DCD liver transplantation: is donor age an issue?

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DCD liver transplantation

- Increased risk of primary non-function (PNF)
- Increased risk of ischemic bile duct lesions (IBDL)
- Increased risk of graft loss
- Increased risk of patient's death

- DCD donor age a major prognostic factor
  - > 40 y: IBDL ⬆ (Foley et al. Ann Surg 2011)
  - > 55 y: graft failure ⬆ (Marthur et al. Am J Tx 2010)

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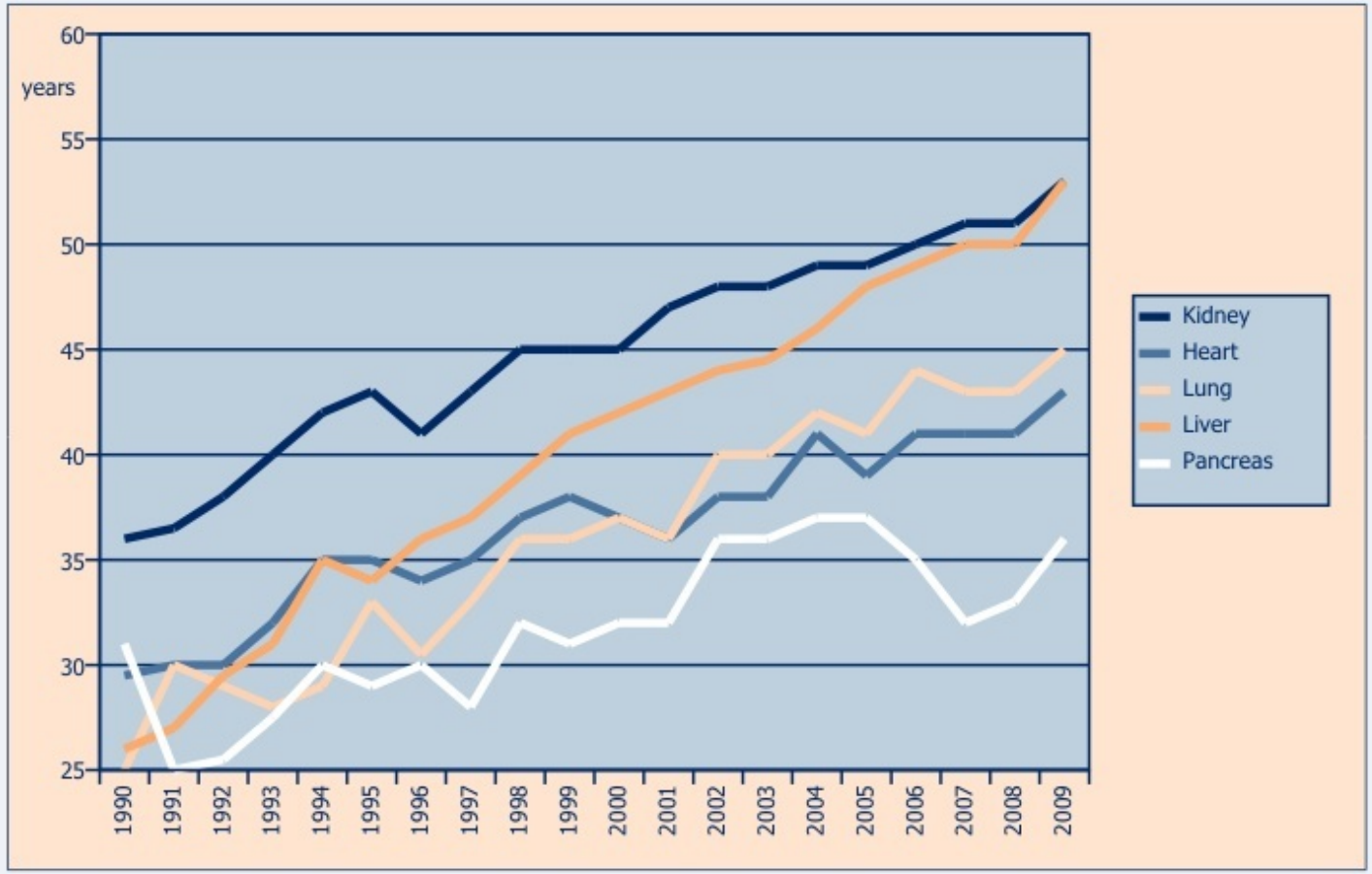
Figure 3.1 Median age of deceased donors in Eurotransplant, used for a transplant



