

HAMBURG



ESPR | Abdominal Workforce, Meeting Marseille 2022

ESPR Survey on peri-operative Imaging in Pediatric LTX





Aim of the Survey

- To gather data on the current status of imaging procedures
- To identify key European sites who are willing to cooperate
- To harmonize & standardize perioperative imaging

ESPR survey on peri-operative imaging in children with liver transplantation

Aim

The European Society for Paediatric Radiology (ESPR) Abdominal Work Force Group in collaboration with European centres engaged in the field of paediatric liver transplantation aims to publish a position paper regarding diagnostic imaging recommendations. The collaboration intends to identify a group of key sites to harmonize and improve imaging preand post-transplantation in children and may later want to cooperate in data acquisition and multicentre studies.

The survey

This survey focuses on the current status regarding imaging procedures including elastography in paediatric liver transplantation. For each site, a person responsible for the local transplantation program will be primarily addressed and asked to fill out the survey as a representative of their centre. As some of the questions are quite specific please involve the sub-specialists of your team whenever necessary.

In this online survey you can use the backwards and forwards button to switch between each section. The filled-in answers will be remembered and can be altered unless you close or finalize the document. Also, a printable PDF version of the survey is attached to your invitation email. The PDF version can be used in preparation and easily handed round your team. If you prefer, you can also send the filled-out paper version of the survey per fax, email or mail to my address below.

All information provided by you will be treated confidential. In case of a publication, approval will be obtained by all participating centres and co-authorship will be offered.





Demographics



On the Centres

- Contacted 26 European centres in 2021
- 22 centres participated (84 %)
- 11 European countries
- <u>University hospital (17/22, 77.3%)</u>
- Specialist childrens' hospital (4/22, 18.2%)
- District hospital (1/22, 4.5%)



Unpublished data



Demographics

Age group < 6 years

- Covered the last 3 years (2018-2020)
- 1524 LTX
- 25.4 LTX/year per centre (8-60 LTX)
- 69.5 % < 6 years of age (353/508 LTX)
- 32.1 % < 1 year of age(163/508 LTX)



Living-related Mean 33.2% (range per centre, 1-90 %)





Pre-transplant evaluation child US, CT or MRI?



Pre-transplant evaluation Ultrasound

• Majority of centres primarily rely on US (14/22; 64%)





Pre-transplant evaluation Ultrasound and CT

- Majority of centres primarily rely on US (14/22; 64%)
- Use CT for selected patients (13/22; 59%)





Pre-transplant evaluation <u>Ultrasound and MRI</u>

- Majority of centres primarily rely on US (14/22; 64%)
- Use MRI for selected cases (12/22;54 %)
 - Complicated cases
 - Multiple indications (multiparametric)
 - With MRI brain
 - In patients without sedation





Pre-transplant evaluation <u>Primarily CT</u>

- 1/3 of centres always performs CT (7/22; 32%)
- And never uses MR pre-OP





Summary Pre-transplant evaluation child

- Performed differently between centres.
- Some centres always use pre-op CT (36%),
- Majority of centres only sporadically use CT or MRI.
- CT and MRI protocols vary substantially

(Scan area, number of contrast phases; MR-Angio technique)







Intra-operative imaging



Intra-op. Ultrasound

- Most centres use US in every patient (20/22,91%)
- A few only in some patients (2/22; 9%)







Intra-op. Ultrasound Time points

- Most centres use defined time points (18/21; 86%)
- A few centres have no rule (3/21; 14%)

US at defined time points?







Intra.op. US Who performes it?

 Mainly radiology (14/21; 67%)





Documentation

• Yes, when performed by Radiology!







Summary Intra-op. US

- US is regularly used intra-op control anastomosis (standard)
- US is mainly performed by radiologists (with surgeons)
- US results are only documented when performed by radiologists
- Variable technique (still images or cine, flow techniques, CEUS)

Need for standardization and protocol optimization





Post-operative imaging



Post-op. Ultrasound

• All centers use US on the ICU to controle the anastomoses

• All within 24 hours after arrival

Do your use US on the ICU?





Post-op. Ultrasound Frequency

- <u>Day 1-7:</u>
 - Majority once daily
 - > 50% of centers more often
- <u>> Day 7:</u>
 - Majority 2-3 time per week
 - Wide spectrum







Who does the post-op. US?

- Radiology 73%
- Radiology involved 86%







Post-op. Ultrasound Protocol

• 75% use a protocol







Post-op. Ultrasound Protocol

• 75% use a protocol



 Large differences between centers





Post-op. CT

• Yes, 19/22 centres (86.4%)

- 109 abdominal CT per year (all centres)
- 5.5 CT per centre/year (range, 0-15)
- 21.5% of pediatric LTX (109/508)







Post-op. MRI

• Yes, 8/22 centres (36,4 %)







Summary post.-OP imaging

- US is regularly used (frequencies vary)
- US is mainly performed by radiology and with a high-level of experience
- 75% have a US protocol (large protocol differences; CEUS only 3 centres)
- Post-op CT used by most centres (20% of all LTX, vascular indications)
- Post-op MRI by 36% of centres (main indication bile ducts)

Need for standardization and protocol harmonization



Plan



Plan

- Bring the results on paper
- Formulate imaging recommendations (Consensus)
- Define a core group LTX sites going forward

European Survey on the	European Survey on
use of imaging in	the use of imaging in
pediatric LTX:	pediatric LTX:
Part 1,	Part 2,
pre-op. assessment.	intra- and post-op.
	assessment.



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Thank you!