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LAPAROSCOPIC LIVER RESECTION IN PATIENTS WITH CIRRHOSIS IS ASSOCIATED WITH A LOWER RISK OF POST-HEPATECTOMY LIVER FAILURE

A Propensity Score Analysis.



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**The ACHBT French
Hepatectomy
Study Group**

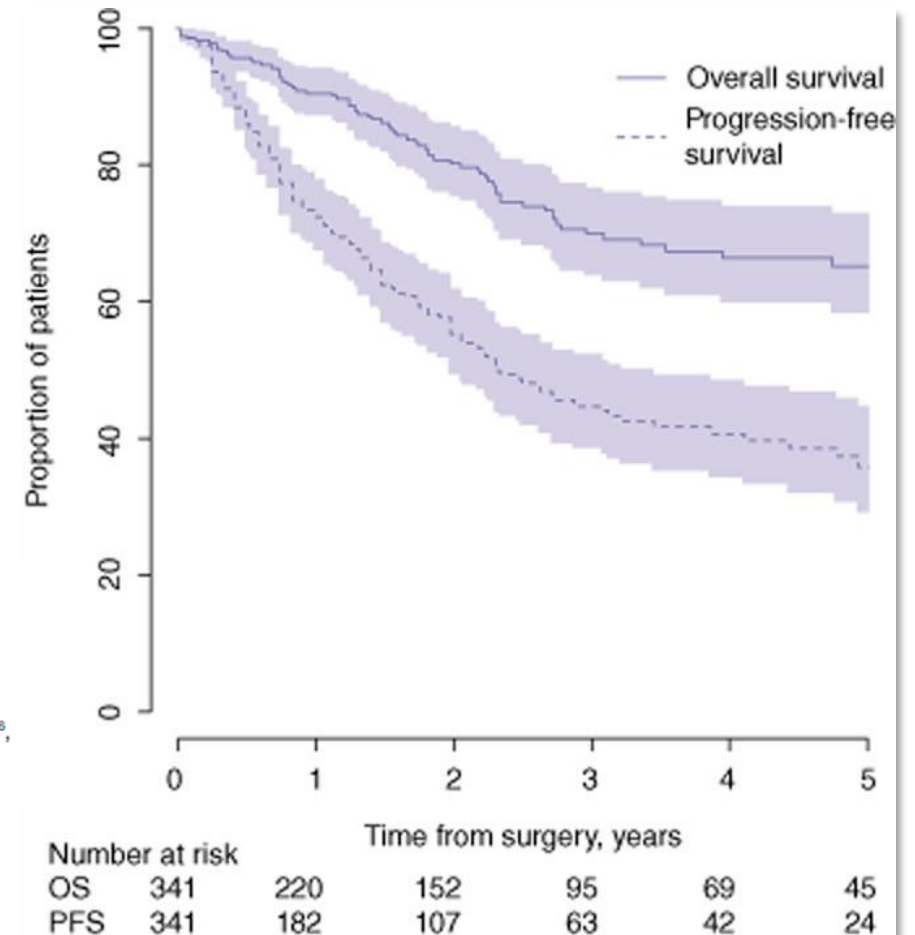
BACKGROUND

- Liver resections in the context of cirrhosis
 - Operative mortality: 3-15%
 - HCC is the main indication (85%)
- Laparoscopic LR for HCC
 - Improves postoperative outcome
 - No impact on oncological results →

HPB ORIGINAL ARTICLE

Laparoscopic resection of hepatocellular carcinoma: a French survey in 351 patients