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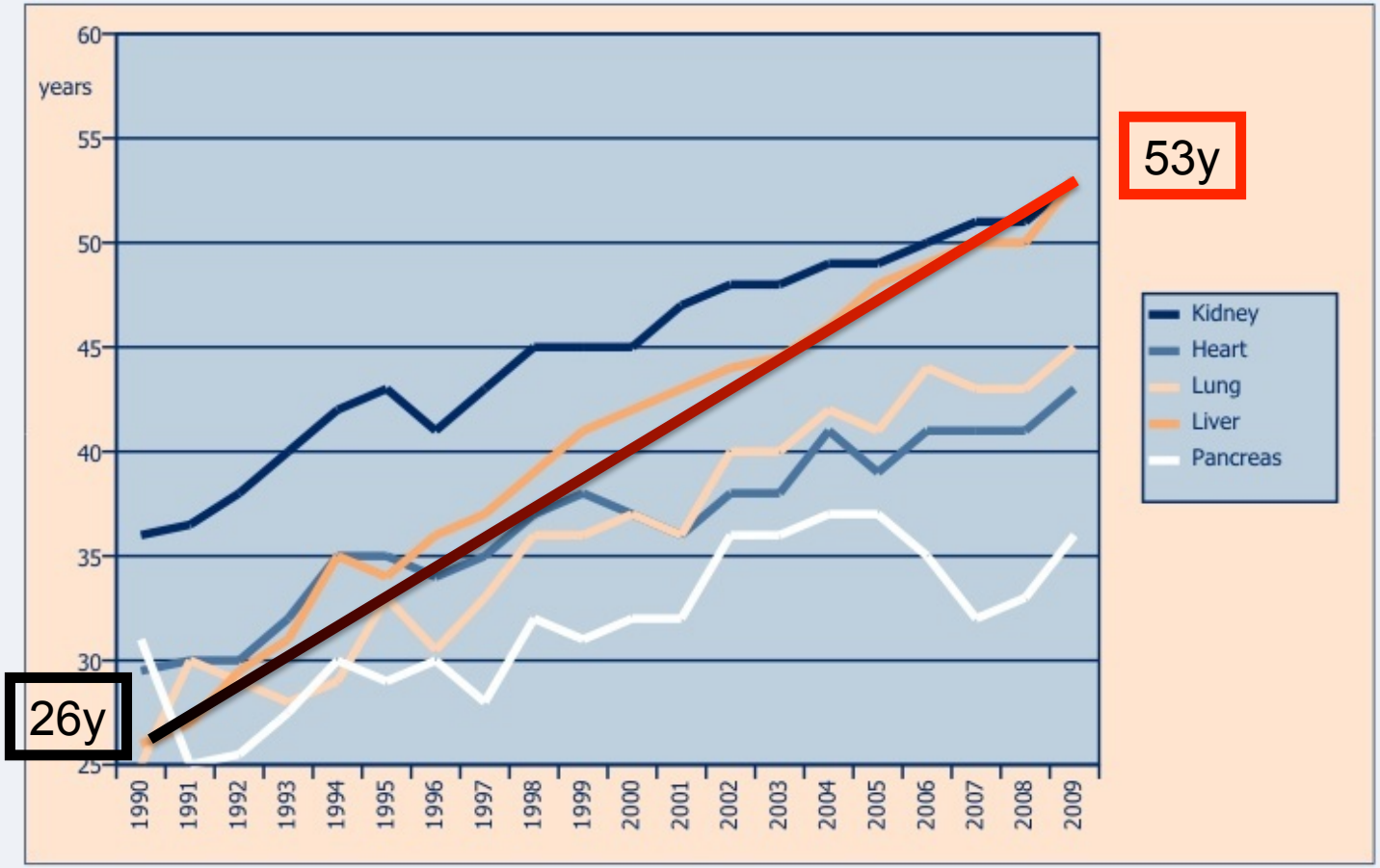

Material & Methods

- 41 DCD LT performed between 2003 and 2010 at the University of Liège, Belgium

- Donor graft acceptance the same than DBD

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  age of donors: 17 < 55 y and 24 > 55 y
- Center oriented allocation
- Procurements in OR
- IV heparin
- Confort treatment of the donors
- DWIT: respiratory withdrawal to aortic flush
- Minimization of CIT

