ORDINE
MEDICI CHIRURGHI
E ODONTOIATRI
DELLA PROVINCIA
DI BRESCIA

COMMISSIONE CULTURA
Coordinatore: Dott. Germano Bettoncelli

Corso di Aggiornamento

MINI-INVASIVITÀ IN CHIRURGIA ONCOLOGICA

Paziente con neoplasia dell'esofago

Uberto FUMAGALLI ROMARIO
Chirurgia Generale 2 – Spedali Civili - BS

Sistema Socio Sanitario

Presidio Ospedaliero di Brescia

Regione Lombardia

ASST Spedali Civili

Caso clinico

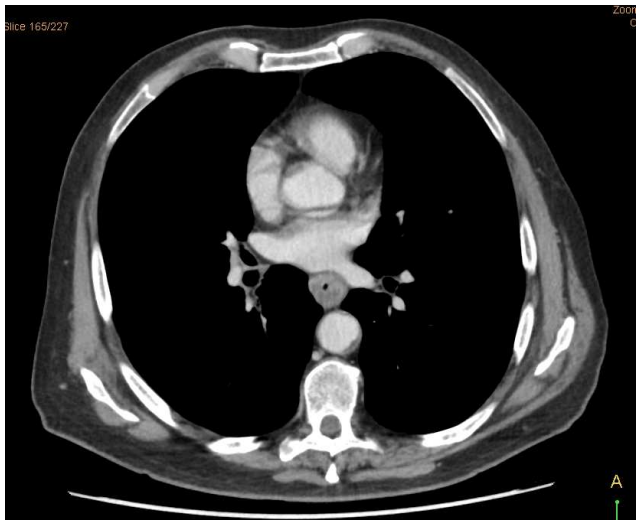
Uomo, 68 anni

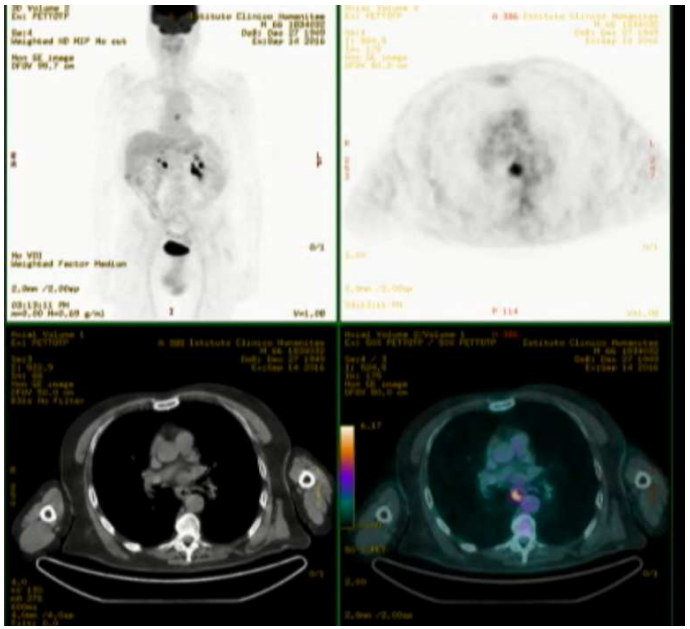
APR diabete mellito tipo II – ipertensione arteriosa

Agosto 2016 disfagia e calo ponderale (10% perso corporeo da 84 a 76 kg).
Assume dieta semiliquida

EGDS: ulcera sopracardiale di 1 cm. Lingue di epitelio compatibile con Barrett
Istologia: carcinoma a cellule ad anello con castone; displasia su Barrett

TC ispessimento esofago medio-distale.
EUS: stenosi non valicabile dell'esofago distale con adenopatie





Stadio clinico (TC, EUS e PET TB) cT3N+M0

Malnutrition in surgical patient

Clinically pertinent malnutrition (postoperative complications and medico-economic consequences)

- a BMI less or equal to 18.5 or a BMI less than 21 in a patient older than 70
- recent weight loss of more than 10%
- a serum albumin level less than 3.0 mg/dL independent of C-reactive protein (CRP)

The presence of even one of these clinical or laboratory criteria is sufficient to define malnutrition.

French clinical guidelines on perioperative nutrition - J Visc Surg 2012

Access for nutritional support during multimodal therapy in esophageal cancer patients

Self-expanding esophageal stents

- Stent-related complications
- Added difficulties during esophagectomy
- Restaging?
  - Impact that shearing forces on the tumor may have on oncological outcomes,
  - Malnutrition related to depression associated anorexia and disorders of absorption and digestion secondary to cytologic toxicity

Surgical jejunostomy

- Subjecting malnourished patients to an invasive procedure
- **Laparotomic**
  - may preclude future laparoscopic gastric mobilization
- **Laparoscopic**
  - allows a complete exploration of the abdominal cavity in the same time (valuable in locally advanced esogastric junctional tumors, especially signet ring cell carcinomas)

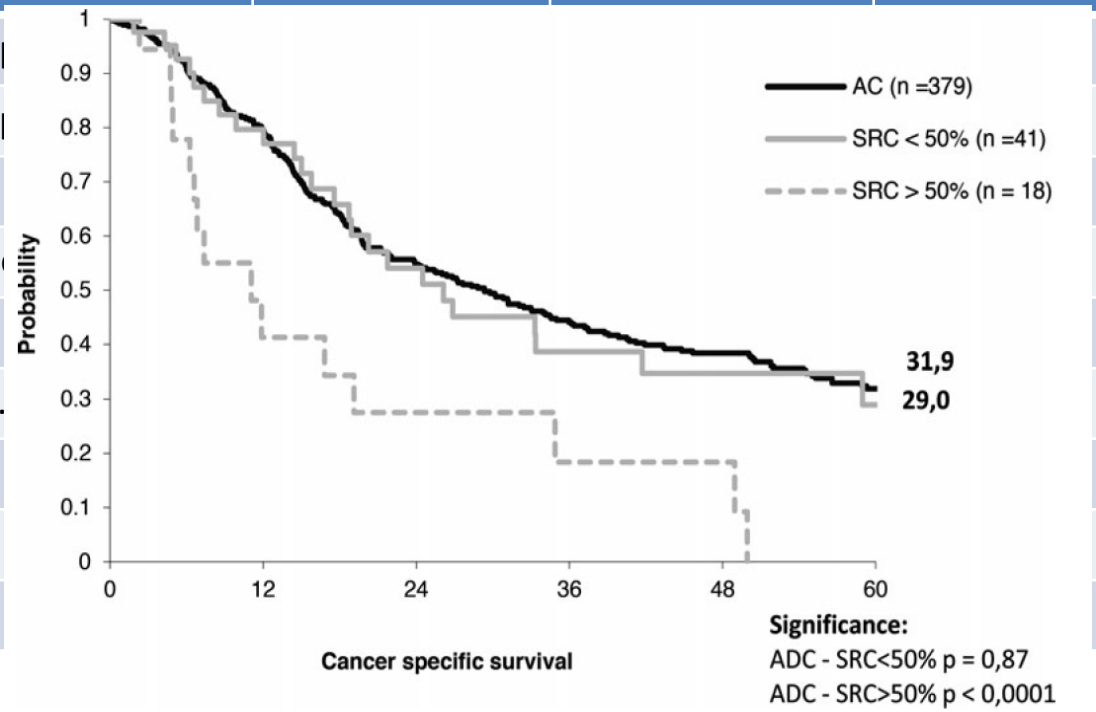
Percutaneous radiologic gastrostomy (PRG)

