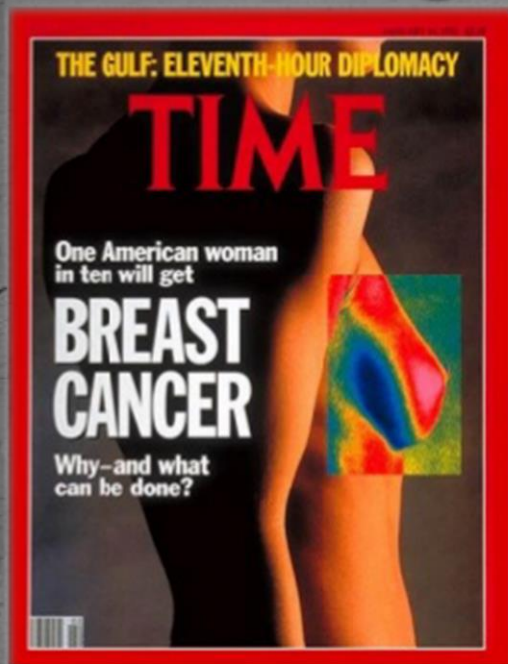


The benefits of surgery for breast cancer liver metastases – a single center experience

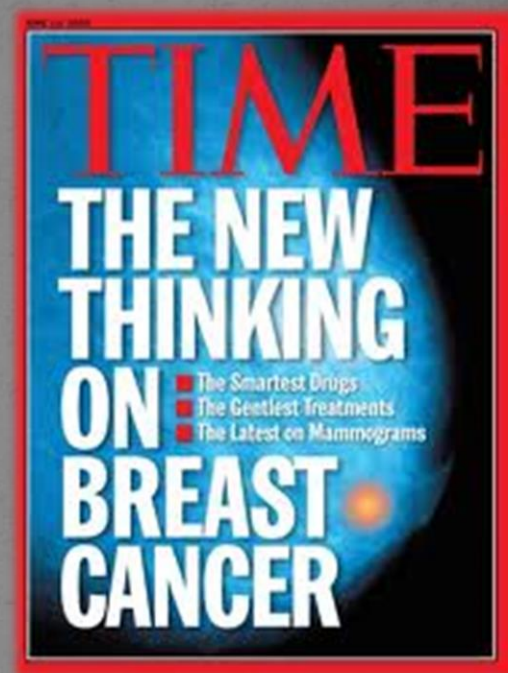
Nicolae Bacalbasa

“Carol Davila” University Of Medicine and Pharmacy

Magnitude of the problem



- Approximately **5% to 10%** of breast cancers are metastatic at diagnosis (1)
- 50% of breast cancer patients will develop distant metastases (2)



Traditionally, the median survival rates of the untreated patients with metastatic breast cancer **range between 3 and 6 months** (3;4), while in patients receiving the modern oncologic treatment the median survival rates did not exceed **15 months** (5; 6)

1 Cordoso F et al. Ann Oncol (2012) 23 (suppl 7):vii11-vii19.

2. Elias D. and Pietroantonio DD. HBP 2006 8 (2):97-99; . 1. Adam R, et al. Ann Surg 2006; 244(6):897-907.

4. Dimick JB, et al. Arch Surg 2003 ;138(2):185-91

5. Fisher B. et al. N Engl. Med. 2002; 347:1233-41; 6. Yoshimoto M et. al. Breast Cancer Res Treat 2000 ;59(2):177-84;

Can we apply the model of liver resection for colo-rectal cancer?

- Liver resection for colo-rectal cancer liver metastases reaches a three year survival close to 50% and represents now standard of care

Managing synchronous liver metastases from colorectal cancer: a multidisciplinary international consensus

René Adam^{a,*}, Aimery de Gramont^b, Joan Figueras^c, Norihiro Kokudo^d, Francis Kunstlinger^a, Evelyne Loyer^e, Graeme Poston^f, Philippe Rougier^g, Laura Rubbia-Brandt^h, Alberto Sobreroⁱ, Catherine Teh^j, Sabine Tejpar^k, Eric Van Cutsem^k, Jean-Nicolas Vauthey^l, Lars Pahlman^m, of the EGOSLIM (Expert Group on OncoSurgery management of Liver Metastases) group

Survival %

First surgery	1 year	2 years	3 years	4 years	5 years
Colon	88%	70%	53%	42%	33%
Liver	91%	75%	53%	46%	42%
Liver+colon	83%	63%	47%	40%	28%

Please cite this article as: Adam, R., de Gramont, A., Figueras, J., Kokudo, N., Kunstlinger, F., Loyer, E., Poston, G., Rougier, P., Rubbia-Brandt, L., Sobrero, A., Teh, C., Tejpar, S., Van Cutsem, E., Vauthey, J-N., Pahlman, L., of the EGOSLIM (Expert Group on OncoSurgery management of Liver Metastases) group, Managing synchronous liver metastases from colorectal cancer: A multidisciplinary international consensus. *Cancer Treatment Reviews* *Cancer Treatment Reviews* (2015), doi: <http://dx.doi.org/10.1016/j.ctrv.2015.06.006>

What could we expect from liver resection breast cancer liver metastases (BCLM)?

