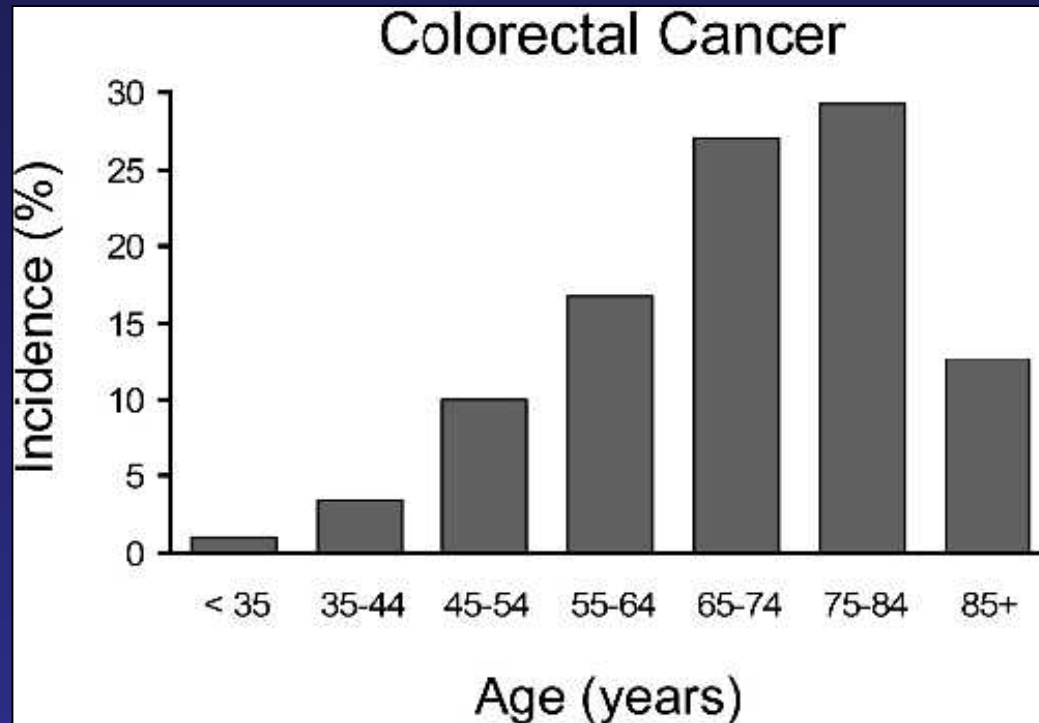


# **Surgical treatment of colorectal liver metastases in elderly patients**

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# Cancer incidence



Age distribution of the incidence of colorectal cancer cases in the USA 1997-2001 (from Petrowsky et al World J Surg 2005)

# Colorectal liver metastases

- 30% of patients present with distant metastases
- Liver most frequent site of metastases
- Pts > 75 years are 2-5 times less likely to be offered resection of liver metastases