- minimally invasive and cost-effective not requiring an operating room or general anesthesia

W Tessier - Surg Endosc 2013

Signet Ring Cells in esophageal and GEJ carcinomas

	ADC (817)	SRC <50% (71)	SRC >50% (32)
Preop biop			
Preop biop			
R0 res			
Cancer sp			
R0 group			
Median n.			
pN1			
pN2			
pN3			



PR Nafteux Ann Surg 2014

GULGI – Gruppo multidisciplinare per le neoplasie Upper e Lower GI

Meeting MD settimanale

agenda.aiaccio@gmail.com

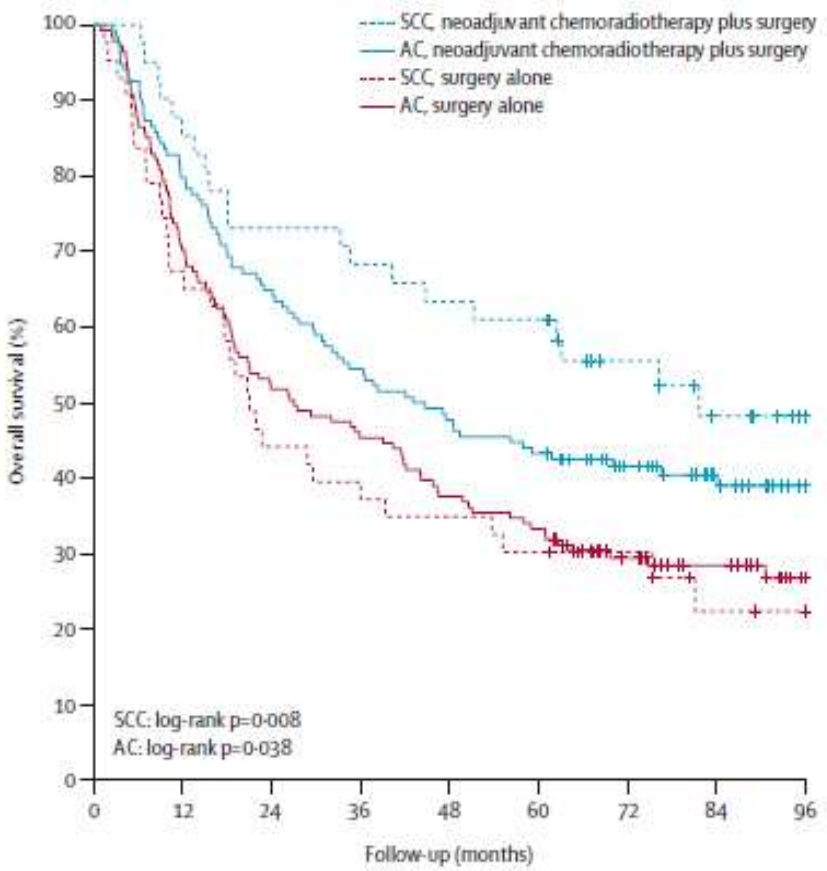
41.4 Gy in 23 sedute su lesione tumorale e linfonodi loco-regionali; Frazionamento 1.8 Gy/die

Chemioterapia concomitante con Platino e Taxolo secondo schema CROSS

Ottobre 2016 – Novembre 2016

ADC EGJ

median overall survival ADC 43.2 vs 27.1 mos



R0 resection (no tumour at <1 mm from proximal, distal, or circumferential m.)
148/161 (92%) in multimodality group
112/162 (69%) in surgery alone group
(p<0,001)

STUDY PROTOCOL Open Access

ESOPEC: prospective randomized controlled multicenter phase III trial comparing perioperative chemotherapy (FLOT protocol) to neoadjuvant chemoradiation (CROSS protocol) in patients with adenocarcinoma of the esophagus (NCT02509286)

Jens Hoeppner[1*], Florian Lordick[2], Thomas Brunner[3], Torben Glatz[1], Peter Bronsert[4], Nadine Röthling[5], Claudia Schmoor[5], Dietmar Lorenz[6], Christian Ell[7], Ulrich T. Hopt[1] and J. Rüdiger Siewert[8]

Study title: Randomised Clinical Trial of neoadjuvant and adjuvant chemotherapy (MAGIC regimen) vs. neoadjuvant chemoradiation (CROSS protocol) in adenocarcinoma of the oesophagus and oesophago-gastric junction

Current: Protocol Version 2, 4th Jul 2011
Pending Approval: Protocol Version 3, 21st Mar 2012

ICORG 10-14

ICORG
The All Ireland Cooperative Oncology Research Group

Van Hagen – NEJM 2012

Ristadiazione

Dc. 2016

Peso 74 kg

EGDS: tra 27 e 34 dall'a.d. mucosa irregolare con aree iperemiche e ulcerate a fondo di fibrina. Giunzione non riconoscibile. Ernia jatale di 2 cm.

