

Neoadjuvant chemoradiotherapy followed by esophagectomy in patients with locally advanced esophageal cancer: the experience of department of radiation oncology IRCCS-ASMN Reggio Emilia



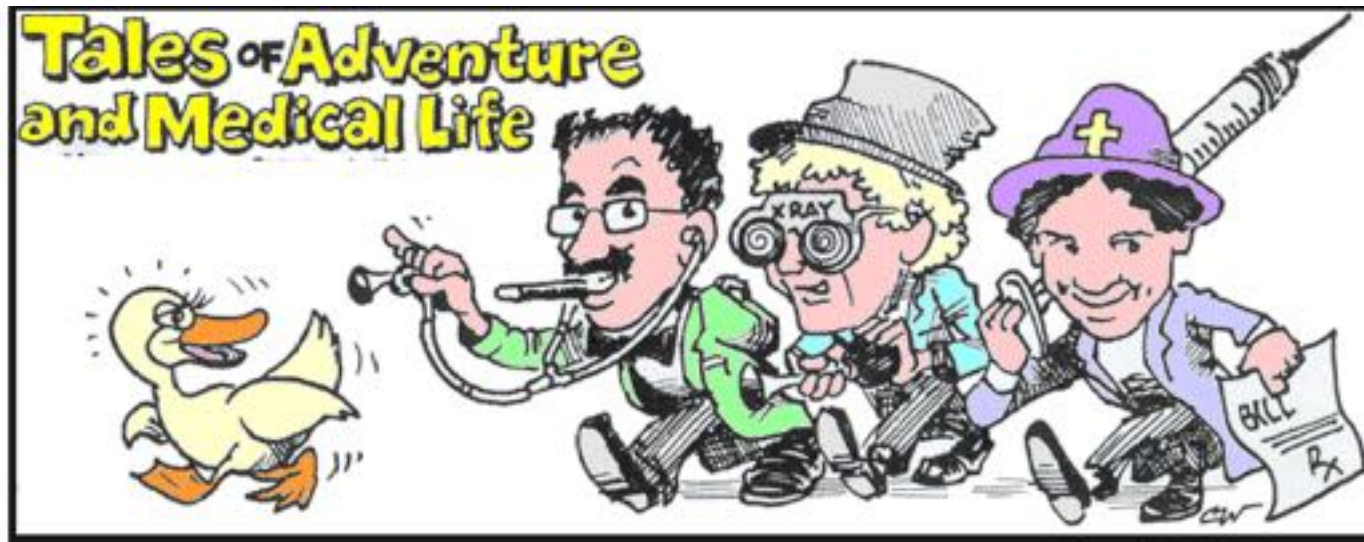
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Purpose

To evaluate retrospectively the overall survival (OS), disease free-survival (DFS) and toxicity in patients with locally advanced esophageal cancer (EC) who underwent neoadjuvant chemoradiotherapy (NCRT) followed by esophagectomy



Methods and Materials

25 patients, 3 females and 22 males, candidated by the multidisciplinary team to NCRT followed by esophagectomy between 2009 and 2014.

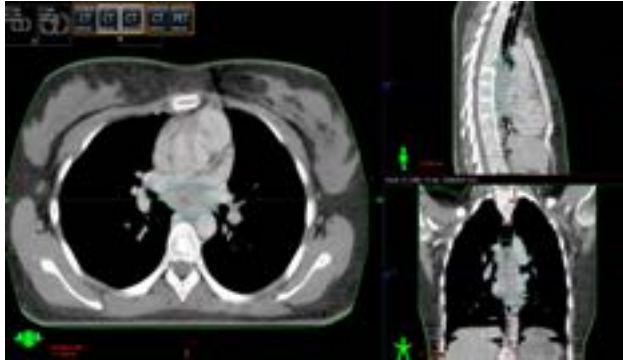
All included patients had locally advanced disease (c T3-T4, N1-N3, M0) of thoracic or abdominal esophagus, diagnosed with EGDS and biopsy and staged with EUS, CT of the chest and abdomen and 18F-FDG-PET /TC.