# Colorectal liver metastases

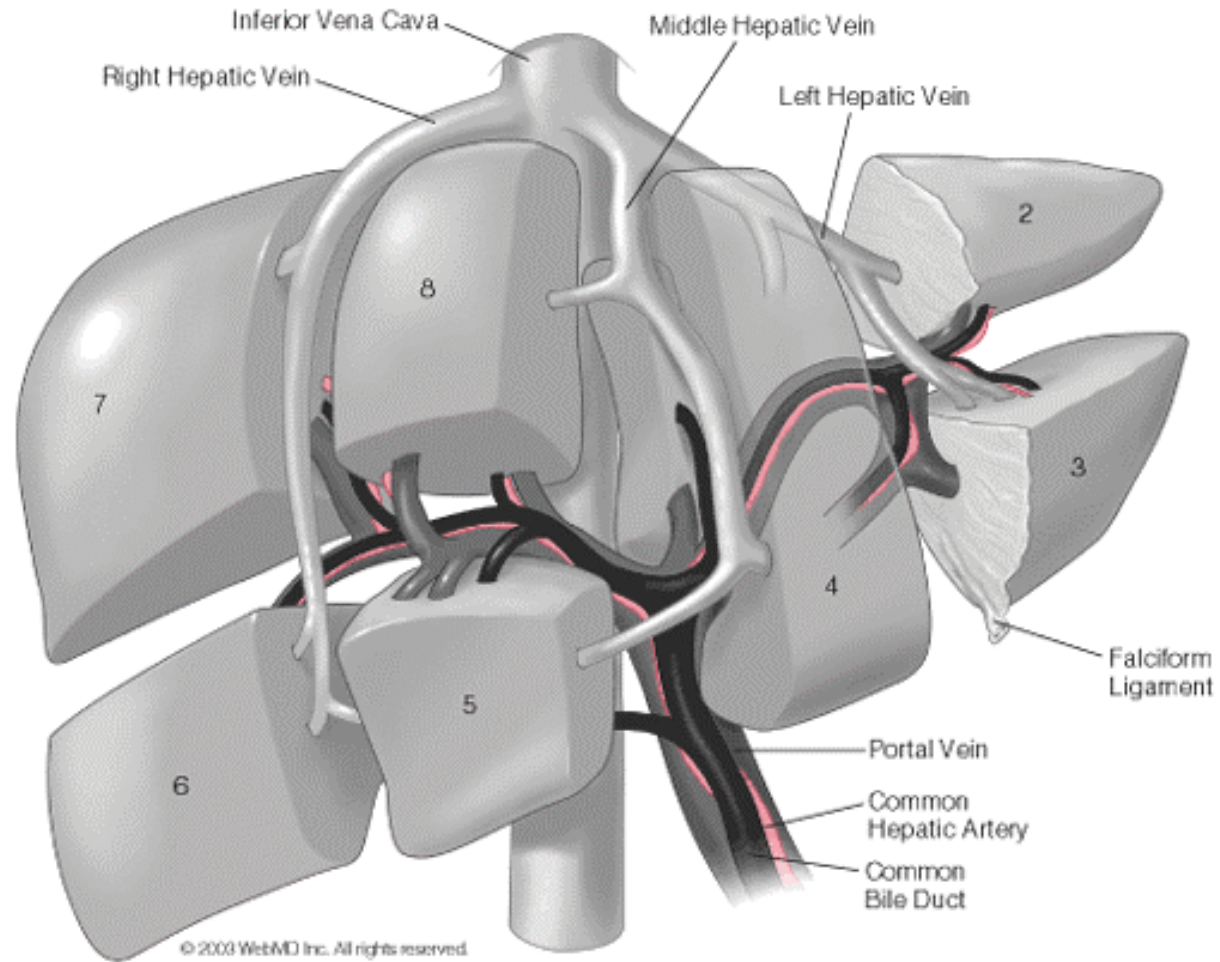
- Survival after palliative care only 0-14%
- Oxaliplatin and irinotecan regimens only lead to a median survival of 9-22 months
- Yet: 30%-40% 5 year survival after resection of liver metastases