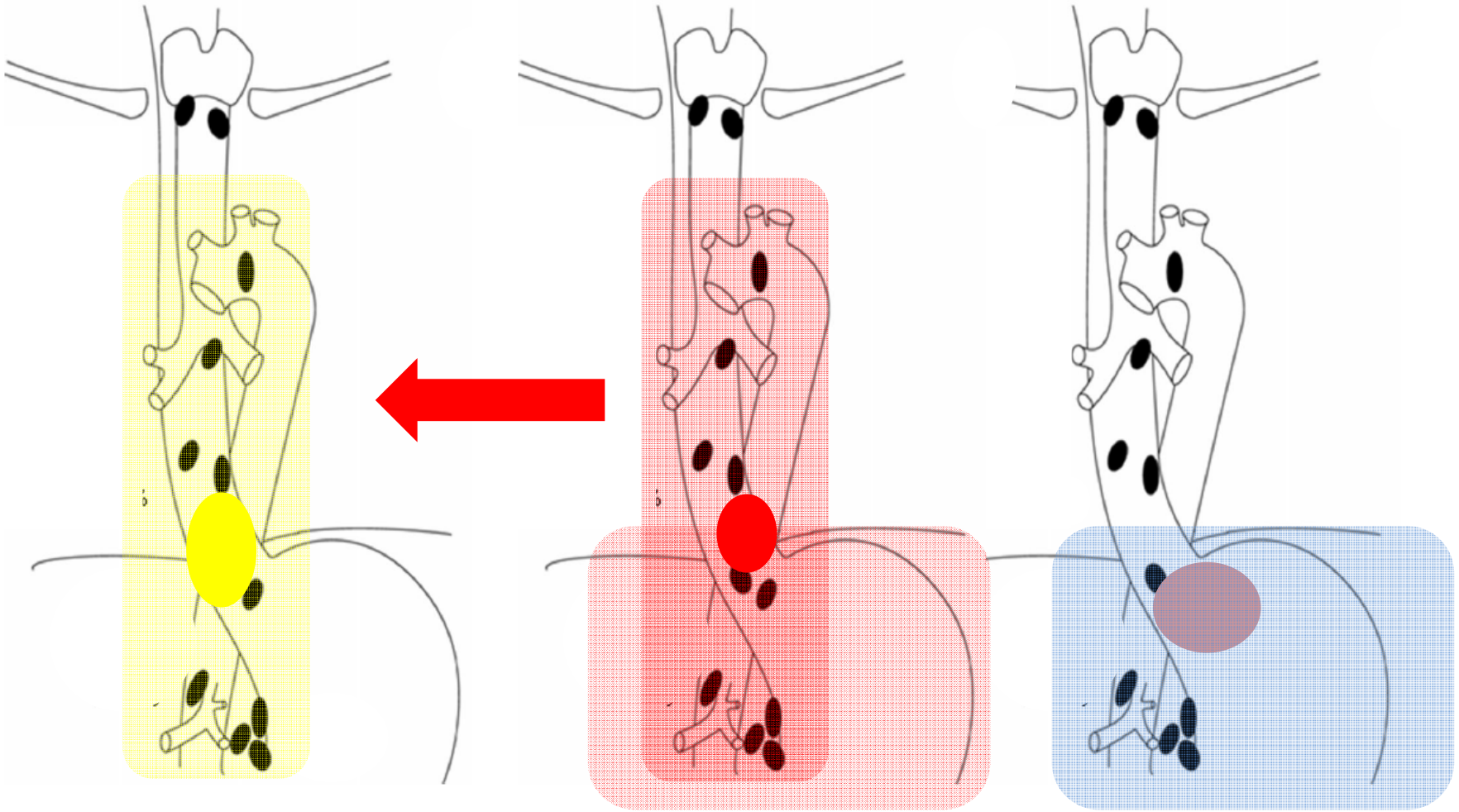
PET: piccola area di ipercaptazione del radiofarmaco a carico del terzo medio distale dell'esofago.

TC immodificato l'ispessimento dell'esofago

Chirurgia

8 settimane dalla fine della radioterapia

Terapia chirurgica dei carcinomi della giunzione esofagogastrica



JB Hulscher NEJM 2002

C Mariette Lancet Oncol. 2011

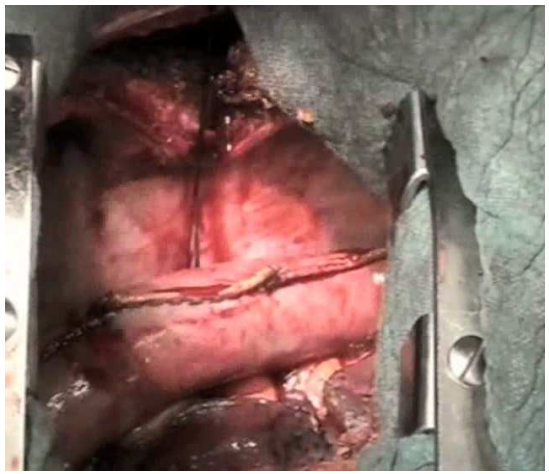
Esofagectomia subtotale con esofagogastroplastica intratoracica (Ivor Lewis)

Via d'accesso addominale

linfadenectomia del comparto addominale
preparazione del tubulo gastrico
confezionamento di digiunostomia nutrizionale

laparotomia

laparoscopia



Via d'accesso toracica

esofagectomia con linfadenectomia mediastinica
ricostruzione con anastomosi esofagogastrica

