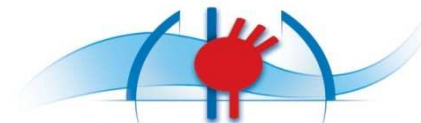


Pregnancy after lung transplantation: A retrospective multicenter French study about 39 pregnancies

C.BRY (Nantes), D. Hubert (Paris), M. Reynaud-Gaubert (Marseille),
C. Dromer (Bordeaux), H. Mal (Paris), D. Grenet (Suresnes), V. Boussaud (Paris),
J. Claustre (Grenoble), J. Le Pavec (Le Plessis Robinson), M. Murriss-Espin (Toulouse),
I. Danner-Boucher (Nantes)



l'institut du thorax

Unité Inserm UMR

1087-CNRS UMR 6291



Introduction

- Lung transplantation (single, double, heart/lung): 301 transplantations in 2013 in France (*agence de Biomédecine, 2013*)
- Women: 49 % and 18 to 30 years: 24%
- Pregnancy in transplant = risk
- Important cohort in kidney transplant (*EBPR, 2002 ; McKay, 2006 ; Armenti, 2008*)
- Higher risk of arterial hypertension, preeclampsia, gestational diabetes, prematurity
- International recommandation for management of pregnancy in solid organ transplantation
- Higher risk for lung transplant: survival, rejection, lung function (*Estensen M., 2011; Zurbano F., 2012*)
- No specific recommandation, few studies, few reported pregnancies : US cohort: 35 pregnancies (*Shaner, 2012*) UK cohort: 14 pregnancies (*Thakrar, 2014*)

Objectives

Pregnancy impact on lung function
Maternal and newborn outcomes

Methods

Population:

retrospective multicenter french study

Inclusion: all pregnancies in adult lung recipients
from january 1991 to april 2013

9/11 transplantation center included
(2 centers without pregnancy)

Major criteria:

- FEV1 = lung function
- FEV1 express in % of predictive value
- Comparison between FEV1 one year after the end of the pregnancy and last FEV1 before pregnancy

Other data:

- Patient, Pregnancy, Newborn
- BMI, FEV1, renal deficiency, diabetes, arterial hypertension, acute rejection, CLAD: before, during, after pregnancy

Results: population

35 recipients

Age at transplantation, years	23±5	13-34
Age at pregnancy, years	28±5	19-38
BMI before pregnancy	19,8±2,5	16-25
FEV1 before pregnancy, .pred	83±25	31-122
Transplantation-pregnancy period, month	63±44	6-172
Pulmonary disease		
Cystic fibrosis (n, %)	25	71
Pulmonary hypertension (n, %)	7	20
Others (n, %)	3	9
Type of transplantation		
Double lung (n, %)	22	63
Heart-lung (n, %)	13	37

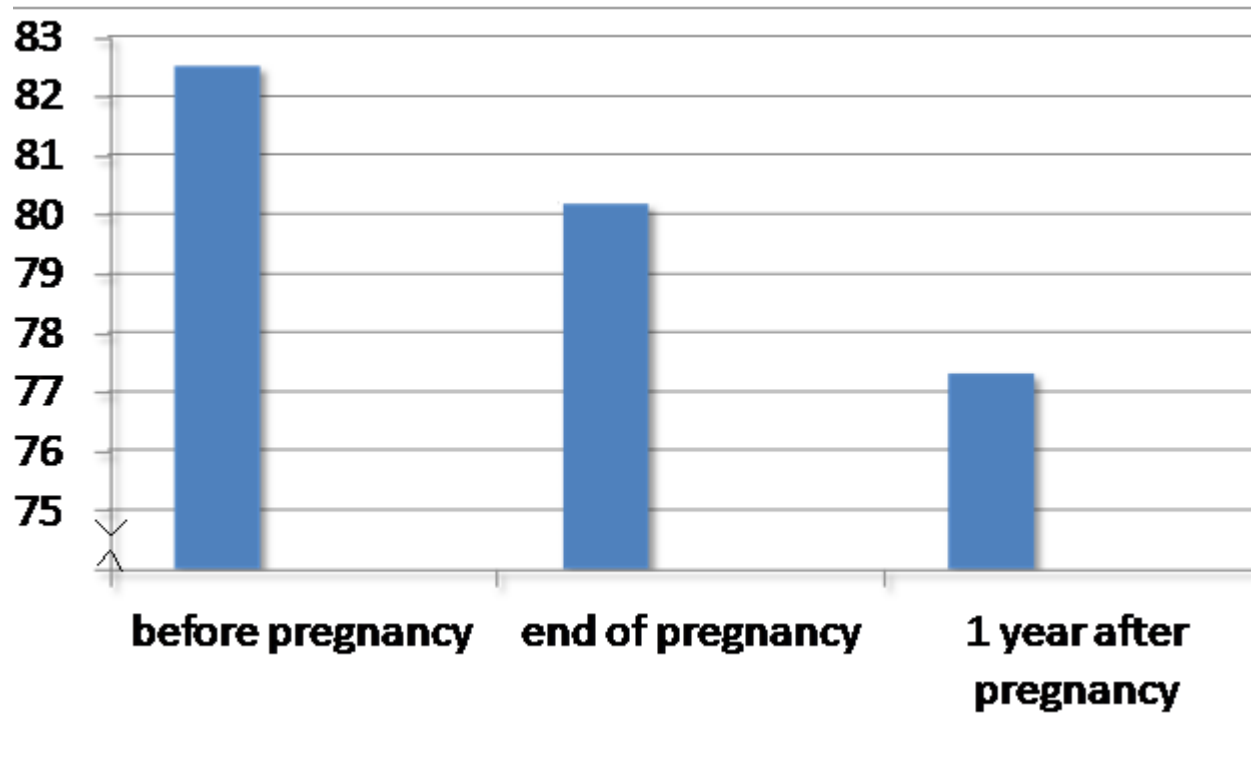
39 Pregnancies

	n	%
Births (n, %)	26	67
Miscarriage (n, %)	7	18
Termination for medical reasons (n, %)	3	8
Voluntary termination (n, %)	2	5
Death of recipient (n, %)	1	3