Patient's characteristics

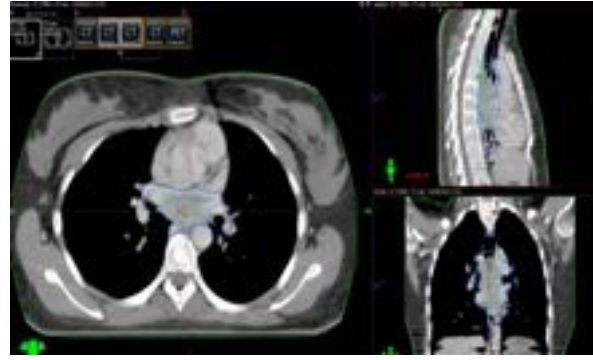
Mean Age	63 years (range 32-78)
Follow up	21 months (range 6 - 60)
Gender	22 males and 3 females
Histology	ADK: 19; SCC: 6
Tumor location	GEJ:11; lower esophagus: 8; mid esophagus: 6
cT Stage	T3: 20; T2: 5
cN Stage	N1: 14; N2: 7; N0: 4
TNM Stage	IIIA 13 (T3N1: 11 ; T2N2: 2) III B 5 (T3N2: 5) IIB 7(T3N0: 4 ; T2N1: 3)

Target volume delineation

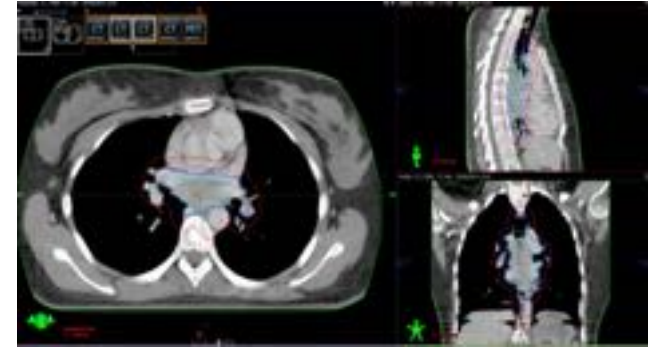
GTV



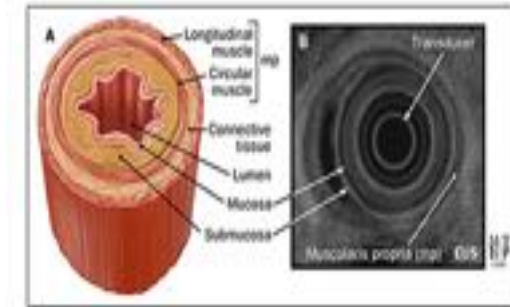
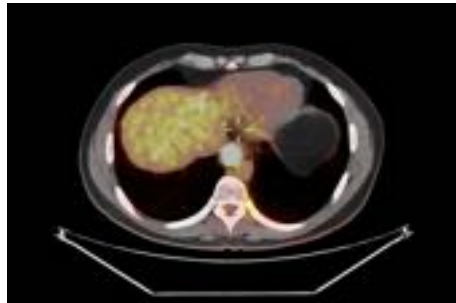
CTV



PTV



GTV includes visible primary tumor and pathological nodes (CT scans, PET, Endoscopy and EUS.)



CTV: area of subclinical involvement around GTV , defined with a radial expansion of 1-1,5 cm, and 3-5 cm longitudinally, along the length of esophagus and cardia. Including Elective lymph node stations.