- Median survival for liver metastases: 1-14 months (1)
- Median survival for lung metastases: 20-25 months (2)
- Median survival for bone metastases: 50-60 months (3)
- Maybe liver surgery can be regarded as a method of obtaining liver disease free interval shifting survival towards survival for more preferable metastatic sites (bone)
- Prevention of liver failure

(1) L Wyld*,¹, E Gutteridge², SE Pinder³, JJ James⁴, SY Chan⁵, KL Cheung², JFR Robertson² and AJ Evans. Prognostic factors for patients with hepatic metastases from breast cancer British Journal of Cancer (2003) 89, 284 - 290

(2) Rahman ZU, Frye DK, Smith TL, Asmar L, Theriault RL, Buzdar AU, Hortobagyi GN. Results and long term follow-up for 1581 patients with metastatic carcinoma treated with standard dose doxorubicin-containing chemotherapy. Cancer 1999;85:104—11

(3) Sung Gwe Ahn,¹ Hak Min Lee,¹ Sang-Hoon Cho,² Seung Ah Lee,¹ Seung Hyun Hwang,¹ Joon Jeong,¹ and Hy-De Lee¹ Prognostic Factors for Patients with Bone-Only Metastasis in Breast Cancer, Yonsei Med J. 2013 Sep 1; 54(5): 1168-1177.

Is liver resection for BCLM a safe procedure?

Liver resection in general is becoming safe

Original Article | February 2003

- Hepatic Resection in the United States Indications, Outcomes, and Hospital Procedural Volumes From a Nationally Representative Database FREE
- Justin B. Dimick, MD; John A. Cowan Jr, MD; James A. Knol, MD; Gilbert R. Upchurch Jr, MD

Background Hepatic resection has become **common** in the **UNITED STATES** for both primary and secondary hepatic tumors (the number of hepatectomies increased twofold, mortality decreased exponentially).

Is liver resection for BCLM a safe procedure?

Study	Number of patients	Median age (years)	Period	Type of resection	Postoperative morbidity	Management of postoperative complications	Postoperative mortality
Raab <i>et al.</i>	34	47	1983–1996	-	-	-	3%
Selzner <i>et al.</i>	17	48 ^f	1987–1999	wr+segmentectomy – 10 Hemihepatectomy – 5	NR	NR	ARDS syndrome following BCNU chemo
Yashimoto <i>et al.</i>	25	51.3	1985–1998	RH-4 LH-3 Extended LH-4 Left segmentectomy – 1 SR-13	NR	NR	0
Pocard <i>et al.</i>	52	47.07 ^f	1988–1997	RH – 15 LH – 5 Extended LH – 4 SR – 18	11.5% (6 patients) Four pleural effusions one ascites one postoperative hemorrhagic syndrome	One surgical reintervention for hemorrhagic syndrome	0
Maksan <i>et al.</i>	9	44	1984–1998	RH -1 LH -1 Segmental resection-7	No major complication		0
Elias <i>et al.</i>	54	49 years ± 5.2	1986–2001	RH – 20 Extended RH – 7 LH – 3 Extended LH – 2 SR – 12 WR – 12 Two patients underwent repeat hepatectomy	12.9% BL hematoma	Conservative management	0
Ercolani <i>et al.</i>	21 (out of 142 patients with NCNM)	54.6 ± 11.4	1990–2003	83 curative resections for the lot of 142 patients MH >3 segments 41%	17 patients (20,5%)	2 patients/83 – relaparotomy for hemoperitoneum	0

Is liver resection for BCLM a safe procedure?

Study	Number of patients	Median age (years)	Period	Type of resection	Postoperative morbidity	Management of postoperative complications	Postoperative mortality
				WR – 13.3% SR – 45.8%			
Vlastos <i>et al.</i>	31 patients	46	1991–2002	MH >3 segments – 14 patients MiH – 17 pts	NR	NR	0
Adam <i>et al.</i>	85 patients single center	47	1984–2004	MH >3 segments – 54 patients (64%) MiH – 41 patients (36%)	22% (19 pts) - BL 7%	Percutaneous drainage for 10 patients infected intraabdominal collections Urgent reoperation for postoperative hemorrhage	0
					Intra-abdominal infected fluid collections 2 patients (2%) Noninfected perihepatic collections 11 pts (13%) Postoperative hemorrhage 1 patient transient hepatic insufficiency – 1 pt 20 patients (24% general complications)		
Adam <i>et al.</i>	460 patients/1452 (32%)	53 range 10–87	1983–2004	MH (>2 segments)–55% - for the whole lot	Local morbidity – 14%		Perioperative mortality (during the 2 months period following hepatectomy – 2.3%
					General morbidity – 15%		
Sakamoto <i>et al.</i>	34	51	1985–2003	Hemihepatectomies -15 patients Segmentectomies- 4 patients NA – 15	NR	NR	0
Lu brano <i>et al.</i>	16	54	1989–2004	MH 9 (>3 seg) MiH (<3 seg) - 7	6/16 BL-1	NR	0
					Subphrenic abscess -2 Urinary tract infection - 3		
Thelen <i>et al.</i>	39	NR	1988–2006	MH 20 patients (51%)	13% (5 patients) biliomas most frequently	NR	0

Is liver resection for BCLM a safe procedure?