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BACKGROUND

Sposito, Br J Surg 2016

2006-2013

Before matching: 43 vs. 226

After matching: **43** vs. 43 Ratio 1:1

Cirrhosis: 100%

Segmentectomy: 90%

Complications grade II-V

OR: 0.12

P-value: 0.006

Cheung, Ann Surg 2016

2002-2015

Before matching: 1358 pts

After matching: **110** vs. 330 Ratio 1:3

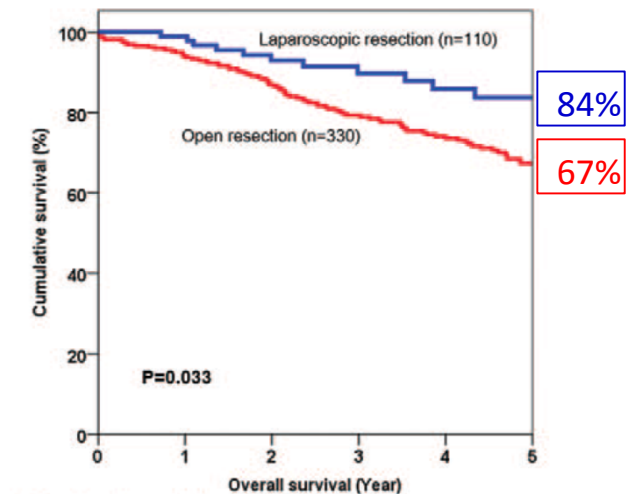
Cirrhosis: 75%

Wedge: 47%

Grade III-V

no advantage

for the lap



No specific focus on PHLF

AIM OF THE STUDY

To compare **LAP** with **OPEN** liver resections in patients with **cirrhosis**

Primary endpoint = **PHLF**

METHODS



Observatoire des hépatectomies