toracotomia

toracoscopia

Open

Ibrida

TMI

Esofagectomia IL open vs ibrida

	Total ($n = 280$)	HMIO ($n = 140$)	Open ($n = 140$)	P†
Postop. mortality				0·018
Yes	12 (4·3)	2 (1·4)	10 (7·1)	
No	268 (95·7)	138 (98·6)	130 (92·9)	
Postop. morbidity				< 0·001
Yes	133 (47·5)	50 (35·7)	83 (59·3)	
No	147 (52·5)	90 (64·3)	57 (40·7)	
Dindo–Clavien grade for morbidity				0·169
II	38 (13·6)	13 (9·3)	25 (17·9)	
III	29 (10·4)	15 (10·7)	14 (10·0)	
IV	43 (15·4)	15 (10·7)	28 (20·0)	
MPPC				< 0·001
Yes	82 (29·3)	22 (15·7)	60 (42·9)	
No	198 (70·7)	118 (84·3)	80 (57·1)	
ARDS				0·001
Yes	21 (7·5)	3 (2·1)	18 (12·9)	
No	259 (92·5)	137 (97·9)	122 (87·1)	
Anastomotic leak				0·583
Yes	14 (5·0)	8 (5·7)	6 (4·3)	
No	266 (95·0)	132 (94·3)	134 (95·7)	
Gastric pull-up necrosis				0·316
Yes	1 (0·4)	1 (0·7)	0 (0)	
No	279 (99·6)	139 (99·3)	140 (100)	
Gastric pull-up distension				0·735
Yes	9 (3·2)	5 (3·6)	4 (2·9)	
No	271 (96·8)	135 (96·4)	136 (97·1)	
Reoperation				0·067
Yes	21 (7·5)	6 (4·3)	15 (10·7)	
No	259 (92·5)	134 (95·7)	125 (89·3)	
Length of hospital stay (days)*	13 (8–180)	12 (8–80)	16 (8–180)	0·050§

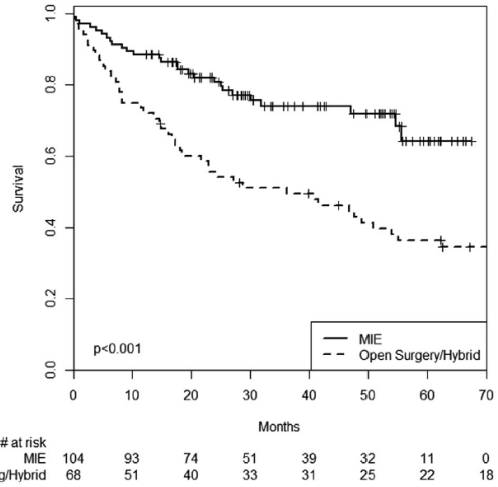
N Briez Br J Surg 2012

Esofagectomia open vs TMI

Table 3. Surgical Outcomes by Operation Type

Outcome	MIE (n = 104)	OHE (n = 68)	p Value
Median EBL, mL	125	300	<0.01
Median postoperative hospital LOS, d	8	15.5	<0.01
R0 resection n (%)	101 (97.1)	64 (94.1)	0.43
Total LN, median (range)	21.0 (3.0, 57.0)	10.0 (0.0, 49.0)	<0.01

EBL, estimated blood loss; LOS, length of stay; LN, lymph nodes; R0, margins microscopically negative.



F Palazzo J Am Coll Surg 2015

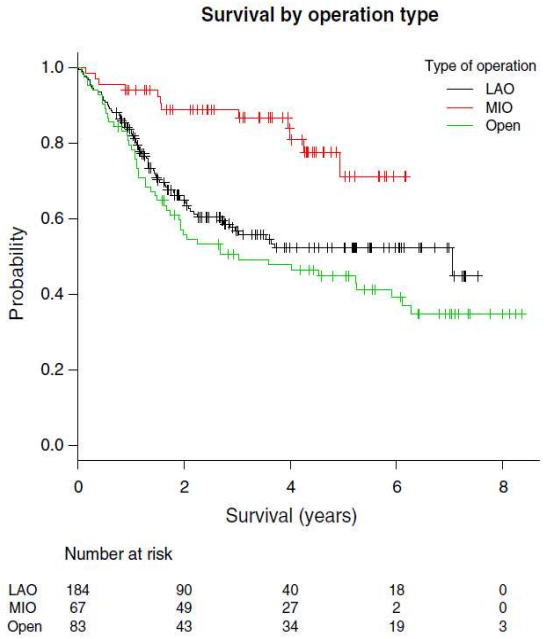


Fig. 1 Kaplan–Meier curve of the probability of survival against years for each of the three operative groups, with no adjustment for T or N stage which also carried a significant effect upon survival (Color figure online)

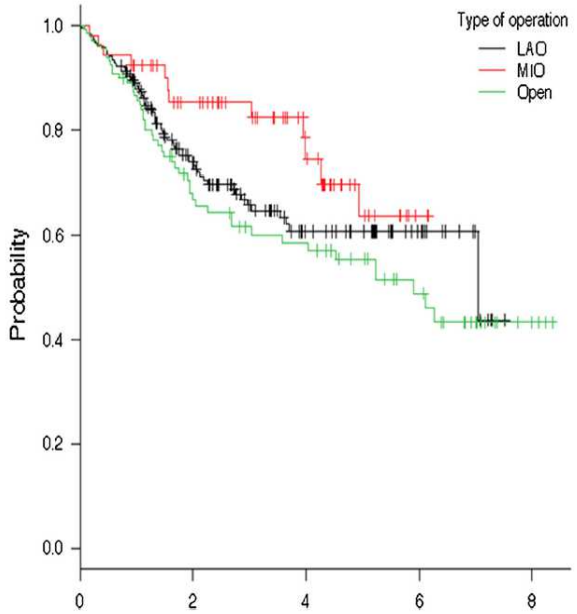


Fig. 2 Kaplan–Meier curve of the probability of survival against years for each of the three operative groups, with correction for differences in T and N stage of the tumour (Color figure online)

OC Burdall Surg Endosc 2015

Minimally Invasive Esophagectomy

Significant reduction in the risk of IHM in patients submitted to MIO

Significant effect of MIO in reducing the risk of PCs; May reduce morbidity and hospital stay

No difference in the occurrence of AL between the MIO and OE groups

Table 2 Quality of life domains

	OE (31)	MIE (33)	*p* value
SF 36†			
Mental component summary			
Preoperatively	45 (9; 43-48)	46 (12; 43–49)	.955
6 weeks	45 (11; 40–50)	46 (10; 41–50)	.806
1 year	50 (10; 47–53)	53 (10; 49–56)	.317
Physical component summary			
Preoperatively	43 (9; 40–46)	46 (8; 44–48)	.072
6 weeks	36 (6; 34–39)	42 (8; 39–46)	.007
1 year	45 (9; 42–48)	50 (6; 48–53)	**.003**
EORTC C30†			
Global health			
Preoperatively	63 (23; 56–70)	66 (22; 60–72)	.631
6 weeks	51 (21; 44–58)	61 (18; 56–67)	.020
1 year	67 (21; 60–75)	79 (10; 76–83)	**.042**
EORTC OES 18‡			
Pain			
Preoperatively	23 (17–22, 22–30)	17 (24; 11–24)	.187
6 weeks	19 (13–21, 21–26)	8 (11; 5–11)	.002
1 year	16 (16; 10–22)	6 (9; 3–10)	**.003**
Talking			
Preoperatively	12 (25; 4–19)	10 (23; 4–17)	.745
6 weeks	37 (39; 25–49)	18 (26; 10–26)	.008
1 year	10 (21; 3–18)	5 (14; 0–11)	.288