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Donors' characteristics

	Donors < 55	Donors > 55	*P*
Age (years)	43.3 ± 2.2	68.1 ± 1.4	<0.001
BMI	25.1 ± 1.1	27.9 ± 1.2	NS
Intensive care stay (days)	5.8 ± 0.9	6.7 ± 0.9	NS
Na (mmol/L)	145.9 ± 1.7	143.3 ± 1.2	NS
Total bilirubin (mg/L)	4.8 ± 0.6	5.3 ± 0.6	NS
AST (UI/mL)	42.5 ± 6.1	52.5 ± 12.4	NS
GGT (UI/mL)	122.3 ± 40.7	88.1 ± 28.3	NS

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Procurement and Transplantation Characteristics

	Donors < 55	Donors > 55	*P*
HTK/UW (%)	88%	80%	NS
DWIT (min)	18.7 ± 1.7	20.5 ± 1.5	NS
Withdrawal phase (min)	10 ± 1.5	12.4 ± 1.3	NS
Acirculatory phase (min)	8.7 ± 0.6	8.2 ± 0.7	NS
Procurement time (min)	24.3 ± 1.5	24.3 ± 2.6	NS
CIT (min)	290.2 ± 27.7	247.4 ± 16.0	NS
Suture time (min)	40.9 ± 2.0	39.6 ± 1.6	NS

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Recipients' characteristics

	Donors < 55	Donor > 55	*P*
Age (years)	53.9 ± 3.1	56.7 ± 2.1	NS
Male (%)	88	87	NS
Liver disease (*n*)			NS
HCC	10	11	
Cirrhosis	6	13	
Other	1		
MELD	14.5 ± 1.1	16.6 ± 1.6	NS

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Results

	Donors < 55	Donors > 55	*P*
Peak bilirubin (mg/dL)	43.9 ± 8.6	65.9 ± 14.5	NS
Peak AST (UI/mL)	3364.5 ± 1292.8	2096.1 ± 459.9	NS
PNF (n)	0	0	NS
Retransplantation (n)	0	0	NS
Biliary complications			
fistula	0	2	
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Graft and patient survivals

	Donors < 55	Donors > 55	*P*
1 year	100%	91%	NS
3 years	73%	71%	NS

Causes of death:

-2 early deaths (<3 months): sepsis and MOF

-7 late deaths (> 3 months):

- 1 cerebrovascular dementia
- 1 lung K, 1 donor-transmitted sarcoma
- 4 HCC recurrence

LIVER TRANSPLANTATION 15:1028-1035, 2009

ORIGINAL ARTICLE

Liver Transplantation Using Controlled Donation After Cardiac Death Donors: An Analysis of a Large Single-Center Experience

Hani P. Grewal,[1] Darrin L. Willingham,[1] Justin Nguyen,[1] Winston R. Hewitt,[1] Bucin C. Taner,[1] Danielle Cornell,[2] Barry G. Rosser,[1] Andrew P. Keaveny,[1] Jamie Aranda-Michel,[1] Raj Satyanarayana,[1] Denise Harnois,[1] Rolland C. Dickson,[1] David J. Kramer,[3] and Christopher B. Hughes[1]

[1]Department of Transplantation, Mayo Clinic, Jacksonville, FL; [2]LifeQuest Organ Recovery Services, Gainesville, FL; and [3]Department of Critical Care Medicine, Mayo Clinic, Jacksonville, FL

The use of donation after cardiac death (DCD) donors may provide a valuable source of organs for liver transplantation. Concerns regarding primary nonfunction (PNF) and intrahepatic biliary stricture (IHBSs) have limited the enthusiasm for their use. A retrospective analysis of 1436 consecutive deceased donor liver transplants performed between December 1998 and October 2006 was conducted. These included 108 DCD liver transplants, which were compared to 1328 transplants performed with organs from donors meeting the criteria for donation after brain death (DBD). The median follow-up was 48 months. The 1-, 3-, and 5-year patient survival and graft survival for DCD donors were 91.5%, 88.1%, and 88.1% and 79.3%, 74.5%, and 71.0%, respectively. The 1-, 3-, and 5-year patient survival and graft survival for DBD donors were 87.3%, 81.1%, and 77.2% and 81.6%, 74.7%, and 69.1%, respectively. Patient survival and graft survival were not significantly different between DCD donors less than 60 years old, DCD donors greater than 60 years old, and DBD donors. Causes of graft loss included IHBSs (n = 9), PNF (n = 4), recurrent hepatitis C virus (n = 4), hepatic artery thrombosis (n = 1), rejection (n = 2), and patient death (n = 13). Contrary to previously published data, excellent long-term patient survival and graft survival can be obtained with DCD allografts, and in our experience, they are equivalent to those obtained from DBD allografts. ***Liver Transpl 15: 1028-1035, 2009.*** © **2009 AASLD.**