- Mortality – most studies report 0 mortality
- Morbidity – range: 13-22%, most not requiring re-operation
 - Pleural effusion
 - Bile leak
 - Hematoma
 - Wound infection
 - Urinary tract infection
 - Pneumonia
 - Bile duct stenosis

Is liver resection for BCLM a safe procedure?

EUROPEAN JOURNAL OF CANCER 47 (2011) 2282–2290



available at www.sciencedirect.com



journal homepage: www.ejconline.com



Review

Hepatic resection for metastatic breast cancer: A systematic review

Terence C. Chua ^{a,c,*}, Akshat Saxena ^a, Winston Liauw ^b, Francis Chu ^a,
David L. Morris ^{a,c,*}

Table 4 – Safety and clinical efficacy of surgery for breast cancer liver metastases (NR refers to not reported).

First author	Postoperative mortality (%)	Postoperative complication (%)	Median overall survival after hepatectomy (months)	5-Year survival after hepatectomy (%)	Median overall survival from primary (months)	10-Year survival from primary (%)
Rubino ⁶	0	11	74	80	151	NR
Hoffmann ¹¹	0	44	58	48	211	76
O'Rourke ²¹	1	21	38	40	NR	NR
Lubrano ¹⁵	0	38	42	33	NR	NR
Caralt ¹⁰	0	25	36	33	NR	NR
Thelen ¹⁹	0	13	38	42	NR	NR
Kollmar ¹⁷	0	0	52	50	NR	NR
Reddy ²²	4	39	67	NR	NR	NR
Lendoire ²⁴	2	NR	NR	53	NR	NR
Martinez ¹²	0	NR	32	33	NR	NR
Adam ⁹	0	22	46	41	NR	NR
Cordera ²⁰	2	7	39	40	NR	NR
Weitz ²³	0	33	15	NR	NR	NR
Sakamoto ⁷	0	NR	36	21	NR	NR
Ercolani ¹⁸	0	21	40	25	NR	NR
Vlastos ¹³	0	NR	62	61	NR	NR
Elias ¹⁴	0	13	34	34	NR	NR
Selzner ⁸	6	6	27	22	NR	NR
Pocard ¹⁶	0	12	42	NR	NR	NR
Range	0–6	0–44	15–74	21–80	–	–
Median	0	21	40	40	–	–

Does liver resection for BCLM improve survival?

Author	Median survival (months)	3-year survival (%)	5-year survival (%)
Raab <i>et al.</i>	27	50	18.4
Selzner <i>et al.</i>	24	35	22 (17% disease free)
Yashimoto <i>et al.</i>	34	71 (2 years survival)	27
Pocard <i>et al.</i>	42	65	NR
Makson <i>et al.</i>	NR	NR	51 (estimated)
Elias <i>et al.</i>	34	50	34
Ercolani <i>et al.</i>	40.3	53.9	24.6
Vlastos <i>et al.</i>	63	86 (2 years survival)	61
Adam <i>et al.</i>	32 (46 from the date of liver metastasis diagnosis)	NR	37% (41% from the date of liver metastases diagnosis)
Adam <i>et al.</i>	45	NR	41
Sakamoto <i>et al.</i>	36	52	21
Lubrano <i>et al.</i>	42	61	33
Thelen <i>et al.</i>	NR	50	42
Bockhorn <i>et al.</i>	NR	53	44
Caralt <i>et al.</i>	35.9	79	33
Belda <i>et al.</i>	33.8	NR	23
Hofmann <i>et al.</i>	58	68	48
Van Walsum <i>et al.</i>	55	WR	37
Abbott <i>et al.</i>	57	NR	NR
Dittmar <i>et al.</i>	36	NR	28
Kostov <i>et al.</i>	43	64.1	38.5
Ehrl <i>et al.</i>	29	31	20,7
Bacalbasa <i>et al.</i>	32.2	74.42	58.14

Does liver resection for BCLM improve survival?