<http://hpbchir.u707.jussieu.fr>

Oct 2012 – June 2016

6 French HPB Centers

Villejuif

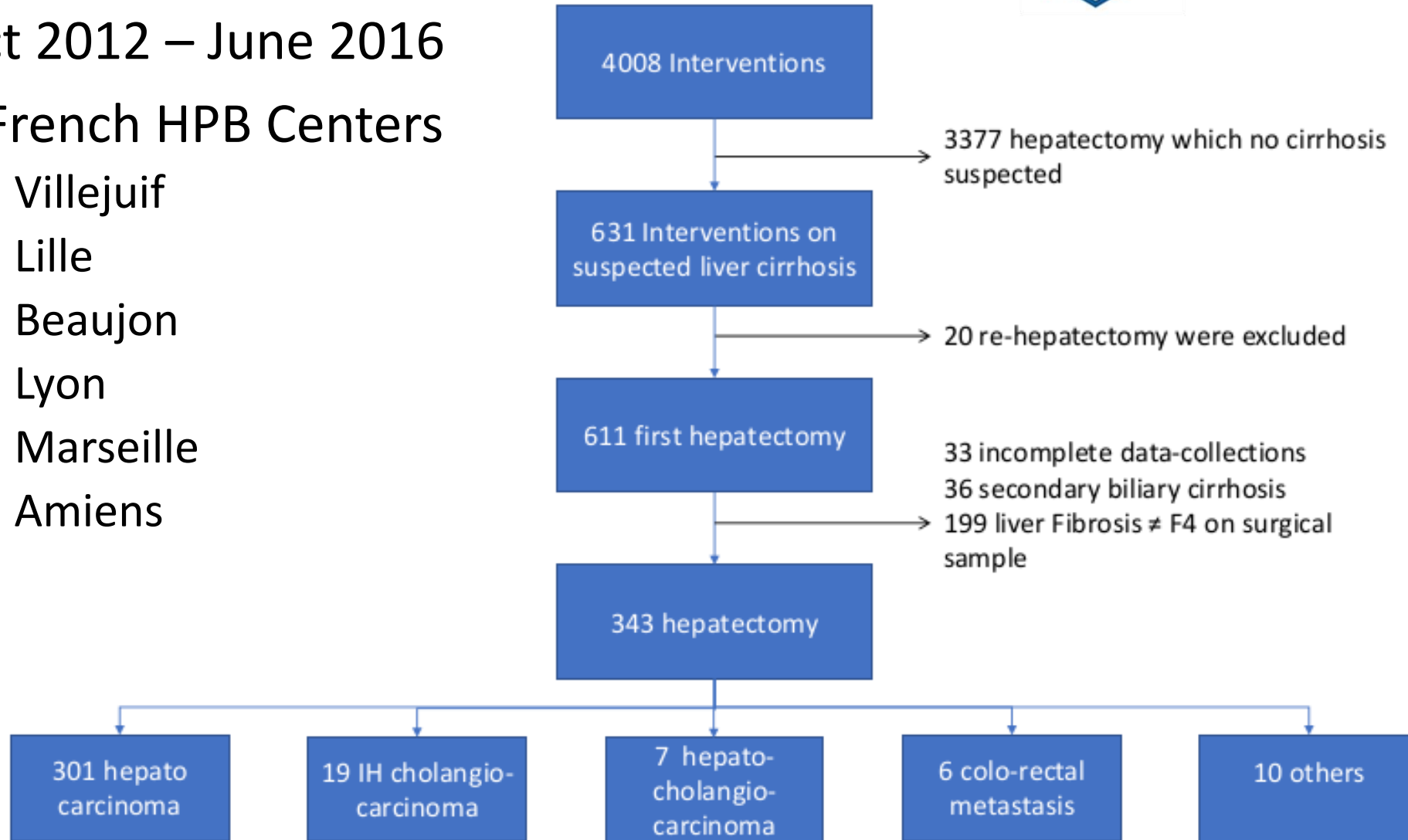
Lille

Beaujon

Lyon

Marseille

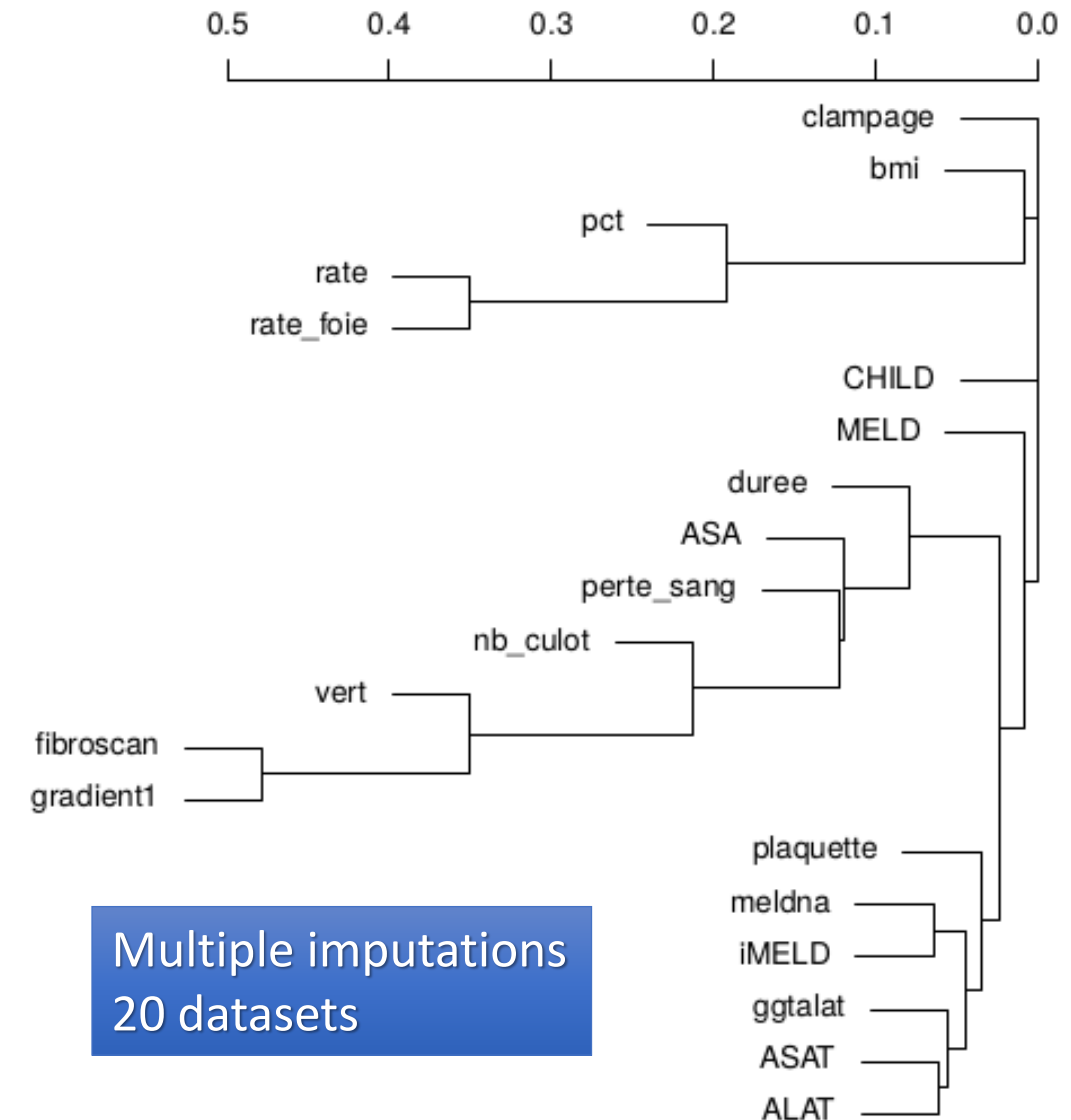
Amiens



METHODS

Patient and tumor characteristics	Liver function	Portal hypertension
Age	Jaundice	Esophageal varices
Sex	Ascites	Platelet count
BMI	Child-Pugh	HVPG
ASA score	MELD score	Liver stiffness
Aetiology of cirrhosis	ICG	Spleen volume
Neoadjuvant therapy	TGO / TGP	Spleen to liver volume ratio
	GGT / ALAT	
Intraoperative variables	RLV ratio	
Laparoscopy (per-protocol)		
Blood loss		
RBC transfusion		
Duration of surgery		
Clamping time		