# Colorectal liver metastases

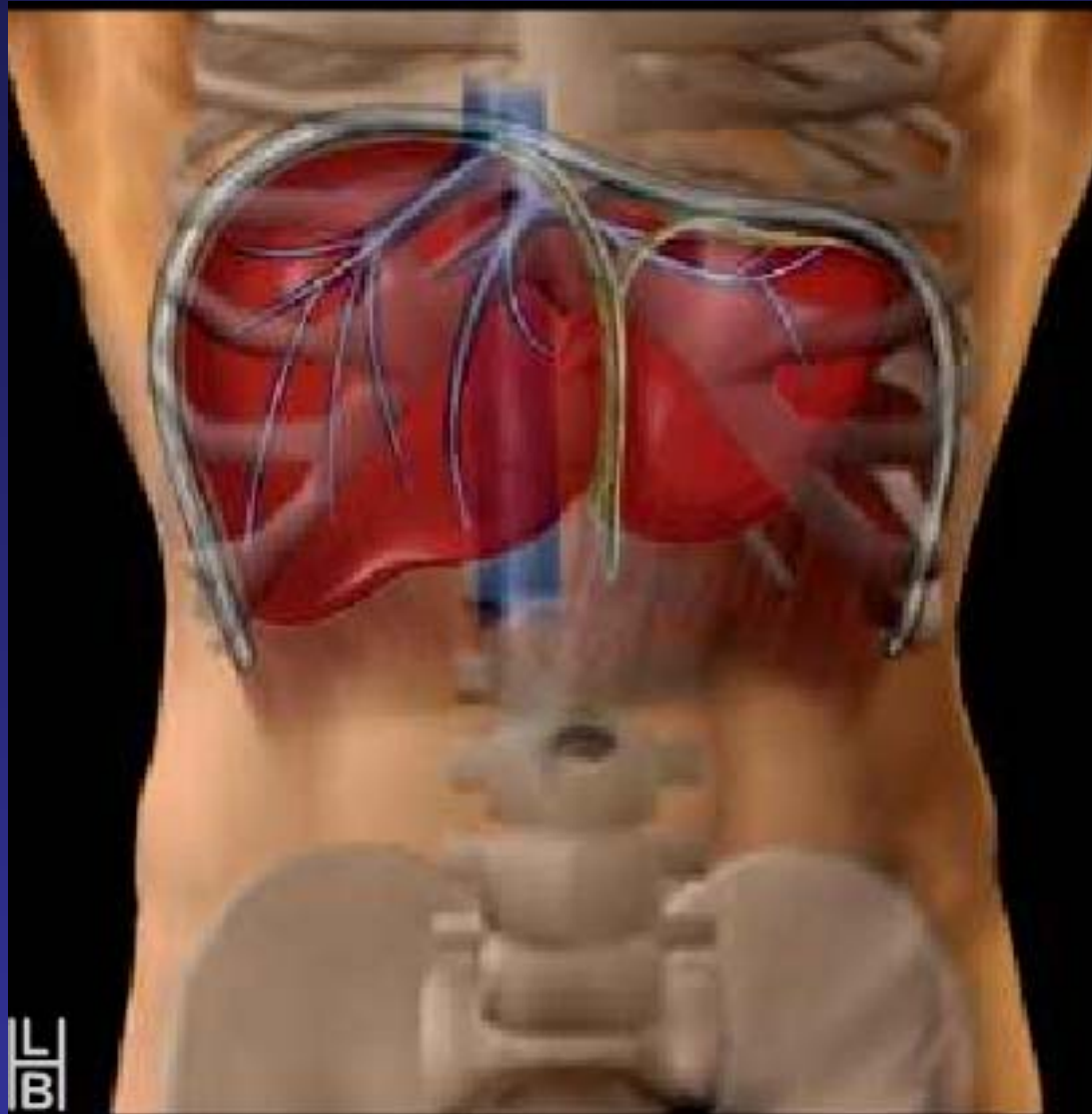
- Liver resection offers long-term survival and possible cure
- Little is known about the comparative risk factors for survival following such surgery in elderly patients

# Why not perform resection?

- Burden of surgery
- Comorbidity
- Increased risk of liver failure in the elderly



# Liver Anatomy





# Physiological changes in aging liver

- Hepatic size decreases from the age of 50
- Total number of hepatocytes decreases
- Hepatic blood flow decreases
- Hepatic synthesis of clotting factors may be reduced
- When challenged hepatic synthesis of several proteins (acute phase proteins) may be impaired

