Postoperative respiratory failure in esophageal surgery

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Background and goals of study

Respiratory complications constitute the most frequent early complication in esophageal surgery (ES). We present a pilot study to analyse the incidence of respiratory failure (RF) in patients subjected to ES, both in the initial income and re-entry (main goal).

Secondary goals, in respect to RF:

- Personal and perioperative risk factors
- Involvement in critical care unit (CCU)
- Prognostic factor

Material and methods

- Retrospective unicenter study
- Consecutive ES cases between September 1st, 2013 and September 1st, 2016.
- Collected variables:
 - Preoperative: age, gender, previous pulmonary disease.
 - Intraoperative: surgery type and length, abdominal and/or thoracic access, extubation at operating theatre, fluid and transfusion therapy.
 - Postoperative: income stay length, RF development, mechanical ventilatory therapy (non-invasive-NIMV and invasive-IMV), hydric balance.
 - Re-entry: re-entry reason, RF development, day of evolution, re-entry stay length in postoperative CCU, RI development, MV.
 - Morbidity and Mortality: discharge cause (improvement or death), death cause, complications.
- Statistic study: descriptive analysis (mean and standard deviation), using no parametric test (Chi Squared) for their comparison (SPSS Statistics© 22nd version), regarding p value < 0,05 as significative.

Results and discussion

N = 65
(male = 56, female = 9)
61±10 years old

Income stay

Mean stay 3 days (5±7)
RF development 13,8% → average stay prolongation of 17,8 days → NIMV for 3±2 days and IVM for 10±9 days.

Re-entry

RF group:
stay 14±18 days
first income stay 2,7 days
Median re-entered day: 6º PO day
NIMV 4±3 days
IMV 15±16 days (6 patients)

Respiratory disease is not significantly related (p=0.06).

Another causes of re-entry were subfrenic abscess, pulmonary tromboembolism, suture dehiscence and coloplasty necrosis.

- Surgery type: Ivor Lewis (59)
Transhiatal esophagectomy (4)
McKeown (2)
- Surgery length: 463±102 min
- Intraop fluid-therapy: 3259 ± 1107 ml
- 73,85% extubated before CCU income
- 92,3%: negative hydric balance the first postoperative 24-48h.
- Politransfusion: none

Conclusion

- Respiratory failure prolongs CCU stay.
- Respiratory failure is the main re-entry cause.
- Previous pulmonary disease is a risk factor for respiratory failure development.
- Extended studies are needed to allow establishing guidelines that reduce the incidence of respiratory failure and re-entry into esophageal surgery.

Bibliography:

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- Surg Today 2014;44(3):526-532.

Survival

Mortality

- septic shock and multyorgan-faliure (4)
- pulmonary thromboembolism (2)
- nosocomial pneumonia (1)
- acute respiratory distress syndrome (1)