Missing data = 12%



Multiple imputations
20 datasets

METHODS

Outcome
measurement

ISGLS

0 – A vs. B-C

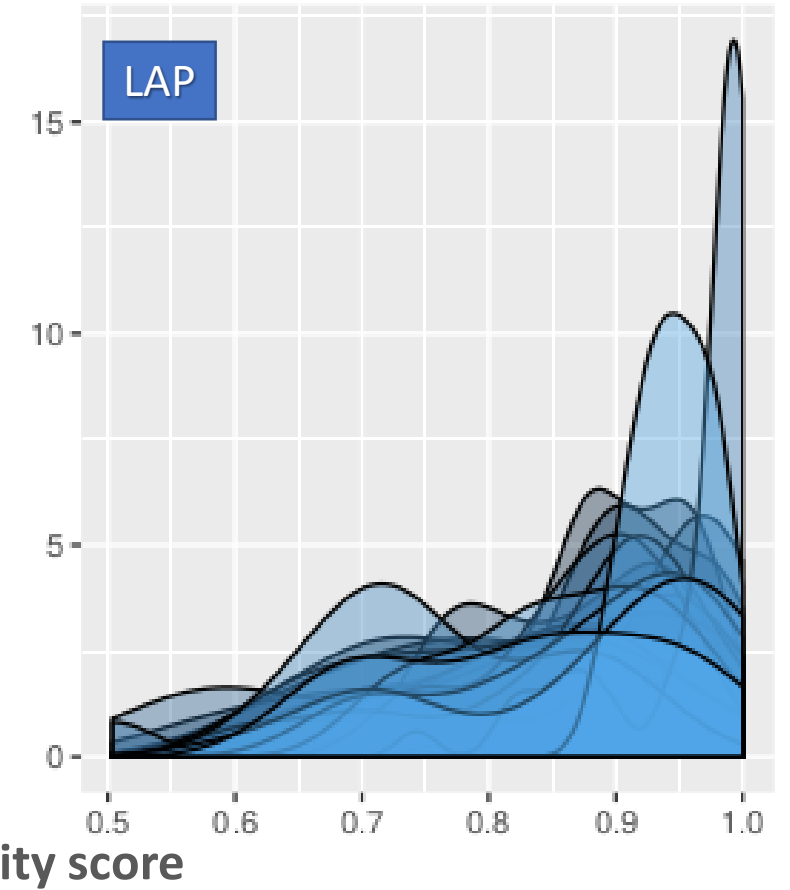
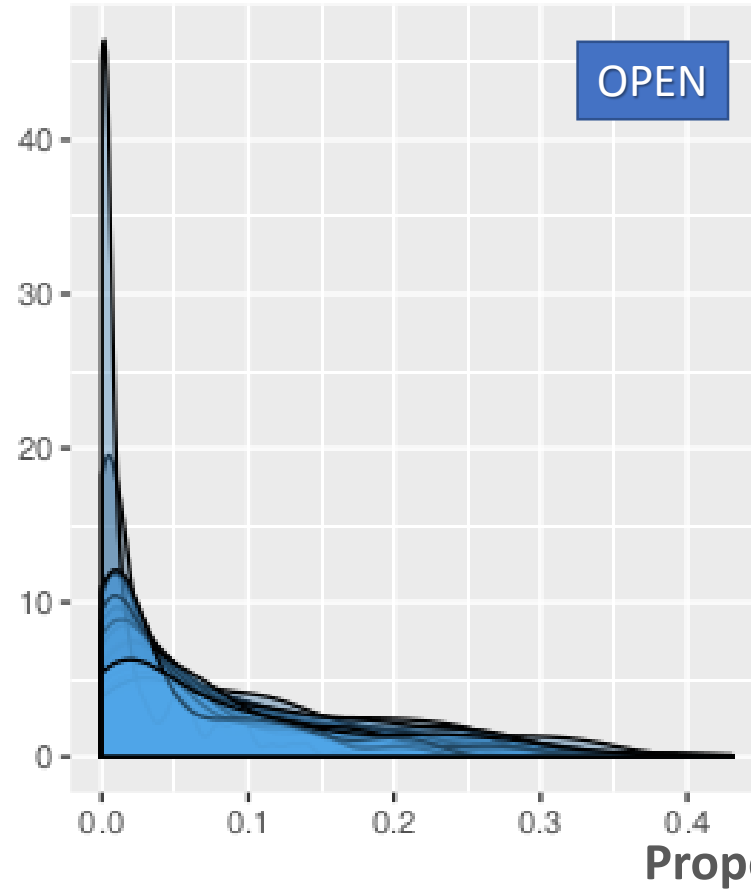
Propensity score