- No prospective case matched study
- One retrospective case matched study

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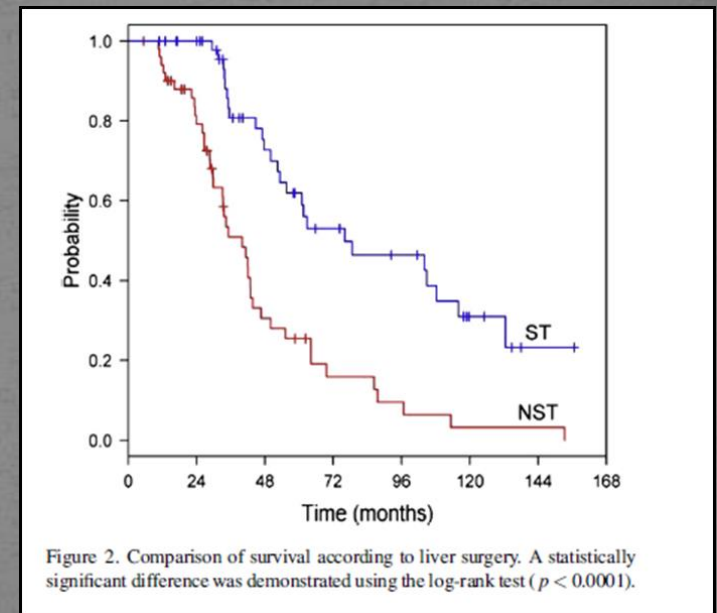
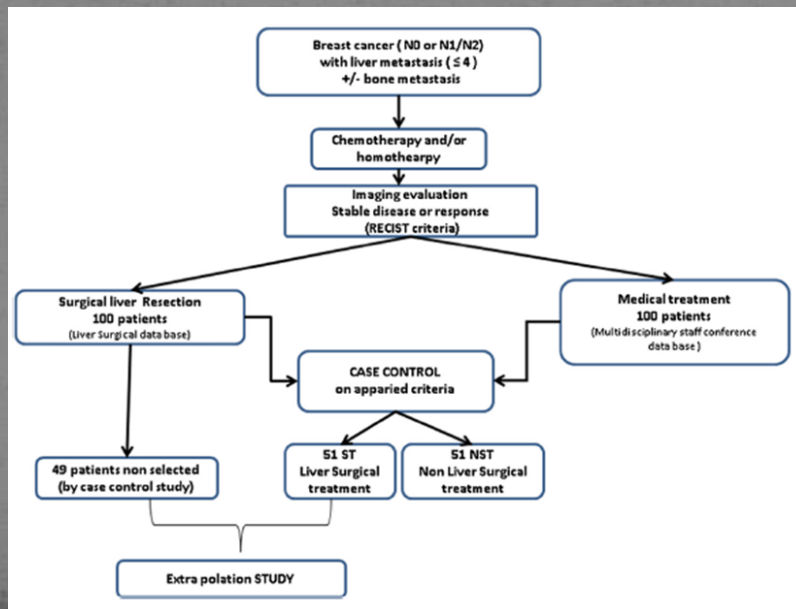
EJSO 39 (2013) 1377–1383

Liver metastases from breast cancer: Surgical resection or not? A case-matched control study in highly selected patients

P. Mariani ^{a,*}, V. Servois ^b, Y. De Rycke ^c, S.P. Bennett ^a, J.G. Feron ^a, M.M. Almubarak ^a, F. Reyat ^a, B. Baranger ^a, J.Y. Pierga ^d, R.J. Salmon ^a

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Accepted 17 September 2013
Available online 6 October 2013



Should patients with other metastatic sites (apart liver) be excluded from surgery?

ORIGINAL ARTICLES

Is Liver Resection Justified for Patients With Hepatic Metastases From Breast Cancer?

René Adam, MD, PhD, Thomas Aloia, MD,* Jinane Krissat, MD,* Marie-Pierre Bralet, MD,* Bernard Paule, MD,* Sylvie Giacchetti, MD,† Valerie Delvart,* Daniel Azoulay, MD, PhD,* Henri Bismuth, MD,* and Denis Castaing, MD**

- 85 patients resected for BCLM
- 19 (22,3%) were treated (before hepatectomy for loco-regional recurrence
- 16 (18,8%) presented extra-abdominal metastases
- 14 (16,4%) presented extra-hepatic intra-abdominal metastases
- Aggressive surgery achieved complete resection of metastatic burden in 50/85 patients

Median survival **32 months** 5 year survival **37%** from the time of hepatectomy

Should we perform chemotherapy prior to liver resection?

Resection of liver metastases from breast cancer: Estrogen receptor status and response to chemotherapy before metastasectomy define outcome

Daniel E. Abbott, MD,^a Antoine Brouquet, MD,^a Elizabeth A. Mittendorf, MD,^a Andreas Andreou, MD,^a Funda Meric-Bernstam, MD,^a Vicente Valero, MD,^b Marjorie C. Green, MD,^b Henry M. Kuerer, MD, PhD,^a Steven A. Curley, MD,^a Eddie K. Abdalla, MD,^a Kelly K. Hunt, MD,^a and Jean-Nicolas Vauthey, MD,^a *Houston, TX*

- Patients who responded well to neo-adjuvant chemotherapy have a good prognosis after resection
- Progression under neo-adjuvant chemotherapy is the worst prognostic factor

When should hepatectomy be performed? The narrow window of opportunity for liver resection

Resection of liver metastases from breast cancer: Estrogen receptor status and response to chemotherapy before metastasectomy define outcome

Daniel E. Abbott, MD,^a Antoine Brouquet, MD,^a Elizabeth A. Mittendorf, MD,^a Andreas Andreou, MD,^a Funda Meric-Bernstam, MD,^a Vicente Valero, MD,^b Marjorie C. Green, MD,^b Henry M. Kuerer, MD, PhD,^a Steven A. Curley, MD,^a Eddie K. Abdalla, MD,^a Kelly K. Hunt, MD,^a and Jean-Nicolas Vauthey, MD,^a *Houston, TX*

- Timing is crucial, the best response following chemo-hormonotherapy should be obtained, but hepatectomy should be performed before chemo-resistance develops

Should liver surgery be proposed to elderly patients?

