Scandiatransplant

Minutes of NLTG and NPLTG 20.10.20

Zoom meeting Stockholm October 20th, 12:30 – 16:30

Carl Jorns open and welcomed 28 registered participants to the digital video meeting.

This is the first NLTG meeting for 2020 as the spring meeting was cancelled due to the Corona pandemic. For the same reason this meeting was held digital. All participants presented themselves and all liver transplant centers were well represented.

Action points are marked with XXXX

1. Minutes from last NLTG-meeting in Oslo October 23rd, 2019.

   The minutes were approved

2. Centerwise update

   Oslo: 66 liver transplantations, 2 split liver transplantations, 6 pediatric transplantations, 79 donors. Now back to normal after Covid-pandemic.

   Helsinki: 62 liver transplantation, 5 pediatric transplantations, long waiting list with 19 patients, Number of surgeons has reduced from 10 to 9, 100 donors so far which is a slight decrease compared to last year.

   Tartu: 10 liver transplantations, 4 patients on waiting list, 1 patient waited more than one year, 2 surgeons, 1 consulting surgeon.

   Copenhagen: 55 liver transplantations, 7 pediatric transplantaitons - 3 of them with living donor, 1 re-transplantation, 2 splits, 1 fellow in training.

   Gothenburg: 70 liver transplantations, 8 pediatric – 6 received split grafts, 2 pediatric whole grafts, 48 patients on waiting list – mainly in blodgroup 0 but also quite large number in blodgroup A, hypothermic liver machine perfusion introduced, staff has not changed, 50 donors.

   Stockholm: 74 liver transplantations on 72 patients, 6 pediatric, 8 re-transplantations, 1 death on the waiting list, first DCD liver transplantation from category 3 donor with NRP-technique. Hypothermic liver machine perfusion introduced.

3. NLTR annual report, *Espen Melum*

   Espen gave a presentation of the 2019 NLTR annual report. In summary total of 450 liver transplantations were performed. The number of re-transplantation has doubled to 55. Whether this is due to an increased demand for re-transplantation or just a fluctuation is not clear. Most re-transplants are late re-transplants. Waitlist mortality remains low, < 5%. Alcoholic cirrhosis was for the first time the leading indication for liver transplantation in the Nordic countries, closely followed by PSC and HCC. Liver transplantation for hepatitis C cirrhosis has further decreased and is at 2% in 2019. Survival after transplantation for the most common diagnosis has further improved in the recent years and for patients from 2010 to 2019 a one-year-survival of 83% was noted for patients listed as highly urgent and 98% for patients listed for primary sclerosing cholangitis.

   Espen pointed out that centers register dead on waiting list differently. Patients who are permanently withdrawn and die within a couple of days should be registered as dead on the waiting list. The group decided that Espen will present a guideline for the definition for dead on waiting list, Permanent withdrawn due to disease progression or improvement. Espen will circulate these guidelines before the next meeting.

4. Payback status *Ilse Duus Weinreich*

   Since December 1st 2017 111 paybacks have been performed. Within the last year 32 paybacks have been done. Mean time to payback has further decreased from 208 days to 180 days. In October 2020 16 livers had not been paid back yet; 7 of these cases have been waiting for more than 6 month; in 4 of these 7 cases payback has been offered with the first available. In these cases payback has been offered from 2 up to 9 times but recipient center declined the offer due to no recipient on the waiting list or lack of capacity. In 3 of these 7 cases payback with the first available liver was not performed according to registration in YASWA. The responsible center will look into those cases whether registration or payback offer was missed. All center agreed that these cases should be payed back as soon as possible.

   In summary, payback with the first available liver is performed and accepted by all centers. Number of open paybacks and time to payback has further decreased in the last year. Ilse also presented a new feature in YASWA which will give an alert for obligatory paybacks. This feature should minimize missed registrations of payback offers. The group discussed after how many declined offers a payback should be cancelled. Tartu pointed out that their waiting list is quite small and that their capacity is limited due to a small number of surgeons. It was also suggested that paybacks can be cancelled with a donor in a different blood groups on mutual agreement. In a previous meeting it was suggested that payback can be cancelled after 3 offers if both centers agree. William Bennet was appointed by the group to formulate a written guideline on how to cancel a payback after certain number of offers. These guidelines will be circulated before the next meeting.