logistic regression

Caliper: 0.2

Matching 1:1

Greedy matching



RESULTS

Before matching

N=343

Male: 84% - Female: 16%

Age: 66.4 yrs

HCC: 88%

Anatomical LR: 57%

Aetiology

OH: 51%

Virus: 39%

NASH: 29%

Laparoscopy: 89 patients (26%)

Blood loss: 537 ml

90-day mortality: 5.25%

Morbidity IIB-V: 18%

PHLF

18% in LAP

49% in OPEN

OR 0.23; $p < 0.001$

Numerous biases

Type of resection

Portal hypertension

RESULTS

After matching

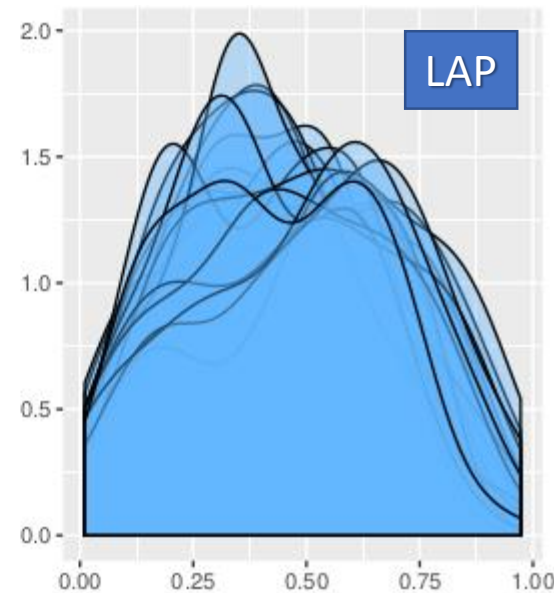
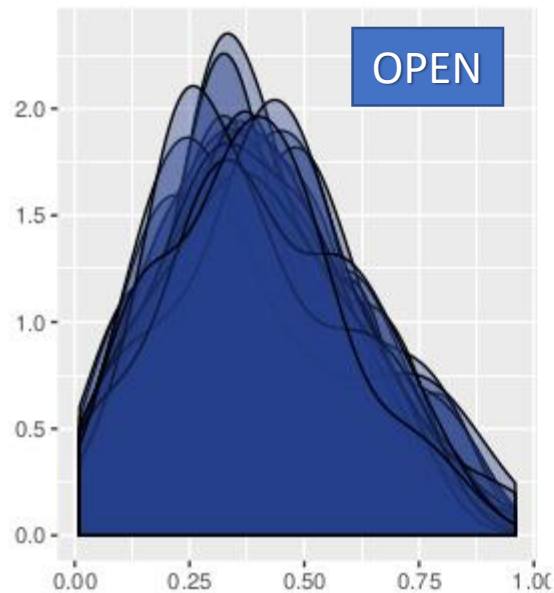
N= 164

LAP: **82** (93%)

OPEN: **82** (37%)

Good balance of covariates

	Matched-LAP	Matched-OPEN
Age (years)	65.3	65.3
BMI (kg/m ²)	26.9	26.9
MELD	8.6	8.5
Platelets (x 1000/mm ³)	167	167
ICG (15 min)	15.2 %	15.0 %
HVPG (mmHg)	7.9	8.1
LS (kPa)	21.8	21.9
RLV (%)	88.6	87.6



Propensity score

PHLF

16% in LAP

32% in OPEN

OR 0.31 [0.12-0.78]; $p < 0.001$

CONCLUSION

LAP liver resection in patients with cirrhosis is associated with a lower risk of PHLF

Should be systematically regarded in those patients and preferred
« whenever possible »

However

Not an intent-to-treat analysis (22% conversion rate)

Not all the patients are eligible for LAP

(PS-matching excluded 63% of the OPEN group)