ANTICANCER RESEARCH 34: 5563-5568 (2014)

Role of Surgical Treatment in Breast Cancer Liver Metastases: A Single Center Experience

NICOLAE BACALBASA¹, SIMONA OLIMPIA DIMA², RALUCA PURTAN-PURNICHESCU³,
VLAD HERLEA⁴ and IRINEL POPESCU²

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³*Department of Mathematical Methods & Models, University Politehnica Bucharest, Faculty of Applied Sciences, Bucharest, Romania;*

⁴*Department of Pathology, Fundeni Clinical Institute, Department of Pathology, Bucharest, Romania*

managed in a conservative manner. Surgical management proved safe regardless of age, being performed also to older patients (5 patients >70 years old at the time of liver surgery). While there appears to be a survival benefit in general, it is important to identify who benefits most, thus tracing future indications of the procedure.

Prognostic factors for survival following liver resection for BCLM

- **Size of the breast tumor**
 - No study revealed any association between primary tumor size (T) and survival after resection for BCLM (1,2)
- **Nodal status at the time of breast cancer diagnosis:**
 - In Pocard's study – liver recurrence rate was statistically higher in N1b-N2 patients than in No-N1a patients ($p=0.021$) (2).

1. Belda et al – Role of resection surgery in breast cancer liver metastases. Experience over the last 10 years in a reference hospital. *Cir. Esp.* 88(3), 167-173 (2010)
2. Pocard M et al. Hepatic resection in metastatic breast cancer: results and prognostic factors, *Eur. J. Surg Oncol.* 26 (92), 155-159 (2000)

Prognostic factors for survival following liver resection for BCLM

- Disease free interval between primary tumor resection and liver metastases diagnosis
 - Few studies confirm that a longer than 1 year disease free interval between breast surgery and development of BCLM is significantly associated with an improved survival (1,2)
 - Similar results were reported by Pocard et al in patients developing BCLM at more than 48 months (3).

(1) Belda et al – Role of resection surgery in breast cancer liver metastases. Experience over the last 10 years in a reference hospital. *Cir. Esp.* 88(3), 167-173 (2010)

(2) Hoffmann et al, Liver resection for multimodal treatment of breast cancer metastases: identification of prognostic factors. *Ann. Surg. Oncol.* 17 (6), 1546-1554 (2010)

(3) Pocard M et al. Hepatic resection in metastatic breast cancer: results and prognostic factors, *Eur. J. Surg Oncol.* 26 (92), 155-159 (2000)

Prognostic factors for survival following liver resection for BCLM

- Number and diameter of liver metastases
- Most studies failed to find any correlation between number/size of BCLM and survival rates after hepatectomy
- The only study finding that the number of BCLM is an independent prognostic factor comes from Lubrano et al (p=0,04) (1)

(1) Lubrano et al, Liver resection for breast cancer metastasis: does it improve survival? Surg. Today 38(4), 293-299 (2008)

Prognostic factors for survival following liver resection for BCLM

- Resection margins
 - Most studies revealed that patients submitted to an R₀ resection have a better outcome (1,2,3)
 - In Hoffman's study patient submitted to R₁/R₂ resections were six-times more likely to die than patients submitted to an R₀ resection (3)

(1)Ditmar et al, Liver resection in selected patients with metastatic breast cancer: a single-center analysis and review of the literature, *J. Cancer Res. Clin. Oncol.* 139(8), 1317-1325 (2013)

(2)Thelen et al, Liver resection for metastases from breast cancer. *J. Surg. Oncol.* 97(1), 25-29 (2008)

(3)Hoffmann et al, Liver resection for multimodal treatment of breast cancer metastases: identification of prognostic factors. *Ann. Surg. Oncol.* 17 (6), 1546-1554 (2010)

Prognostic factors for survival following liver resection for BCLM

- Primary breast tumor hormone receptor status
 - Many studies revealed a favorable correlation between the positive status of hormone-receptors (mainly ER) and survival after liver resection (1,2)
 - Elias et al revealed a relative risk of death 3,5-fold increased when hormone-receptors are negative
 - Abbott et al found that negative estrogen receptors are associated with decreased overall survival

1. Elias et al, An attempt to clarify indications for hepatectomy for liver metastases from breast cancer. *Am. J. Surg.* 185(2), 158-164 (2003)
2. Abbott DE et al, Resection of liver metastases from breast cancer: estrogen receptor status and response to chemotherapy before metastasectomy define outcome. *Surgery* 151(5), 710-716(2012)

*Single center experience - “Dan Setlacec” Center of Gastrointestinal
Disease and Liver Transplantation
Fundeni Clinical Institute*

2002-2015

52 patients were proposed liver resection for BCLM

- 43 patients underwent liver resections

- 2 patients underwent RFA

- 7 patients – abdominal exploration revealed unresectable disease

Excluded
from the
study

35 patients (81,4%) received neoadjuvant chemo/hormonotherapy prior to liver resection