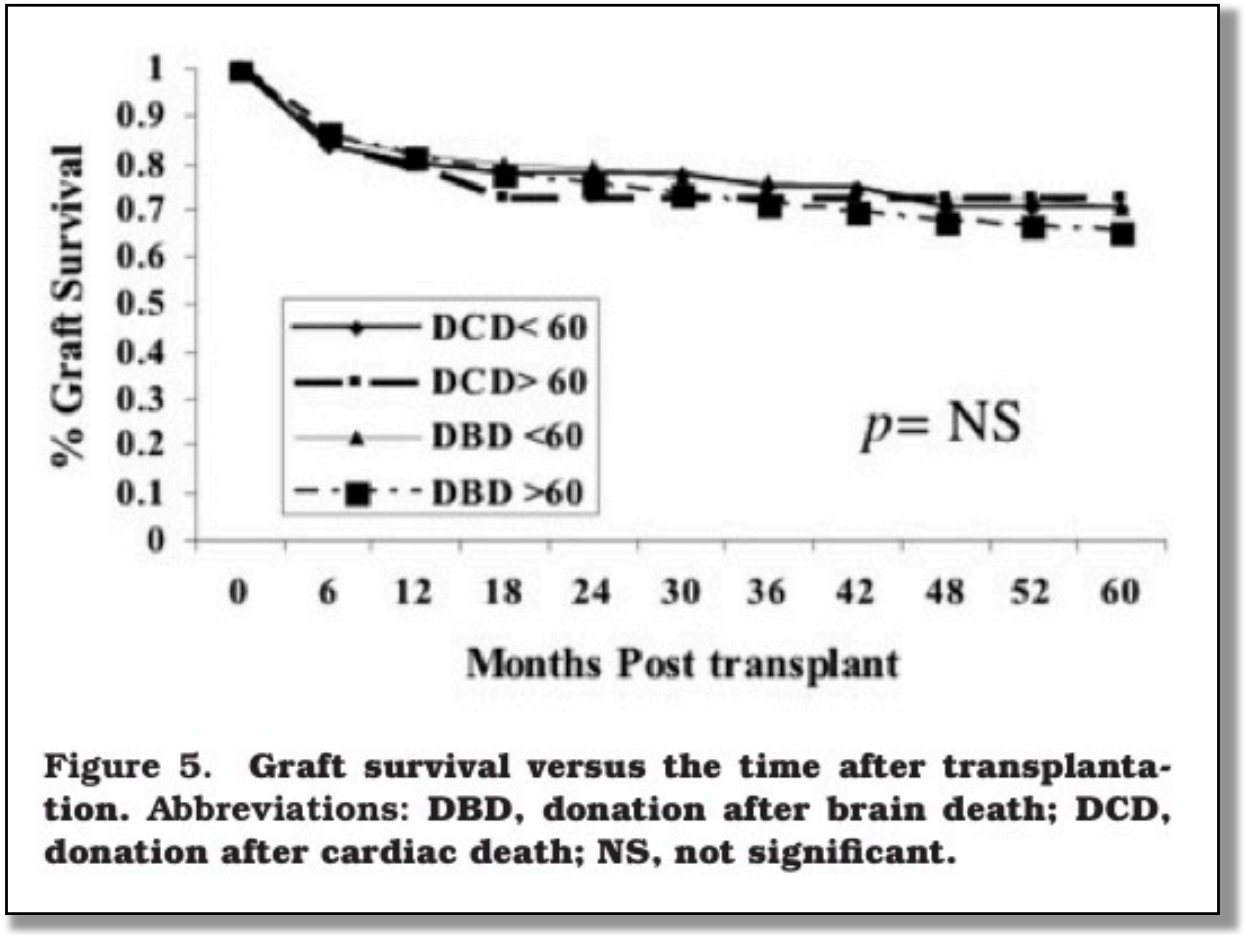
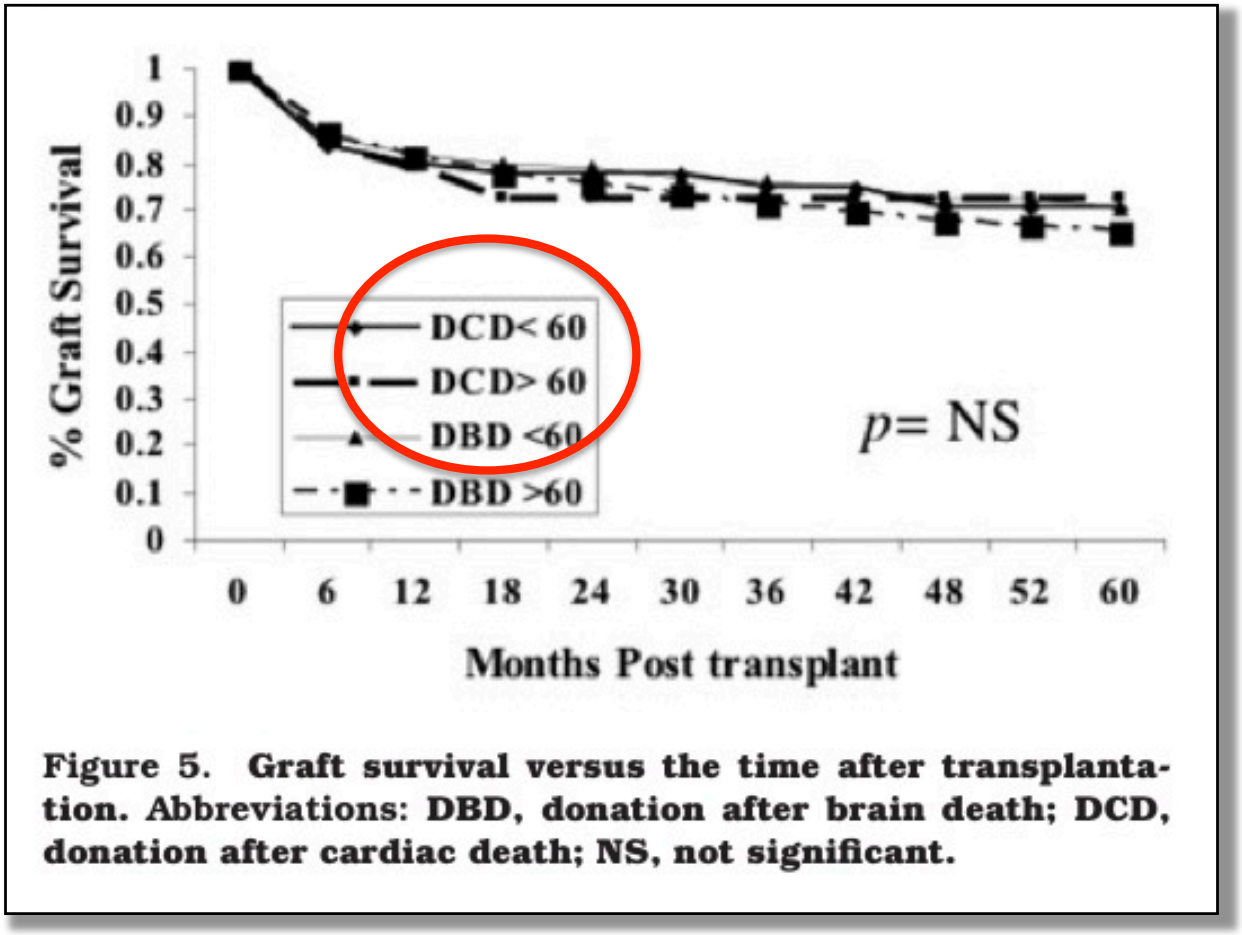


Figure 5. Graft survival versus the time after transplantation. Abbreviations: DBD, donation after brain death; DCD, donation after cardiac death; NS, not significant.

Grewal, Liver Transpl, 2009



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Conclusions

- Age > 55 y not a contra-indication for DCD donation

- Short WIT and CIT

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- Age > 55 y not a contra-indication for DCD donation
- Short WIT and CIT
- As CVA is more frequent in >55 year-old population, aged DCD donors might be a significant source of liver grafts

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THANK YOU!

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