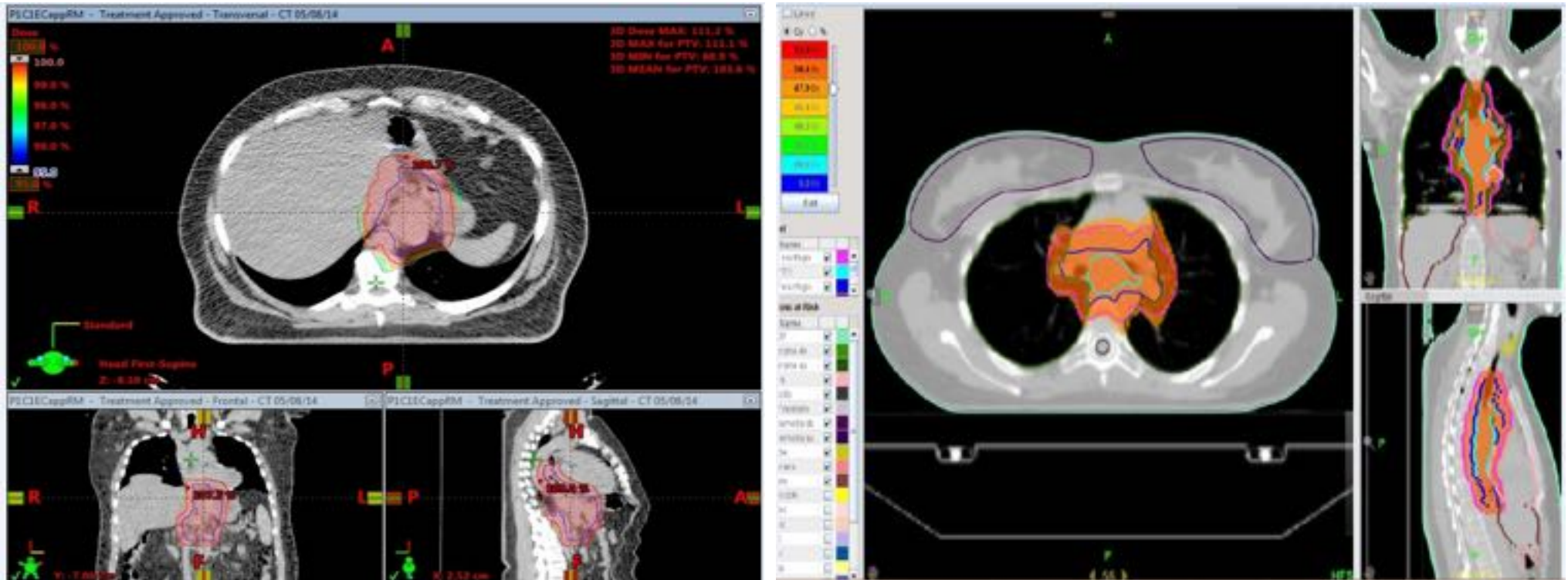
PTV: CTV + isotropic expansion of 0,6 – 1 cm

Planning and Delivery

RT was delivered using intensity modulated radiation therapy (IMRT) with two different techniques:

dMLC-IMRT technique for 15 patients (60%)
using LINAC 600CD – LINAC 2100CD

Helical Tomotherapy for 10 patients (40%)



The prescribed dose was 45-50.4 Gy, administered in 25-28 daily fractions (1.8 Gy/fraction)
(100% dose prescribed to at least 95% PTV)

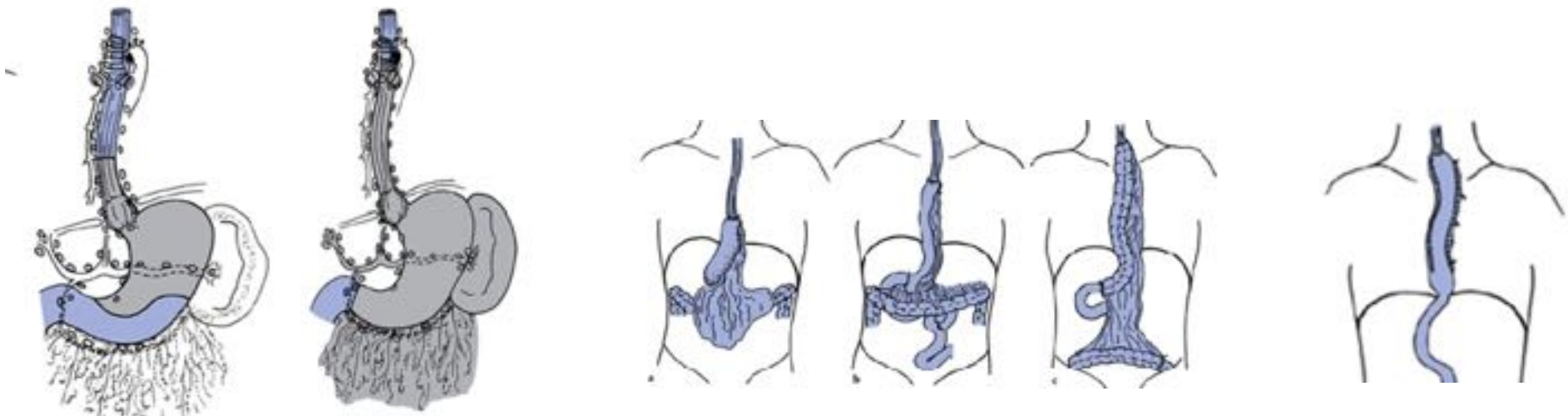
Trimodality treatment

Chemotherapy was administered concurrently using platinum based regimen in association with fluoropyrimidine or taxanes.