Single center experience - “Dan Setlacec” Center of Gastrointestinal Disease and Liver Transplantation Fundeni Clinical Institute

2002-2015

Characteristics of the breast tumor

Variable	Number of patients	%
Age at breast cancer surgery (years)		
Mean (\pm SD)	53.47 (\pm 11.09)	
Median (range)	52 (31-79)	
T stage of the primary tumor		
T1-2	23	54
T3-4	10	23
NA*	10	23
N stage lymph node status		
N0	12	28
N1-N2	21	49
NA	10	23
M-Metastasis status		
M0	29	67
M1	4	10
NA	10	23
Tumor grade		
G1	5	11
G2	14	33
G3	9	21
NA	15	35
Stage of disease		
IA	5	11
IIA-IIIB	16	37
IIIA-IIIB	8	19
IV	4	10
NA	10	23
Histology		
Invasive ductal adenocarcinoma	5	63
Invasive lobular carcinoma	28	12
NA	10	23
Hormone receptor status (HR)		
ER positive /negative (N=27)	22/5	82/18
PR positive/negative (N=29)	22/7	82/18
HER2 (n=27)		
Overexpressed	10	37
Not expressed	17	63
Postoperative systemic therapy		
Yes (Taxane-based, n=17; Non-taxane, n=24)	41	96
No	2	4

Estrogen receptor (ER), Progesteron receptor (PR), human epidermal growth factor receptor 2 (HER2); *NA= not available data.

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Setlacec” Center of Gastrointestinal
Disease and Liver Transplantation
Fundeni Clinical Institute*

2002-2015

*Characteristics of the
liver metastases*

Variable	No. of patients	%
No. of liver metastases		
Solitary	24	56
Multiple	19	44
Maximal liver metastasis size		
≤5 cm	29	67
>5 cm	10	23
NA	4	10
Tumor grade		
G1-G2	14	33
G2-G3	25	58
NA	4	9
Chronology of metastases		
Synchronous	4	9
Metachronous	39	91
Hepatic resection		
Minor (<3)	29	67
Major (>3)	14	33
Resection margin status		
R0	39	91
R1	4	9
Mortality rate	0	0
Morbidity rate	7	16

*NA= Not available data.

*Single center experience - "Dan Setlacec" Center of Gastrointestinal Disease
and Liver Transplantation
Fundeni Clinical Institute
2002-2015*

Morbidity and mortality

Mortality – the 60 days following surgery = **0**

Morbidity – 7 patients – **16,2%**

- Biliary leakage –
- Intra-abdominal abscess- 2
- Urinary infection -1
- Wound infection -1

*Single center experience - “Dan Setlacec” Center of Gastrointestinal Disease and Liver Transplantation
Fundeni Clinical Institute
2002-2015*

Survival

-median survival: **32,2 months** (range = 3-123,7 months)

Survival	following breast cancer surgery	following liver resection for BCLM
Median survival	59,70 m	32,2 m
1 year	100%	93,02%
3 years	94,12%	74,42%
5 years	72,55%	58,14%
Longest survival	255,2 m	123,7 m

Single center experience - “Dan Setlacec” Center of Gastrointestinal Disease and Liver Transplantation Fundeni Clinical Institute 2002-2015

Prognostic factors / who benefited the most?



