



Ultrasound – guided left brachiocefalic vein cannulation in infants and children undergoing orthotopic liver transplantation is safe e useful ?

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There is no ideal site for cannulation in children: the best site should be determined after US - Evaluation

Background - There is no ideal site of cannulation in children: the best site should be determined after ultrasonography evaluation. In the infants and the low weight children the Ultrasound Guide Brachicephalic Vein (US - BCV) cannulation could be a valid alternative to Internal Jugular Vein (IJV) catheterization. The characteristics of paediatric population undergoing liver transplantation include specific physiopathological conditions (bleeding disorders, anatomical variation, tissue vessel integrity, thrombotic disorders, catheter related infections and low weight children) and preoperative management– bridge to organ transplant (renal replacement, anti – thrombotic and trasfusion therapy, necessity of long term total parenteral supply).

Methods: “Papa Giovanni XXIII” Hospital in Bergamo is a Northern Italy Paediatric Transplant Center. (Table n.1). The aim of this retrospective analysis is to evaluate the feasibility of US – BCV cannulation in high risk paediatric population.

Results : Eighty-six procedures (45 US-IJV and 41 US-BCV) in infants and children undergoing oltx were included. Full sample median age and weight were reported in Table 2. There are no difference in the success rate and the mean cannulation time in two groups (P value non significant). Patient’s weight is inversely related to the number of cannulation’s attempts (Pearson coefficient 0.537; P value < 0.001) in the US- IJV but not in US - BCV. No major complications were observed during cannulation.

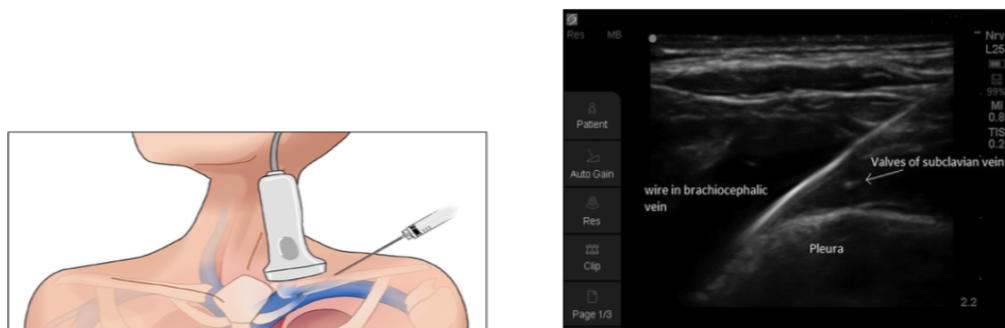
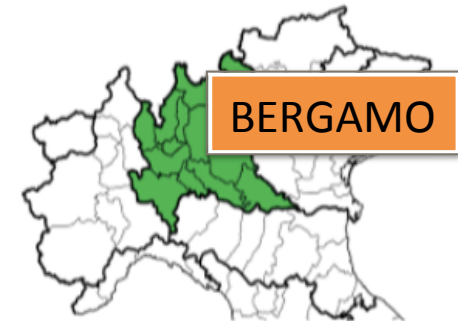


Figure 1. Supraclavicular position of ultrasound probe and needle

Table 1. Number of patients undergoing organ transplantation – from 2007 to 2017- ten years

	OLTx	DLTx LTx	KTx	Pancreas Tx	MTx	SBTx	OLTx- KTx	HTx
Adult	1114	75	645	48	0	0	37	267
Paediatric	487(30%)	24(23%)	8(1%)	3(5%)	4	8	1	24(9%)
Total	1601	99	653	51	4	8	38	291

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Table 2. Central venous characteristic in paediatric patients undergoing OLTx (N.86 ptz)

Item	IJV N.45	BCV N.41	p value
Sex (M/F)	29/16	23/18	
Age (mph) mean value	13.5 (9-18)	10.5 (6-15)	
Weight (Kg) Mean value	13 (8-18)	9 (6-12)	
Cannulation site;Right n/N(%)	41/45(91%)	15/41(36%)	< 0.001
Cannulation attempts	2 (2-4)	1 (1-3)	<0.001
Cannulation time (sec)	130 (45-170)	92 (50-135)	
1st attempt success n/N(%)			
< 10Kg	10/15 (66%)	25/29 (86%)	<0.001
> 10kg	29/30(96%)	11/12 (91%)	

Conclusion: Ultrasound guide left BCV cannulation improve safety and effectiveness in infants and low weight children undergoing liver transplantation with a low rate of complicatio during the procedure.

