplatelet or antifibrinolytic drug were excluded.

Study protocol:

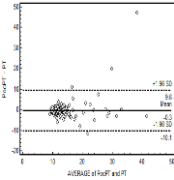
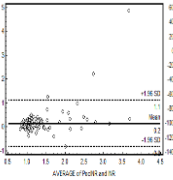
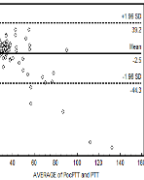


Results: A total of 148 tests were included in the analysis.

Table1 shows the demographic profile

	Total	Pre-op	Anticoagulant	Sepsis
Number (test)	148	80	41	27
Age (year)	6.5 ± 5.4	6.3 ± 4.9	7.4 ± 6.0	5.8 ± 5.6
Sex (%)				
Male	89 (60.1%)	44 (55.0%)	28 (68.3%)	17 (63.0%)
Hb (g/dl), mean ± SD	10.9 ± 2.5	11.8 ± 2.3	10.7 ± 2.3	8.6 ± 1.5
Platelet (x 10 ⁹ /L)	225 (88, 318)	293 (178, 382)	159 (67, 266)	43 (24, 134)
Fibrinogen (mg/dL)	260 (212, 333)	256 (178, 323)	260 (179, 328)	301 (161, 508)

Primary outcome: Accuracy of POC

Parameter	PT	INR	PTT
Lin's correlation	0.66	0.60	0.39
Bland–Altman plots			
Mean difference (POC-SCT)	-0.25	0.16	-2.51
95% Limits of agreement	-10.07 to 9.56	-0.79 to 1.13	-44.27 to 39.24
Clinical concordance*, %	112 (80.0%)	117 (83.6%)	49 (34.3%)

Subgroup analysis

Accuracy of PT	Pre-op group	UFH (n=23)	Warfarin (n=6)	LMWH (n=11)	Sepsis group
Lin's correlation	0.45	0.15	0.96	0.70	0.69
Clinical concordance*, %	68 (87.2%)	14 (66.7%)	6 (100%)	10 (90.9%)	14 (58.3%)
Accuracy of INR					
Lin's correlation	0.33	0.13	0.97	0.48	0.59
Clinical concordance*, %	70 (89.7%)	18 (85.7%)	6 (100%)	11 (100%)	16 (66.7%)
Accuracy of PTT					
Lin's correlation	0.27	0.36	0.34	0.33	0.21
Clinical concordance*, %	31 (39.7%)	6 (28.6%)	1 (16.7%)	6 (54.5%)	5 (18.5%)

*Criteria for clinical concordance are allowable total error (TEa) of
1. PT: ±2.0 sec or 20% if > 10 sec, 2. INR: ±0.3 ratio or 15% if > 2.0 ratio, 3. APTT: ±10 sec or 25% if > 40 sec

Secondary outcome: Limitations of the test

The factors negatively impacted accuracy and correlation

	Anemia	Thrombocytopenia	Thrombocytosis	U/D: liver disease
Lin's correlation of normal parameter → abnormal parameter				
PT	0.89 → 0.47	0.93 → 0.42	0.93 → 0.43	0.89 → 0.20
INR	0.84 → 0.41	0.88 → 0.35	0.84 → 0.44	0.81 → 0.18
PTT	0.35 → 0.38	0.54 → 0.31	0.54 → 0.34	0.46 → 0.34

Conclusions:

- POC-PT/INR was demonstrated strong and moderate correlations to SCT-PT/INR in the patients who received warfarin and the other groups, respectively
- POC-PTT testing was not accurate
- POC-PT/INR could be useful for monitoring patients receiving warfarin
- The factors affected the accuracy of POC were hemoglobin and platelet count

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