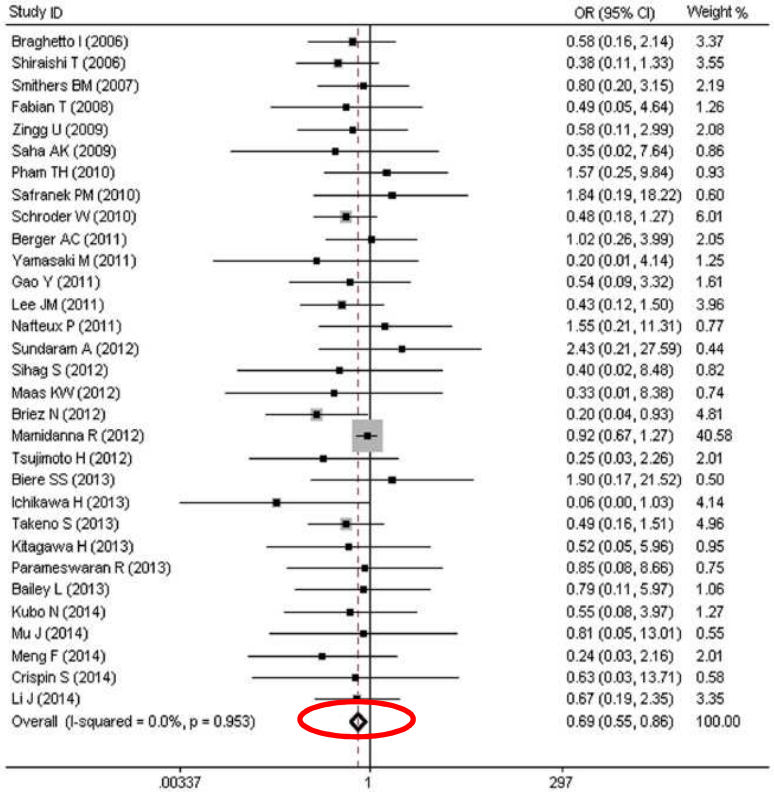


Fig 2. MIO and Risk of In-Hospital Mortality (IHM).

Associated with a rapid restoration of health-related quality of life

Butler N Surg Endosc 2011 - Nagpal K Surg Endosc 2010 - C. Zhou, PLoS One 2015 - KW Maas World J Surg 2015

Trends in minimally invasive esophagectomy

ORIGINAL ARTICLES *Ann Surg 2010*

Open Versus Minimally Invasive Esophagectomy

Trends of Utilization and Associated Outcomes in England

Antonio Ivan Lazzarino, MD, MSc, FFPH, Kamal Nagpal, MS, MRCS,† Alex Bottle, PhD,* Omar Faiz, BSc, MS, FRCS(Gen Surg),† Krishna Moorthy, MS, MD, FRCS,† and Paul Aylin, MBChB, FFPH**

18,673 esophagectomies performed over 12 years in UK

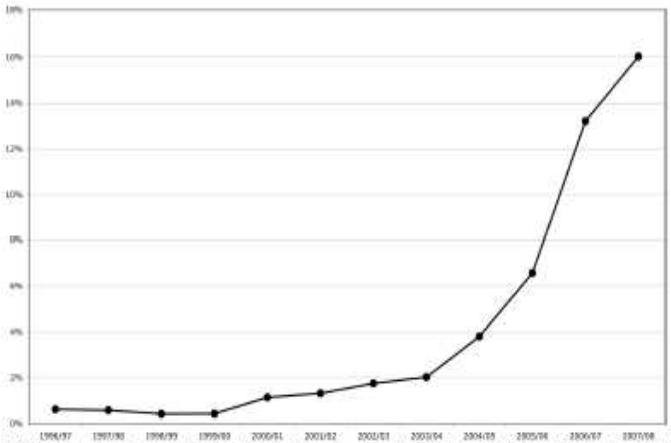


FIGURE 1. Proportion of esophagectomies carried out using a minimally invasive technique, in all NHS trusts in England combined.

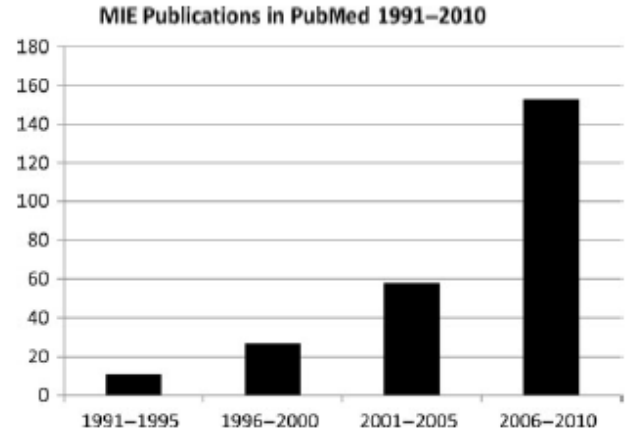


FIGURE 4. The rise in minimally invasive esophagectomy publications in United States National Library of Medicine service, PubMed.