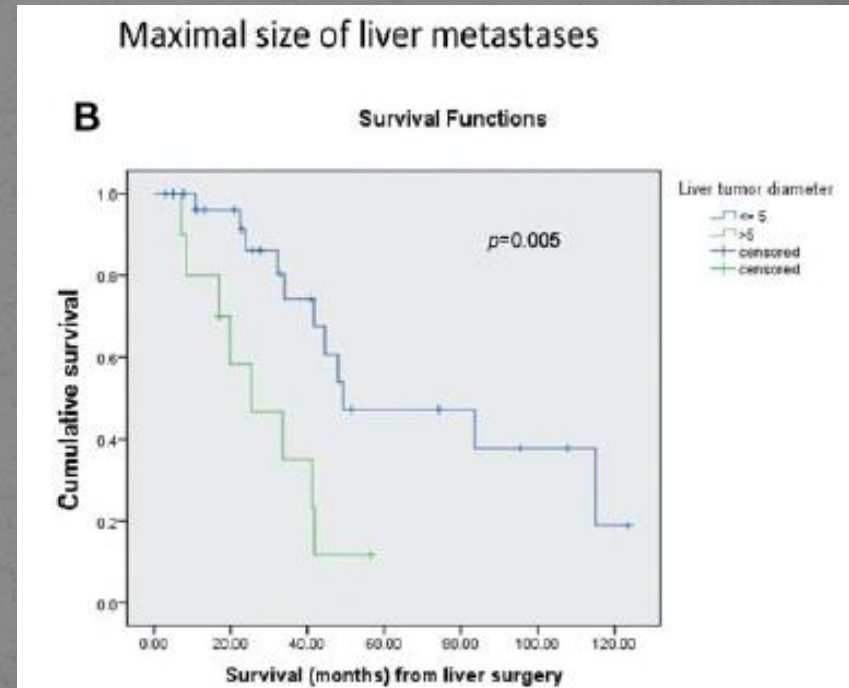
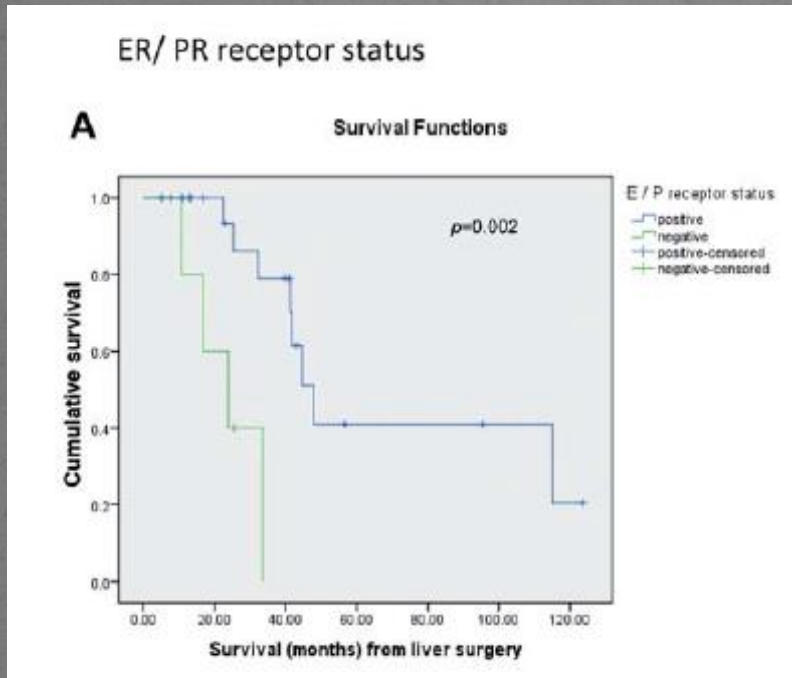
Characteristics	Survival after liver resection - median (range-months)	Log-rank test p-Value
Age (years)		
≤50	23.9 (3-115.1)	0.787
>50	33.4 (4.9-123.7)	
Lymph node status - primary breast tumor		
N0	34.75 (5.2-123.7)	0.049*
N1+N2	32.45 (3-95.4)	
Tumor grade- primary breast tumor		
G1	27.7 (10.8-83.6)	0.795
G2	41.35 (5.2-123.7)	
G3	32.2 (13.2-115.1)	
Stage of disease - primary breast tumor		0.488
I (n=5)	27.7 (5.2-56.6)	
IIA si IIB (n=16)	28.9 (10.8-123.7)	
IIIA si IIIB (n=8)	25.45 (3-95.4)	
IV (n=4)	44.85 (10.95-83.6)	
ER status- primary breast tumor		
Positive (n=22)	36 (5.2-123.7)	0.002*
Negative (n=5)	23.9 (10.8-33.6)	
PR status - primary breast tumor		
Positive (n=22)	36 (5.2-123.7)	0.002*
Negative (n=7)	23.9 (10.8-33.6)	
HER2 status- primary breast tumor		
Overexpressed (n=22)	21.25 (7.7-48)	0.335
Negative (n=5)	27.7 (5.2-123.7)	
Adjuvant therapy for breast cancer		
Yes	39.8 (4.9-123.7)	0.436
No	25.8 (3-95.4)	
Taxane-/non taxane-based drugs		
Taxane	16.9 (3-107.7)	0.605
Non-taxane	40.4 (11.1-115.1)	
Tumor grade- liver metastases		
G1-G2	22.9 (10.95-48)	0.587
G2-G3	25.6 (4.9-123.7)	
Maximal size of liver metastases (cm)		
≤5	32.2 (3-123.7)	0.005*
>5	22.5 (7.1- 56.6)	
Number of liver metastases		
Solitary	33.2 (3-123.7)	0.006*
Multiple	25.3 (4.9-95.4)	
Hepatic resection		
Minor (<3)	39.8 (3-123.7)	0.086
Major (>3)	23.3 (4.9-83.6)	
The first site of recurrence		
Liver	33.2 (3-123.7)	0.616
Bone, lung, breast (N=5)	16.9 (4.9-51.4)	

*Statistically significant, estrogen receptor (ER), progesteron receptor (PR), human epidermal growth factor receptor 2 (HER2).

Single center experience - "Dan Setlavec" Center of Gastrointestinal Disease and Liver Transplantation Fundeni Clinical Institute