5. Pediatric exchange statistics *Ilse Duus Weinreich*

   In 2019 Scandiatransplant had 592 actual diseased donors. Of these 8,6% fulfilled split criteria. Split liver donor potential per country various from the lowest of 4,9% in Sweden to 8% in Norway. 20% of the donors fulfilling split criteria where used for pediatric recipients. This is a decline from 2018 where 21% where used, 2017 29% and 2016 24%. 35 potential split donors where not used for pediatric recipients. The most common reason for not using split donors for recipients was offered but refused in 13 cases followed by logistics in 9 cases

and medical reasons in 7 cases. 12 of 28 (43%) of split livers were shipped to another country. In 2019 Sweden had a import/export balance of plus 4 whereas Norway was 0, Finland minus 1, Estonia minus 1 and Denmark minus 2. The number of pediatric recipients on the waiting list for each half year since January 2016 where between 8 and 15 and the number of transplantations between 17 and 24.
In summary, the Nordic cooperation with a pediatric shared waiting list is functioning well. With more than 40% of the livers used shipped between countries. However, there is still room for improvement as only 20% of the splitable donors are used for pediatric recipients and a significant percentage of pediatric recipients are transplanted with livers outside of the splitable criteria.

Ulla Plagborg, coordinator from Copenhagen, pointed out that it takes several hours to offer a splitable/pediatric donor liver to different centers.
It was suggested to extend YASWA with the following facilities:

1. When listing a patient it would be helpful to add more liver specific parameters under donor requirements. (Weight, size measurements and if a whole liver is required).
2. Send split/pediatric liver organ offers electronically to all liver centers at one time.

All centers agree that fields for more specific information under donor requirement should be added and used when implemented.
All centers do also agree that it would be useful to send split/pediatric liver offers electronically to all liver centers at the same time. However, it would be important that radiology files can be shared at the same time. The issue will be discussed at the NTCG meeting and a final decision will be taken at the next NLTG.

6. Follow-up on liver rotation list *Ilse Duus Weinreich*

Since June 2017 Stockholm and Gothenburg have only one common entry on the liver rotation list. This decision was taken as Sweden had used a higher number of imported livers from 2008 to 2016. Ilse presented an analysis of the years 2017, 2018, 2019 presenting. The total number of liver offers within Scandiatransplant were 44 (2017), 36 (2018), 52 (2019). The number of livers offered from a Swedish center was 16 in 2017 (36% of total) 10 in 2018 (28% of total) and 10 in 2019 (9% of total). The number of livers offered from another Scandiatransplant country imported and transplanted in Sweden was 13 (46% in 2017) 5 (9% in 2018) and 15 (35% in 2019)

7. Status on ELTR data export. *Ilse Duus Weinreich*

Bo-Göran Ericzon and Marie Tranäng pointed out that Stockholm lost more than 20 years of registered in ELTR due to the NLTR to ELTR data export. These data seemed to be lost and could so far not be recovered by Vincent Karam. Espen pointed out that Scandiatransplant warned Vincent for this potential problem and thought that Vincent should be able to recover data through backups.

8. ABOi Ltx for pediatric recipients < 2 years of age *William Bennet*

The group agreed that each center can list a pediatric recipients of any age for ABO incompatible liver transplantation. However, compatible transplantation should be prioritized over ABO incompatible transplantation. William Bennet will formulate a revision of the liver exchange and the payback rules. This revision will be circulated before the next NLTG-meeting.

9. Parameters for Nordic pediatric liver transplant registry, *William Bennet*
   Representative from each center have been identified. These representatives are responsible for recruiting a pediatric hepatologist from each center to the working group. William Bennet will circulate a suggestion of new parameters. The parameters should be integrated into the existing NLTR-forms. The number of parameters should be minimized as much as possible as we already today have a lot of missing information in the registry.

10. DCD liver transplantation – discussion and center wise update
    Norway: the method evaluation process has been prolonged and the reintroduction of controlled DCD using NRP is pending. Finland is working on the introduction of controlled DCD aiming to start with DCD kidney transplantation. Estonia has so far no plans to start a DCD program. Denmark plan to start a controlled DCD-program with NRP. Progress has been hampered by Corona-pandemic. Sweden has introduced a national DCD-liver transplantation protocol using NRP for organ procurement. DCD-donation is well established at 6 intensive care units and further ICU:s are joining. One factor of success may have been that the DCD-project is driven by intensivist. Sweden has performed 1 DCD liver transplantation with god outcome.