ORIGINAL ARTICLE *Ann Surg 2012*

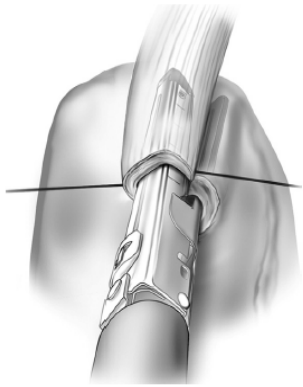
Outcomes After Minimally Invasive Esophagectomy

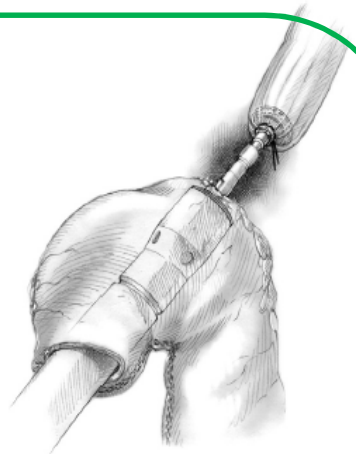
Review of Over 1000 Patients

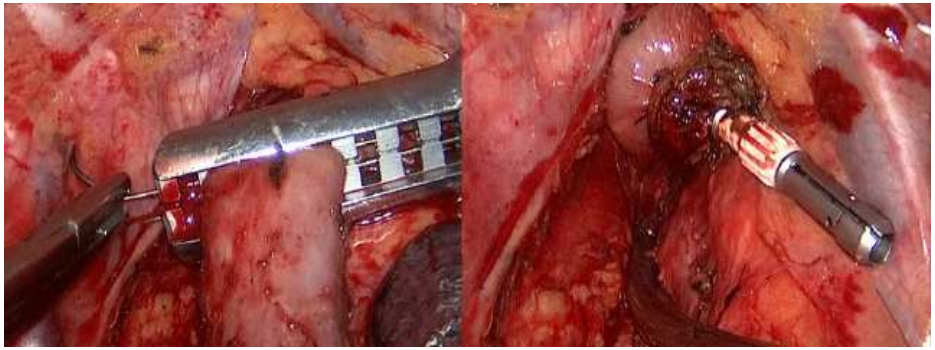
James D. Luketich, MD, Arjun Pennathur, MD, Omar Awais, DO, Ryan M. Levy, MD, Samuel Keeley, MD, Manisha Shende, MD, Neil A. Christie, MD, Benny Weksler, MD, Rodney J. Landreneau, MD, Ghulam Abbas, MD, Matthew J. Schuchert, MD, and Katie S. Nason, MD, MPH

Anastomosi esofagogastrica

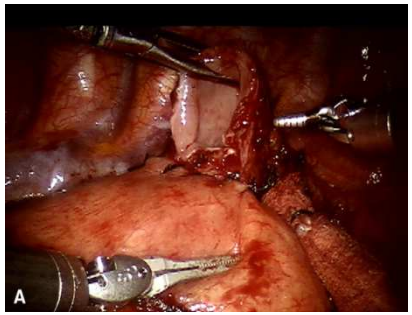
Meccanica lineare o circolare

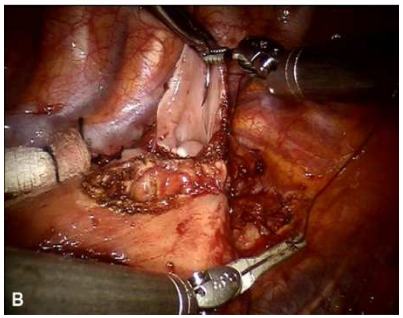


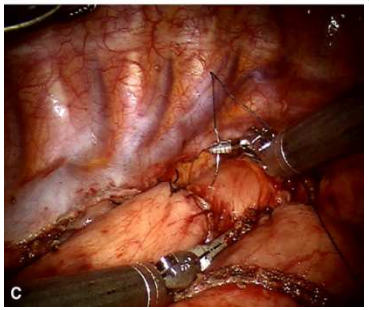




Manuale robotica







Gastrolisi laparoscopica

Esofagectomia ed esofagogastroplastica toracoscopica

Risultato

Durata intervento:	360 minuti
Perdite ematiche:	100 ml
Nutrizione per digiunostomia	dalla 1 giornata
Rialimentazione per os	dalla 3 giornata postop
Dimissione	8 giornata

Esame istologico: ulcera ed esofagite attinica
Non evidenza di neoplasia residua
ypT0N0(0/25)M0

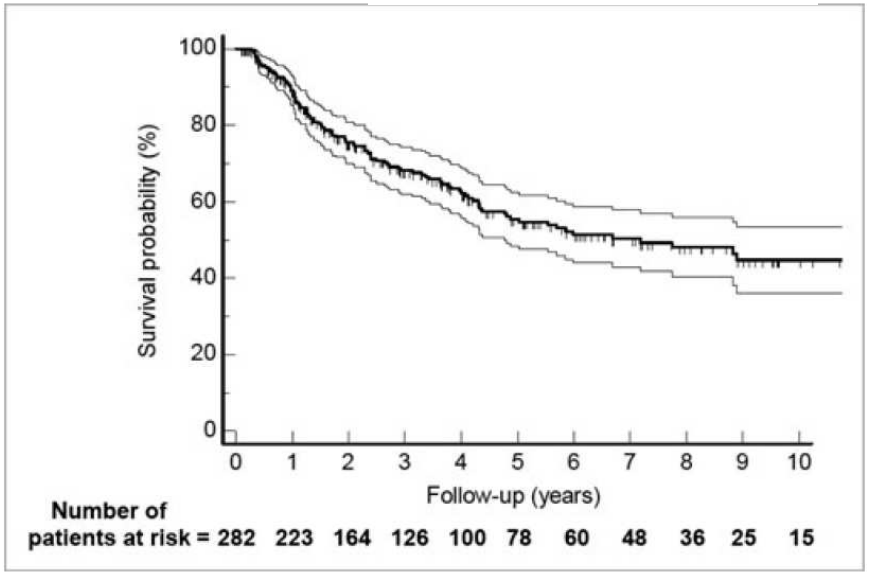


FIGURE 1. Overall survival of 282 study patients (without postoperative mortality) with ypT0N0M0R0 status after multimodality treatment (95% CI).

