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INTRODUCTION & AIM

To standardize outcome reporting in esophageal surgery, the Esophageal Complications Consensus Group (ECCG) developed a standardized platform. In the Dutch Upper Gastrointestinal Cancer Audit (DUCA) complications are registered according to the ECCG platform. The aim of this study was to report postoperative morbidity and mortality in the Netherlands according to the definitions of the ECCG.

PATIENTS & METHODS

Design: Retrospective national cohort study

Inclusion: Patients with esophageal or junctional carcinoma who underwent esophagectomy

Study period: January-December 2016

Primary outcome: postoperative complications reported according to the definitions of the ECCG platform. Severity of the complications was defined according to Clavien-Dindo and grade IIIb or higher were major complications.

Secondary outcome: 30-day/in-hospital mortality

Analysis: Descriptive statistics

RESULTS

Cohort: 797 patients were included from 22 hospitals.

Basic characteristics: table 1

Complications (table 2):

- 498 patients (63%) had at least one postoperative complication
- Most common complications were pneumonia (n=163, 21%), anastomotic/staple-line failure or localized conduit necrosis (n=142, 18%) and atrial dysrhythmia requiring treatment (n=104, 13%).
- Major complications: in 150 patients (19%), including 73/150 (49%) patients with an anastomotic/staple line failure or localized conduit necrosis.
- Most patients with a major complication (113/150; 75%) had 2 or more complications.
- Readmissions occurred in 105 of 780 patients (13%).

30-day/in-hospital mortality: 2.5% (20/797 patients)

Basic characteristics

	n	%
Total	797	
Gender		
Male	605	76%
Female	192	24%
Age (in years)		
0-64	332	42%
65-74	355	45%
75+	109	14%
Unknown	1	0.1%
Body Mass Index		
<20	60	8%
20-24	302	38%
25 - 29	306	38%
30+	127	16%
Unknown	2	0.3%
ASA score		
I-II	629	79%
III+	168	21%
Charlson Comorbidity score		
0	355	45%
1	192	24%
2+	250	31%
Tumor location		
Cervical (C15.0)	0	0.0%
Proximal (C15.3)	7	0.9%
Mid (C15.4)	116	15%
Distal (C15.5)	523	67%
Gastro-esophageal junctior	134	17%
Unknown	5	0.6%
Neoadjuvant therapy		
No	55	7.0%
Chemotherapy	42	5.3%
Chemoradiotherapy	693	88%

Table 1 Basic characteristics

Complications

	n	%
Total	797	
Any complication	298	63%
Pulmonary	251	32%
Pneumonia*	163	21%
Pleura effusion requiring additional drainage procedure	55	7%
Pneumothorax requiring treatment	32	4%
Atelectasis mucous plugging requiring bronchoscopy	8	1%
Respiratory failure requiring reintubation	44	6%
Acute aspiration	13	2%
Acute respiratory distress syndrome **	18	2%
Tracheobronchial injury	3	0%
Chest tube maintenance for air leak for > 10 d	9	1%
Cardiac	130	16%
Myocardial infarction***	3	0%
Dysrhythmia atrial requiring treatment	104	13%
Dysrhythmia ventricular requiring treatment	9	1%
Congestion heart failure requiring treatment	6	1%
Pericarditis requiring treatment	0	0%
Cardiac arrest requiring CPR	5	1%
Gastrointestinal	181	23%
Esophagoenteric leak from anastomosis, staple line or localized Conduit necrosis	142	18%
Conduit necrosis/failure	7	1%
Ileus defined as small bowel dysfunction preventing or delaying enteral feeding	6	1%
Short bowel obstruction	1	0%
Feeding J-tube complication	31	4%
Pyloromyotomy/pyloroplasty complication	2	0%
Clostridium difficile Infection	0	0%
Gastrointestinal bleeding requiring intervention or delayed conduit emptying requiring intervention or delaying discharge or requiring maintenance of NG drainage >7d postoperatively	16	2%
Pancreatitis	0	0%
Liver dysfunction	1	0%
Urologic	28	4%
Acute renal insufficiency (defined as doubling of baseline creatinine)	3	0%
Acute renal failure requiring dialysis	4	1%
Urinary tract infection	7	1%
Urinary retention requiring reinsertion of urinary catheter, delaying discharge, or discharge with urinary	15	2%
Thromboembolic	16	2%
Deep venous thrombosis	2	0%
Pulmonary embolus	11	1%
Stroke (CVA)	0	0%
Peripheral thrombophlebitis	2	0%
Neurologic/psychiatric	80	10%
Recurrent nerve injury	29	4%
Other neurologic injury	7	1%
Acute delirium ****	48	6%
Delirium tremens	1	0%
Infection	55	7%
Wound infection requiring opening wound or antibiotics	11	1%
Central IV line infection requiring removal or antibiotics	4	1%
Intrathoracic/intra-abdominal abscess	22	3%
Generalized sepsis *****	12	2%
Other infections requiring antibiotics	11	1%
Wound/diaphragm	15	2%
Wound dehiscence	6	1%
Fasciodescentie/Platzbauch/hernia (acute)	5	1%
Hernia diafragmatica (acute)	4	1%
Chyle leak	71	9%
Other	65	8%
Reoperation for reasons other than bleeding, anastomotic leak or conduit necrosis	11	1%
Multiple organ dysfunction syndrome*****	2	0%
Postoperative bleeding requiring transfusion or	4	1%
Complications of epidural catheter	3	0%

* Definition Thoracic Society and Infectious Diseases Society of America

** Berlin definition

*** Definition World Health Organization

**** Definition Diagnostic and Statistical Manual of Mental Disorders, 5th ed

***** Definition CDC

***** Definition American college of chest physicians/society of critical care medicine consensus conference committee

Table 2 Complications

CONCLUSION

Reporting complications according to the ECCG platform is feasible in the Netherlands and facilitates international benchmarking.