

Flow Measurement in Pediatric Liver Transplantation: A Pilot Study.

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1 BACKGROUND

Vascular complications are more common in children than adults, leading to graft failure or even retransplantation. Current Flow measurements are based on adults studies.

AIM OF THE STUDY

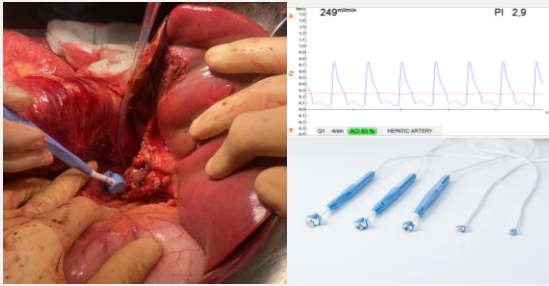
To present our pilot experience with flow measurement (FM) in children, correlate data with the intraoperative ultrasound information, and compare the results with standard outcomes in adults

3 RESULTS

2 METHODS



Pediatric Liver transplants (PLT)
2023- 2025



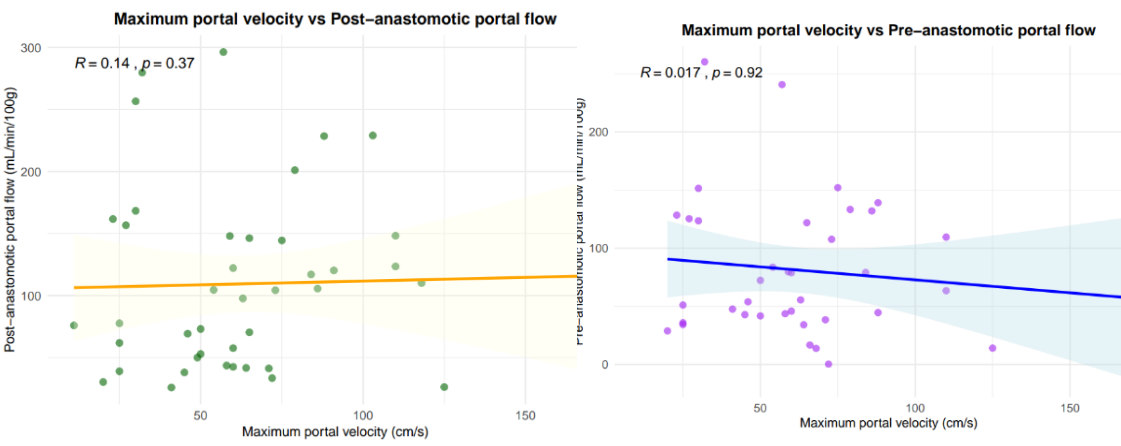
N = 78



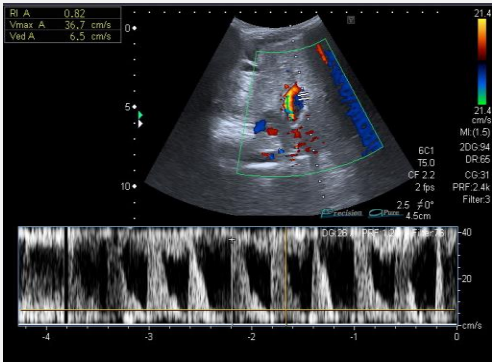
53 with Flow measurement

- ✓ Donor, Recipient, and Transplant Data
- ✓ Intraoperative US (Vmax, PSV, and RI)
- ✓ Flow Measurements (portal pre/post-anastomosis and arterial post-anastomosis)
- ✓ Vascular Complications

We used probes ranging 2-8mm depending on vessel size



- Living donor – 15%
- Whole graft – 23%
- Reduced graft – 26%
- Split – 36%



Intraoperative Doppler US

Average values:

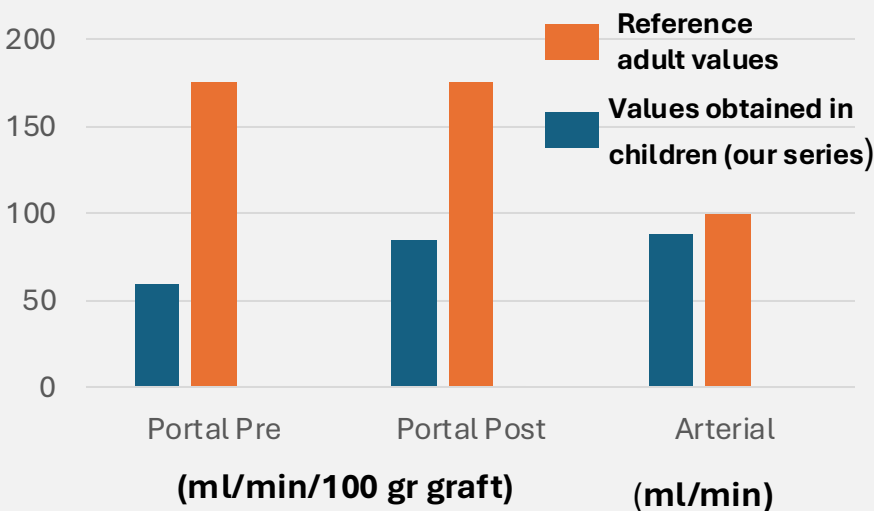
- Vmax: 60 cm/seg
- VPS: 43,5cm/seg
- IR : 0.6

- ✓ No correlation between Flow (TTFM) and Velocity (DUS) values (p>0.05)
- ✓ No significant correlation between TTFM values and clinical data (p>0.05)
- ✓ Postanastomotic portal flow was found to be lower in those with higher GRWR

6 cases: absence of artery on DUS: Succesful new anastomosis (no postop HAC)
Correlation DUS/FM 100%

PORTAL FLOW MEASUREMENT IN PLT

INTRAOPERATIVE FLOW MEASUREMENT ADULTS vs CHILDREN

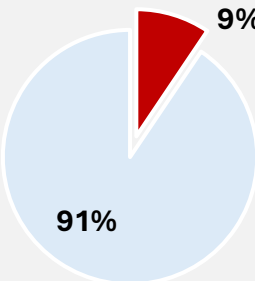


6 cases: absence of arterial flow: succesful new anastomosis (no postop HAC)

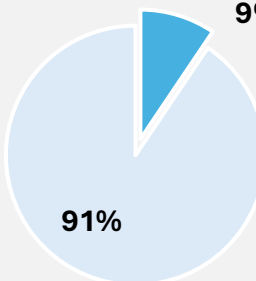
11 cases low arterial flow and/or splenomegaly (small for size like) → portal pressure >20 mmHg → Splenic artery ligation

COMPLICATIONS (ARTERIAL vs PORTAL)

	YES (9%)	NO (91%)		YES (9%)	NO (91%)
Age at transplant (months)	22	71 ´ 7	Age at transplant (months)	74 ´ 9	63 ´ 8
Split or living related donor graft	100%	45%	Split or living related donor graft	48%	66%
Mean arterial Flow (ml/min)	19 ´ 75	80 ´ 92	Preoperative portal Flow (ml/min)	260,3	70 ´ 4
Resistance index	0 ´ 66	0 ´ 62	Postoperative portal Flow (ml/min)	254,4	104 ´ 1
PSV (cm/seg)	26 ´ 8	56 ´ 8	Vmax (cm/seg)	67 ´ 5	65 ´ 7



ARTERIAL COMPLICATIONS
4 thrombosis /1 stenosis
100% succesfully treated (IR in 3, surgery in 2)



PORTAL COMPLICATIONS
5 estenosis
100% succesfully treated (angioplasty in 3 , surgery in 2)

4 CONCLUSIONS

1 Flow measurements (FM) are useful in pediatric liver transplantation complementary to the values provided by ultrasound

2 Acceptable values are lower than those described for adults

3 Multicenter studies are needed to validate and correlate data. establish prognostic cut-off points. and support decision-