

SURGICAL MANAGEMENT OF LUNG METASTASES: A WORK-IN-PROGRESS REPORT FROM AN INTERNATIONAL ESTS RESEARCH GROUP

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Aim

To assess the **current practice of lung metastasectomy for colorectal cancer metastases** in high-volume institutions, focusing on short- and long-term outcomes

Background

- Lungs are the **2nd most common site** of metastases (after the liver)
- Incidence ranges from 20 to 54%** in patients deceased from an extrathoracic malignancy
- Lung metastasectomy with curative intent is included in the **multidisciplinary approach to stage IV tumours**
- Eligibility criteria** for lung metastasectomy:
 - local control of the primary tumour
 - clinically negative mediastinal lymph nodes
 - no signs of disseminated extrapulmonary metastases
- The **impact of the extent of lung metastasectomy on recurrence and survival** remains controversial
- Lung metastasectomy for **colorectal cancer metastases**:
 - **strongly recommended** but not supported by high-level evidence
 - 5-year survival is **48-51.9%**
 - multicentre randomised clinical trial interrupted due to **poor recruitment**

Methods

European Society of Thoracic Surgery Biology Club research group



- Preliminary report** based on data collected at **two high-volume referral centres**:
 - **Istituto Europeo di Oncologia** (Milan, Italy)
 - **Universitaire Ziekenhuizen Leuven** (Leuven, Belgium)
- Retrospective analysis** on a subset of patients who underwent **lung metastasectomy for colorectal cancer metastases**
- Eligibility criteria**:
 - age **≥18 years**
 - lung metastasectomy with **potentially curative intent**
 - clinical, radiological, endoscopic and/or histological evidence of **loco-regional control of colorectal tumour**
 - **first metastasectomy** (no previous lung or extra-pulmonary metastasectomy)
 - time interval: **January 2010–December 2018**

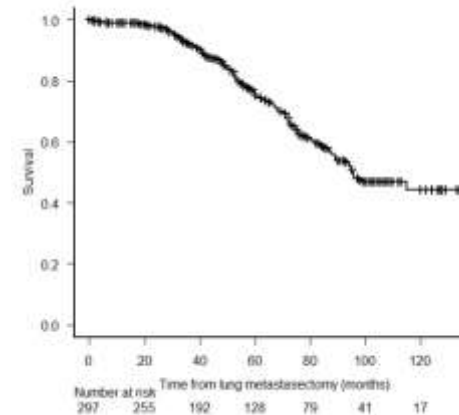
Patient baseline characteristics	IEO (n=172)	UZL (n=125)	p
Age at colorectal cancer diagnosis, mean ± SD (years)	59.3±10.7	60.7±10.7	.43
Male/Female ratio	91/81	71/54	.82
Comorbidities (%)	112 (65.1)	75 (60.0)	.43
Age at lung metastasectomy, mean ± SD (years)	62.5±10.8	63.3±10.7	.68
Disease-free interval, mean ± SD (months)	34.8±25.9	29.8±24.5	.65
Colorectal cancer histology (%)			
- Adenocarcinoma	169 (98.2)	123 (98.4)	.12
- Squamocellular carcinoma	3 (1.8)	1 (0.8)	
- Other	0	1 (0.8)	
Preoperative FEV1, mean ± SD (%)	102.4±18.4	102.2±21.2	.96

FEV1: forced expiratory volume in the first second; IEO: Istituto Europeo di Oncologia; SD: standard deviation; UZL: Universitaire Ziekenhuizen Leuven

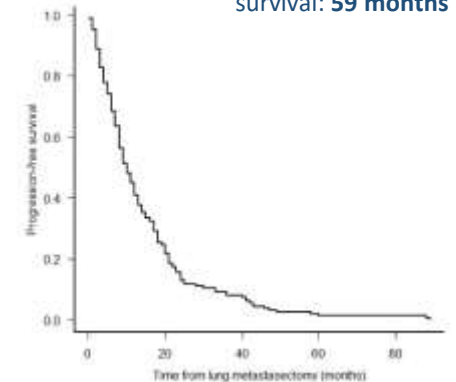
Results

297 patients

Median overall survival: **96 months**



Median progression-free survival: **59 months**



- Mean age: **62.8±14.7 years**
- Mean disease-free interval (before lung metastasectomy): **2.8 years**
- Median number of resected nodules: **2 (range: 1-31)**
- Overall survival was significantly affected by **postoperative adjuvant therapies for lung metastases (p=.023)**
- Multivariate analysis**
Female sex (p=.047) and **induction treatments for primary colorectal cancer (p=.003)** were favourable prognostic factors
- Propensity Score-Matched analyses (Wild Bootstrap Algorithm)** (249 patients)
 Two factors were associated with significantly longer overall survival:
 - anatomical resections (segmentectomy, lobectomy or bilobectomy) (**p=.001**)
 - lymph node dissection (**p=.009**)

Lung metastasectomy is safe and effective in colorectal cancer patients, with satisfactory oncological outcomes