# Physiological changes in aging liver

- No evidence of increase in liver failure in elderly patients after hepatic resection in healthy liver
- Prevent Pringle manoeuvre
- Presence of Child Pugh B and C cirrhosis in elderly pt is contraindication for hepatic resection

# Literature on hepatic resection of colorectal liver metastases in the elderly

Author	Period	N	Age (years)	Postoperative morbidity	Postoperative mortality	Overall 5 yr survival	Median survival (months)
Zieren <sup>72,73</sup>		18 90	>70 27-78	28% 26%	6% 3%	25% 32%	18 27
Fong <sup>5</sup>	1985-1994	128 449	≥70 <70	42% 40%	4% 4%	35% 39%	40 44
Brunken <sup>53</sup>	1987-1996	25 141	≥70 <70	28% 26%	4% 3.5%	44% 33%	49 28
Brand <sup>62</sup>	1971-1995	41 126	≥70 <70	29% 17.5%	7.3% 2.4%	16% 21%	22.9 33.5
Zacharias <sup>43</sup>	1990-2000	56 16	>70 >70	41% 38%	0% 7%	22% 0%	33 17
Cummings <sup>2</sup>	1991-2001	833	≥65	31.9%	4.3%	32.8%	45
Mazzoni <sup>46</sup>	1987-2002	53 144	≥70 <70	20.7% 14.6%	5.7% 2.1%	30% 38%	28 31
Adam <sup>126</sup>	Jan-July 2006	735 3698	≥70 <70	32% 30%	4.3% 1.6%	35% 43%	41.8 46.8

# LiverMetSurvey

- International registry for colorectal liver metastases
- 41 centres, 21 countries, 5403 pts
- Long term evaluation, large No's, avoiding single centre effect

# Results

- January 1991-July 2006: 3773 colorectal liver metastases patients underwent hepatectomy  
735 (19%) -  $\geq 70$  years

# Age-comparative demography

Variable	<70 years n= 3008	≥70 years n= 735	P
Met >50 mm	24%	28%	0.015
>3 mets.	23%	11%	<0.0001
<3 segments	42%	52%	0.003
Curative	94%	91%	0.01
Pre-op chem	45%	32%	<0.0001
Peri-op mort	1.6%	4.3%	<0.0001