11. Ex vivo liver perfusion centerwise update
    Norway is currently testing the Liver Assist device in animal models. The plan is to introduce hypothermic perfusion as well as normothermic perfusion in the clinic. Finland is interested in introducing hypothermic liver perfusion and is currently evaluating different systems. Estonia is waiting for the outcome of randomized trials before considering ex vivo liver perfusion. Denmark has interest in introducing ex vivo liver perfusion and is considering different options. Gothenburg has introduced hypothermic liver machine perfusion into the clinic using vita smart device. Has so far pumped 2 livers with good outcome. Stockholm is using the Liver Assist device clinically for hypothermic machine perfusion.Antonio Romano presented the Stockholm experience and suggested a Scandinavian multicenter study on hypothermic machine perfusion analyzing perfusate and liver biopsies with the aim to identify predictive markers for graft function and biliary complications. All centers are offered within this study to use their own device or test the liver transporter by organ recovery. This is an unrestricted offer which allows each center to test this device for at least 10 perfusions. Antonio Romano will contact each center with a study protocol.

12. Ongoing studies and study proposals

    DSA study, Allan Rasmussen and Andreas Arendtsen Rostved
    Andreas presented the DSA study and that more than 800 patients had been included. An investigator meeting is planned for November to discuss details for this study.

    Factors associated with waiting time and waitlist mortality, Carl Jorns
    Study performed by Victor Renneus Guthrie. Draft of manuscript have been written and is planed to circulate within the group soon.

    Results of hepatoduodenostomy Norway/Denmark Morton Hagness and Allan Rasmussen. Data analysis planned.

Evaluation form of CT examination in deceased donors, William Bennet
It has been difficult to recruit other centers for this study but Gothenburg plans to go ahead as single center study. Everybody agreed on the importance of CT examination for deceased donors. The possibility to share radiology files in between countries was discussed. Carl and Ilse received the task to investigate the possibility of sharing radiology files within Scandiatransplant. To represented at the next meeting.

Study proposal: "Liver retransplantation in Scandinavia", Erika Laine/Greg Nowak
All centers are positive to collaborate. The aim of the study is to review results of liver retransplantations in Scandinavia with special focus on cases with rescue hepatectomy prior to retransplantation. It was pointed out that it will be very difficult to identify patients with rescue hepatectomy as this is not registered in any center. Contact persons at each center (listed during the meeting) will be contacted by Erika/Greg to discuss in details a study protocol and to make a study plan.

Study proposal: Biliary atresia – epidemiology and effect of liver transplantation in Nordic countries " Hanna Elmi
Hanna Elmi is a PhD student with Runar Almaas and Espen Melum as supervisor.
This study looks at both seasonal variation as well as the effect of timing of liver transplantation on patient height and renal function.

Study proposal: Scandinavian multicenter study on hypothermic machine perfusion, Antonio Romano
Se above Ex vivo liver perfusion.

13. Next meeting:

    April 20th 2021, Helsinki, Arno Nordin.

List of meeting participants

Scandiatransplant, Aarhus
Ilse Duus Weinreich

Oslo University Hospital:
Morten Hagness, Espen Melum, Hanna Elmi, Anniken Bjørnstad Østensen, Monika Olofsson Storrø, Stein Foss

Helsinki University Hospital
Arno Nordin, Timo Jahnukainen

Tartu University Hospital
Andres Tein, Riina Salupere

Sahlgrenska University Hospital
William Bennet, Bengt Gustafson, Transplant coordinators

Copenhagen University Hospital, Rigshospitalet
Allan Rasmussen, Nicolai Schulz, Andreas Arendtsen Rostved, Ulla Plagborg, Carina Lund Soerensen

Karolinska University Hospital
Bo-Göran Ericzon, Carl Jorns, Antonio Romano, Gunnar Söderdahl, Erika Laine, Greg Nowak, Øystein Jynge, Marie Tranäng, Björn Fischler