2002-2015

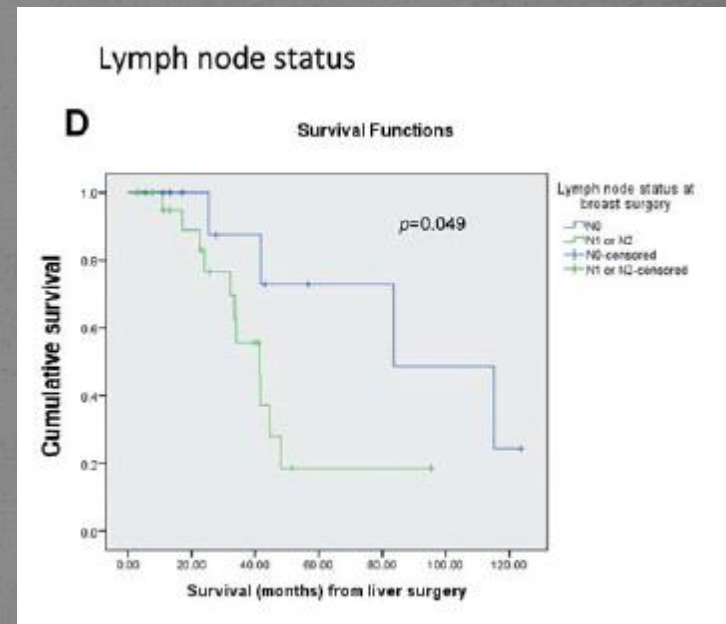
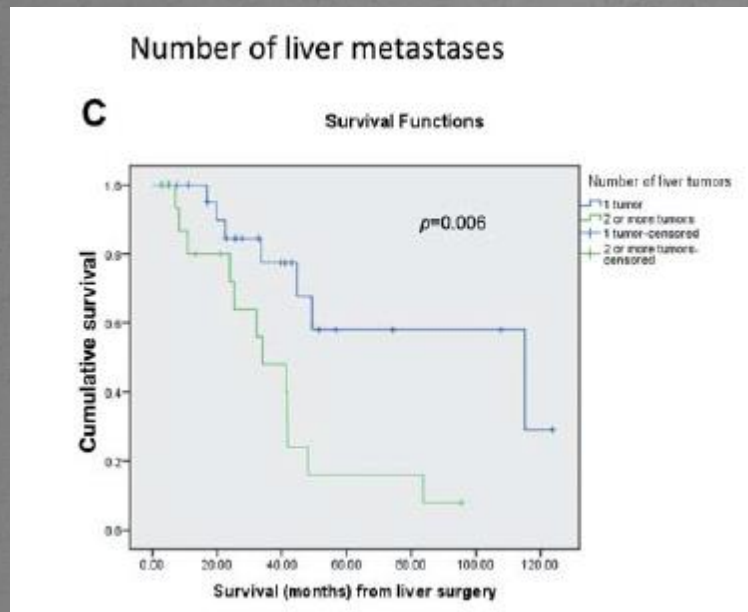
Prognostic factors / who benefited the most?



Single center experience - "Dan Setlacec" Center of Gastrointestinal Disease
and Liver Transplantation
Fundeni Clinical Institute

2002-2015

Prognostic factors / who benefited the most?



*Single center experience - “Dan Setlacec” Center of Gastrointestinal Disease
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2002-2015*

Is there a place for re-resection for liver recurrence?

- 6 /43 patients underwent a second liver resection
- Overall survival after re-resection was 28 months (range 10-44 months)
- 2 patients underwent a third resection

*Single center experience - “Dan Setlacec” Center of Gastrointestinal Disease
and Liver Transplantation
Fundeni Clinical Institute
2002-2015*

Long survivors

Case	Age (years)	ER/PR	Interval to liver metastases (months)	Neoadjuvant therapy before liver resection	Type of liver surgery	Adjuvant therapy after liver resection	Number of liver metastases	Maximal size of liver metastases (cm)	Second liver metastases resection (Yes/no)	Survival from breast surgery (months)	Survival from first liver resection (months)
1	78	++	25.3	T	Minor	NA	1	3.5	No	149.5	Alive, 123.7
2	31	++	69.4	T+G	Minor	P+C	1	3	Yes	185	Alive, 115.1
3	52	NA	15.7	T	Minor	T	1	4.5	No	123.4	Alive, 107.7
4	54	++	19.7	FEC+H	Minor	FEC	2	3.5	No	116.1	Alive, 95.4
5	71	NA	Synchronous	CMF	Major	CMF	4	5	No	84.3	Dead, 84.3
6	69	++	39	T+HT	Major	Ca	1	6	Yes	95.6	Alive, 56.6
7	60	NA	51.4	CMF	Minor	No	1	4	No	106.2	Alive, 51.4
8	66	++	12	T+HT	Minor	T+HT	1	3	No	61	Dead, 49.3
9	40	++	Synchronous	FEC	Minor	V+ CI +TR	2	3	Yes	48	Alive, 48

FEC= Epirubicin/ cyclophosphamide/ 5-fluorouracil, CMF= cyclophosphamide/ cyclophosphamide/5-fluorouracil, HT= hormonotherapy, T= taxotere, G= gemcitabine, P= paclitaxel, C= carboplatin, CI= cisplatin, V= vinorelbin, CA= capecitabine, Tr= trastuzumab.

Conclusions

- Liver resection should be considered in the multimodal treatment approach of patients with metastatic breast cancer.
- The treatment should be tailored to each individual patient.
- Surgical resection of liver metastases from primary breast cancer appears to provide a survival benefit for highly selected patients.

THANK YOU!

**ALL ROADS
THAT LEAD TO
SUCCESS
HAVE TO PASS THROUGH
HARD WORK
BOULEVARD
AT SOME POINT**



ERIC THOMAS

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