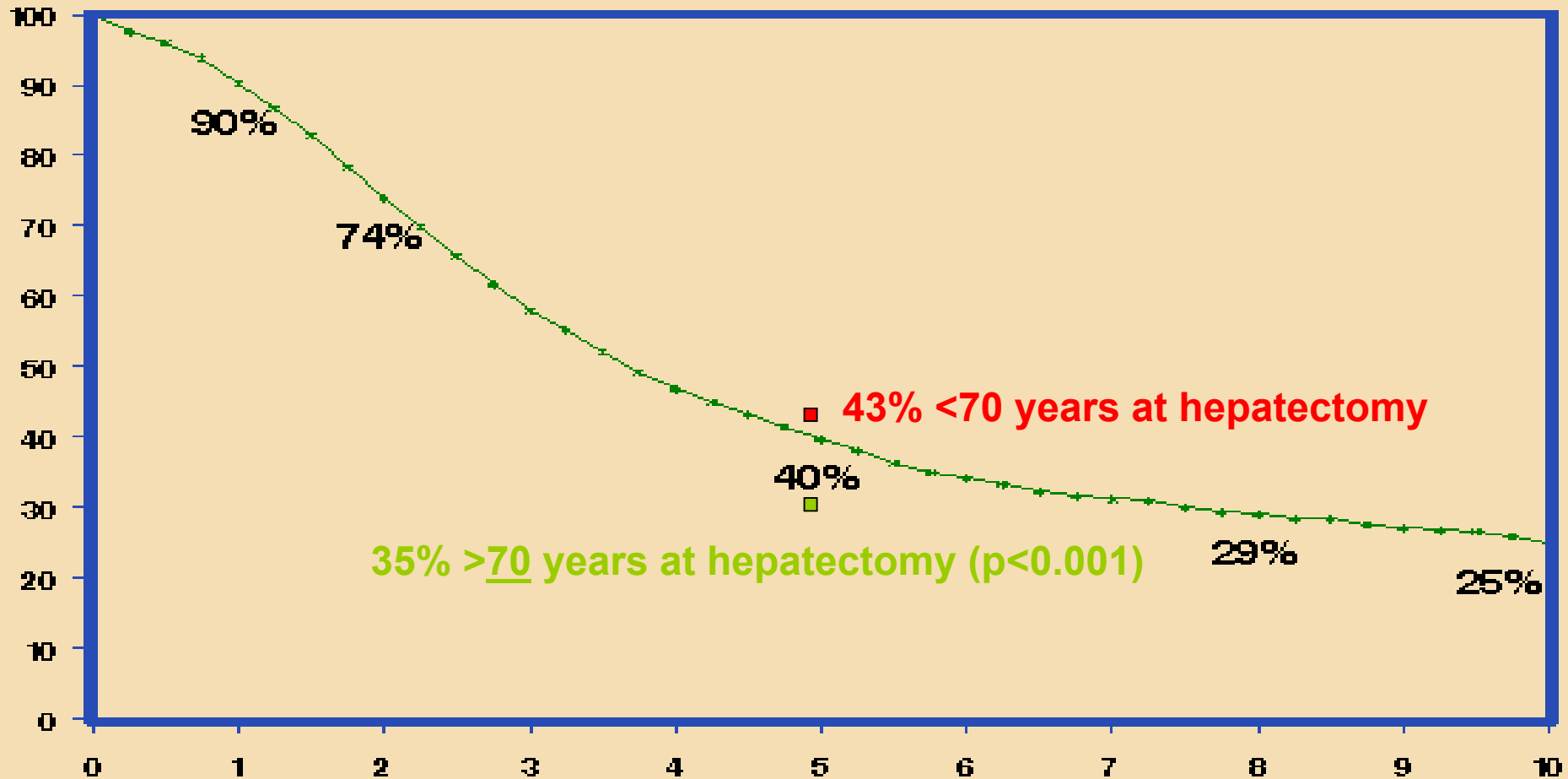
# Comparative risk factors in elderly: 5-year survival

Risk factor	<70 years	≥70 years	P
Synchronous metastases	39%	24%	0.04
Bilobar disease	42%	23%	0.006
Co-existing extra-hep disease	36%	21%	0.01

# Overall survival after hepatectomy

## Patient Survival post hepatectomy<sup>1</sup>

All LiverMetSurvey population : 4889 patients (+ 167 missing data)





# 5 year survival after hepatectomy

Overall 40%

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<70 years old 43%

≥70 years old 35% (p=0.001)

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70-75 years old

38%

75-80 years old

32%

>80 years old

31%

} P=0.85

- 5-yr survival not different after 1<sup>st</sup> (35%) or 2<sup>nd</sup> (31%) hepatectomy (p=0.07)

# Predictive risk factors in elderly

	5-yr overall survival (%)
<70 years overall	43
≥70 years overall	34
≥70 no risk factor	45
≥70 1 risk factor	19-32
≥70 2 risk factors	9-20
≥70 3 risk factors	4

# In Patients >70 yrs

- Hepatectomy offers a 35% chance of 5-year survival
- Lower 5-year survival may reflect comorbidity and overall shorter life expectancy
- Hepatectomy is associated with a higher operative risk
- Repeat hepatectomies offer similar benefits to those seen in patients <70 yrs

# Conclusions

- Well selected patients in their seventies and older may expect good long-term survival after liver resection
- Amend operative techniques
- Predictive risk factors:
  - Synchronous disease
  - Bilobar distribution
  - Extrahepatic disease

# Acknowledgements

- Whiston Hospital, Liverpool University
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