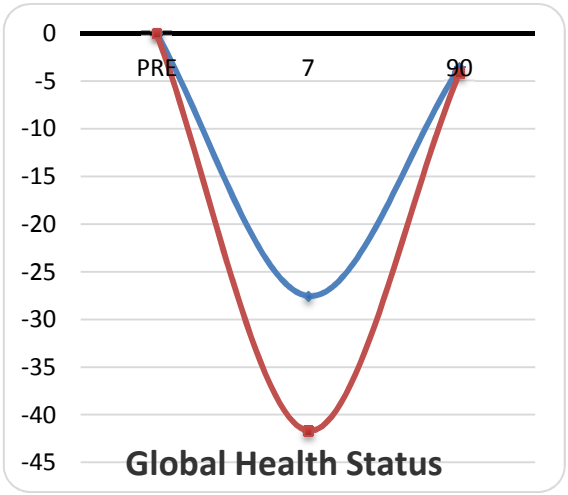
Vallbohmer Ann Surg 2010

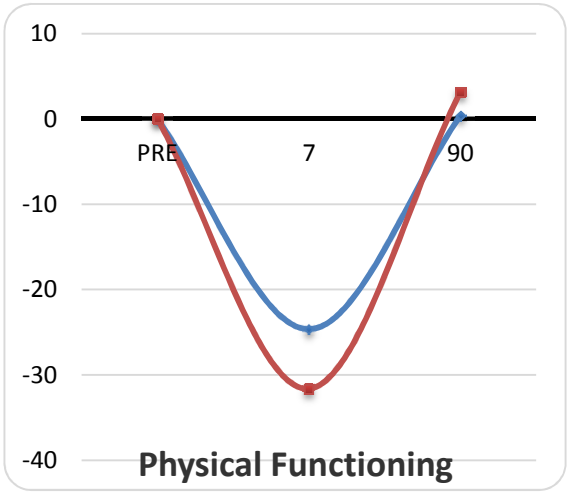
La nostra esperienza a Brescia 11-2016 4-2017

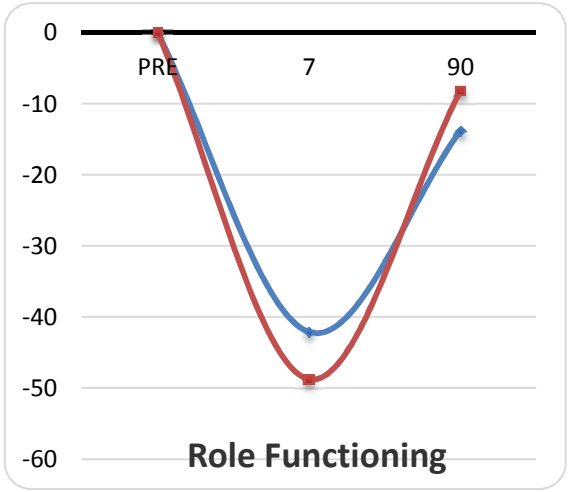
23 esofagectomie con esofagogastroplastica
15 esofagectomia transtoracica ibrida o totalmente mininvasiva

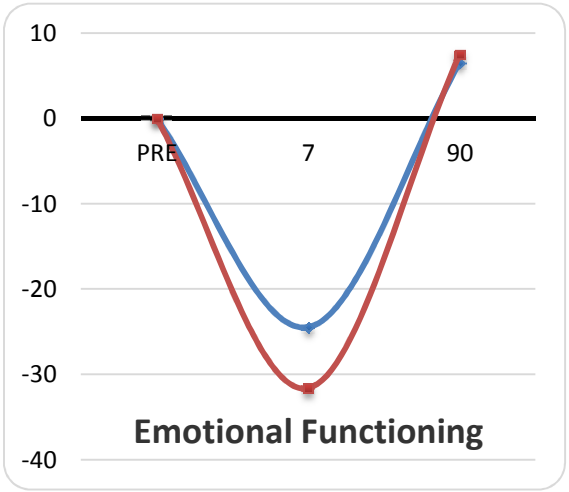
	TMI 8	IL Ibrida 7
m/f	6/2	7/0
Età media	67,6 (53-82)	66 (54-77)
Adenocarcinoma / SCC	7/1	4/3
RCHT /CHT/Chir	4/2/2	5/2/0
Conversioni	0	2
Durata intervento (min)	370 (335-420)	337(275-475)
Perdite ematiche (ml)	131 (50-400)	193(50-300)
Numero linfonodi asportati	27 (15-43)	22 (7-33)
R0/ 1/ 2	8/0/0	6/1/0
Complicanze postop. CD $\geq$ 3	2	1
Fistole anastomotiche	0	0
Durata degenza (giorni)	10.8 (7-24)	10.6 (7-16)
Mortalità	0	0