Higher rate of birth compared to others:
42% Thakrar, 56% Shaner

Results: lung function

Significant decrease of FEV1 1 year after pregnancy
83.9% to 77.3%, $p=0.04$



Results: Maternal outcomes during pregnancy

	n	%
Diabetes		
Before pregnancy	19	51
During pregnancy	18	55
New during pregnancy	2	6
Arterial hypertension		
Before pregnancy	18	51
During pregnancy	17	59
New during pregnancy	3	10
Renal deficiency		
Before pregnancy	21	58
During pregnancy	19	61
New during pregnancy	1	3
Acute rejection		
Since transplantation till pregnancy	14	39
During pregnancy	0	0
After pregnancy till now	11	33
Infection during pregnancy	8	24

Results: Maternal outcomes after pregnancy

- 15 CLAD: 10 after pregnancy
- Period between transplantation and CLAD: 78.1 months
- Difficult to compare with general lung transplanted recipients because of « selected » patients
- In April 2014: 9 deaths: 4.6 years after pregnancy, 8.2 years after transplantation
- Causes: 2 infections, 1 pulmonary embolism, 6 graft dysfunctions

Results: newborns

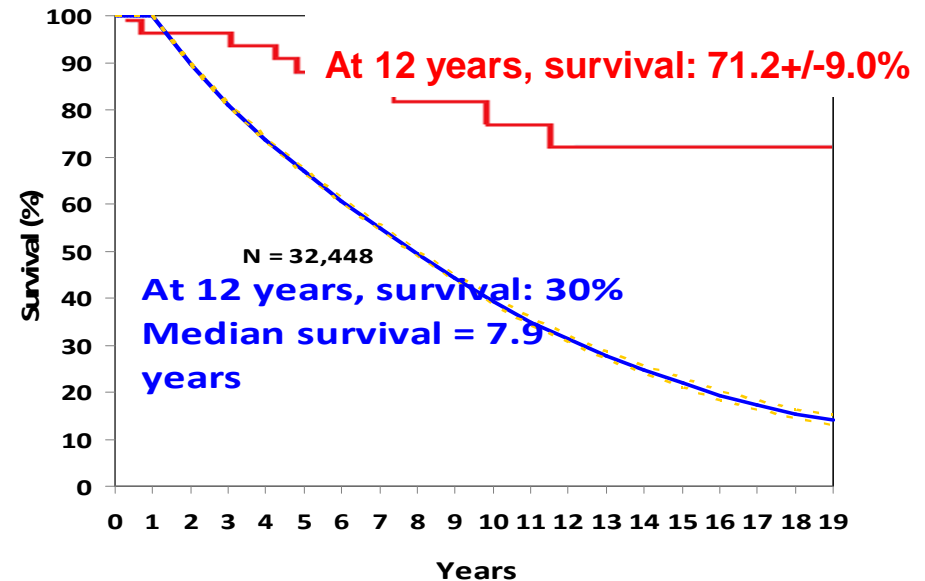
- 26 newborns
- 90% : well at birth
- 2 newborns with serious outcome linked with prematurity (22 et 28 weeks gestation)
- 1 dead birth
- 48% low birth weight (<2.5 kg)
- No malformation or cystic fibrosis

Gestational age, n (mean±SD, min-max)	36±5	22-41
Induced labor (n, %)	11	50
Caesarean (n, %)	12	48
Prematurity (<37 weeks) (n, %)	11	43
Birth weight, g (moy±SD, min-max)	2409±0.9 2	600- 3990
Low birth weight (n, %)	12	48
Breastfeeding (n, %)	1	5

> More **prematurity** and **low birth weight** but poor consequences for future development

Discussion

- First multicenter French study
- The biggest cohort ;
NTPR registry (USA): 35 pregnancies
no specific study of lung function
- Significant decrease of FEV1 one year
after pregnancy
- 14 recipients: decrease >5%
 - 4 CLAD at 1 year
 - 2 CLAD at 2 year
 - 1 CLAD before pregnancy
 - 7 without CLAD, no death
- Real clinical meaning of this decrease?



Adult Lung Transplants: Kaplan-Meier Survival Conditional on Survival to 1 Year (Transplants: January 1990 – June 2012)
JHLT. 2014 Oct; 33(10): 1009-1024

Our population (Transplants: november 1989- september 2010)

Conclusion

- Pregnancies with healthy babies are possible for lung recipients
- Risk of FEV1 decrease? Risk for lung function?
- No increased mortality
- No rejection during pregnancy
- Healthy babies even if more prematurity and lower birth weight
- Agreement of transplantation staff and stabilized comorbidities before pregnancy
- Pregnancies with close follow-up