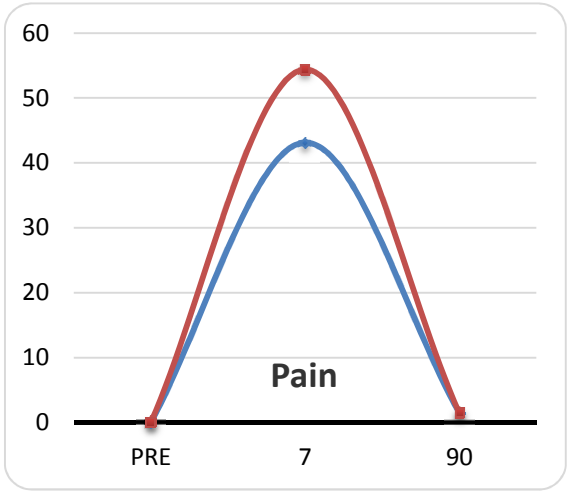
Quality of life



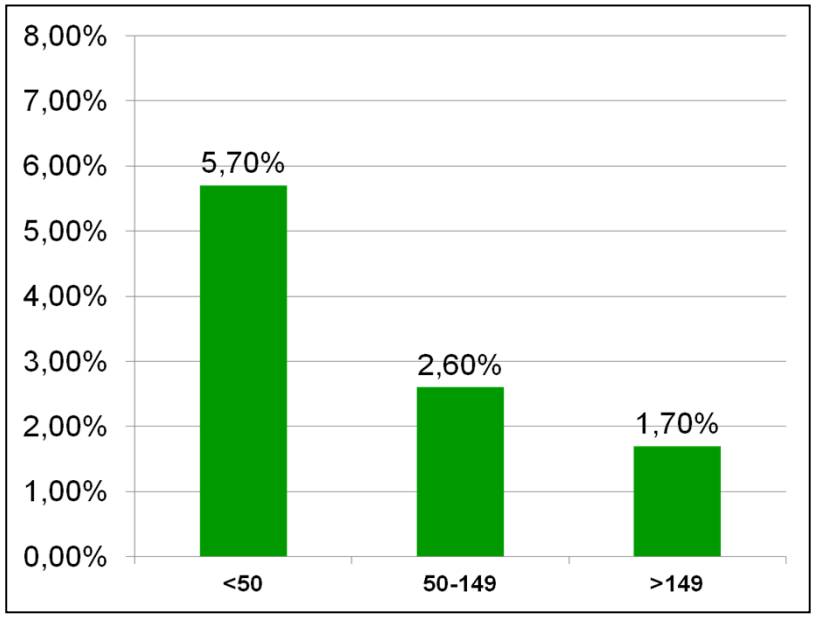




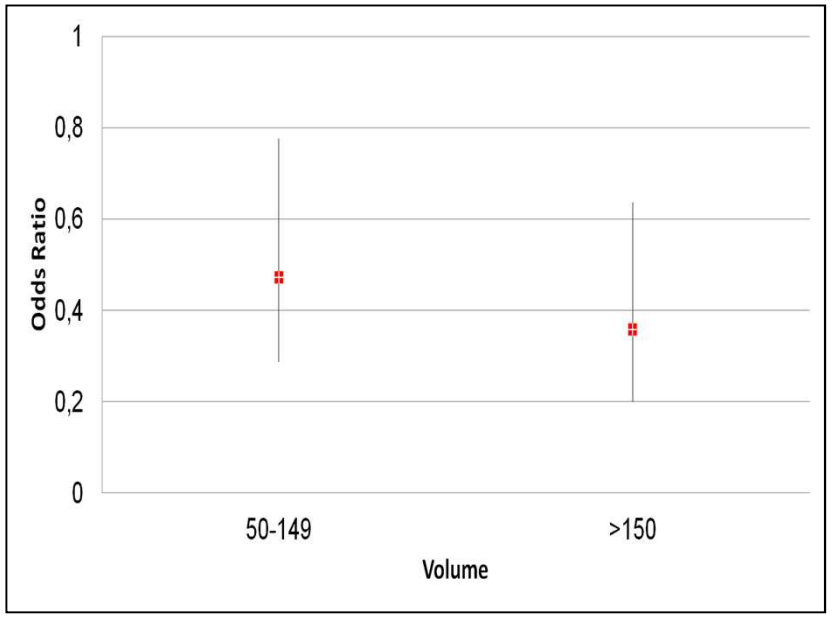




Region of Lombardy: hospital volume and post-operative in-hospital mortality rates - major resective surgery for cancer of the esophagus and cardia



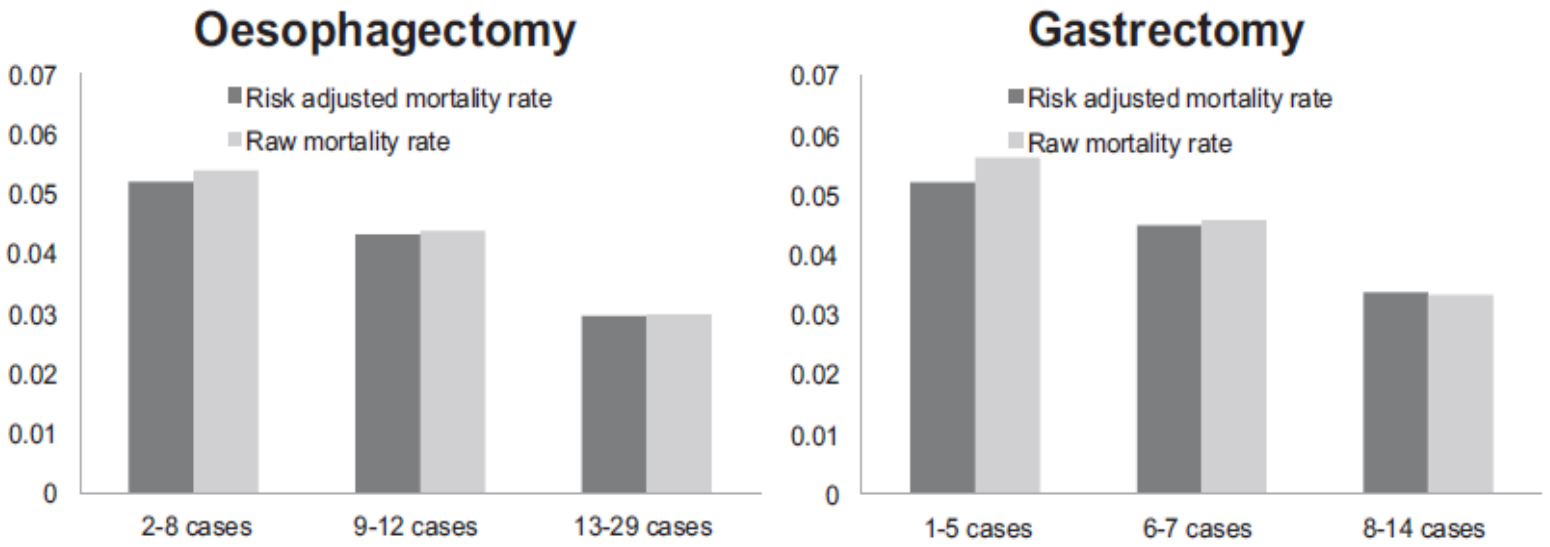
30-day mortality rate in low-, intermediate-, and high-volume hospitals



Odds ratio of death probability (corrected in a logistic model for age, sex, and comorbidity index) – ref. group A

U Fumagalli et al Updates in Surg 2013

Volume/chirurgo e esofagectomia e gastrectomia



R Mamidanna et al Ann Surg 2015

Esofagectomia mininvasiva - Conclusioni

Esofagectomia : morbilità e mortalità postoperatori e significative
Complicanze respiratorie

Dolore postop., alterazione funzionale di trachea, bronchi, polmoni per l'estesa dissezione linfonodale.

MIE comporta una riduzione dell'incidenza di complicanze respiratorie e di mortalità, con vantaggi nel breve e lungo termine rispetto alle tecniche "open"

I vantaggi sembrano essere evidenti anche nel confronto tra tecniche totalmente mininvasive e tecniche ibride

L'esofagectomia totalmente mininvasiva è un intervento complesso
Una delle chiavi per I buoni risultati è la meticolosita tecnica per il confezionamento dell'anastomosi esofagogastrica.

La centralizzazione dell'esofagectomia (volume ospedale e volume chirurgo) sembra elemento importante nel miglioramento dei risultati