- Cisplatin 75-100 mg/m² on days 1 and 29 + Fluorouracil 750-1000 mg/m² continuous infusion over 24 hours daily on days 1 - 4 and 29 - 32 - 35 – day cycle.
- Paclitaxel 50 mg/m² on day 1+ Carboplatin AUC2 on day 1 Weekly for 5 weeks.

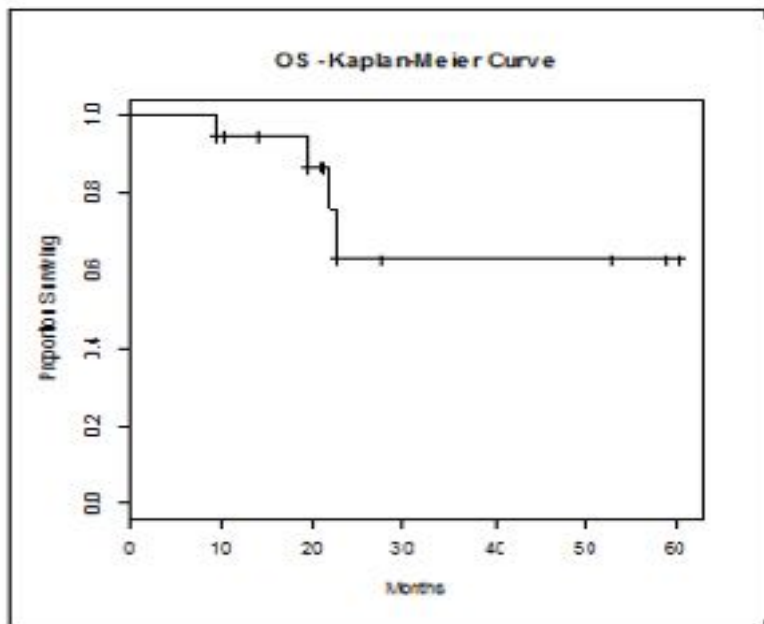
Esophagectomy was performed in 20 patients; in 5 cases surgery was excluded because of disease progression, worsening of clinical conditions or patient refusal.

Ivor Lewis Esophagectomy

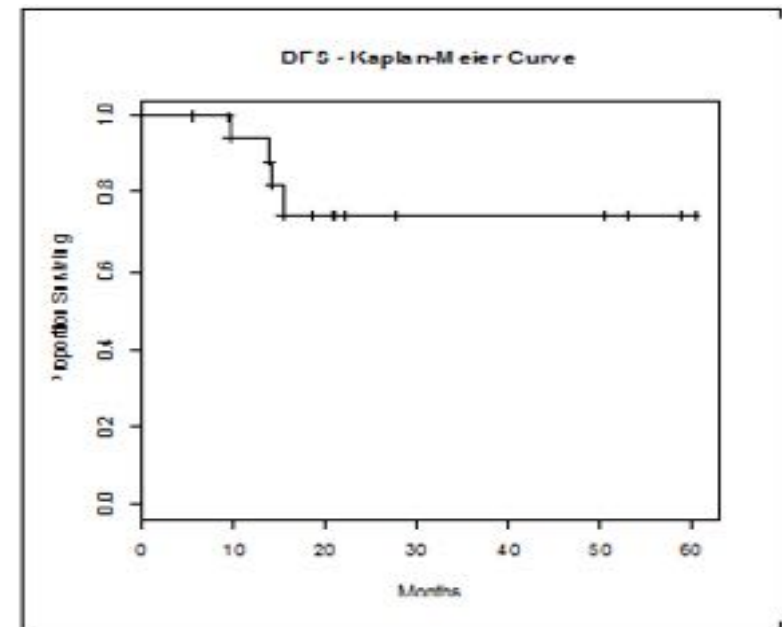


Results

The final sample size included 20 patients who completed trimodality treatment



1 – year OS: 94.7%
3 – year OS: 63.3%

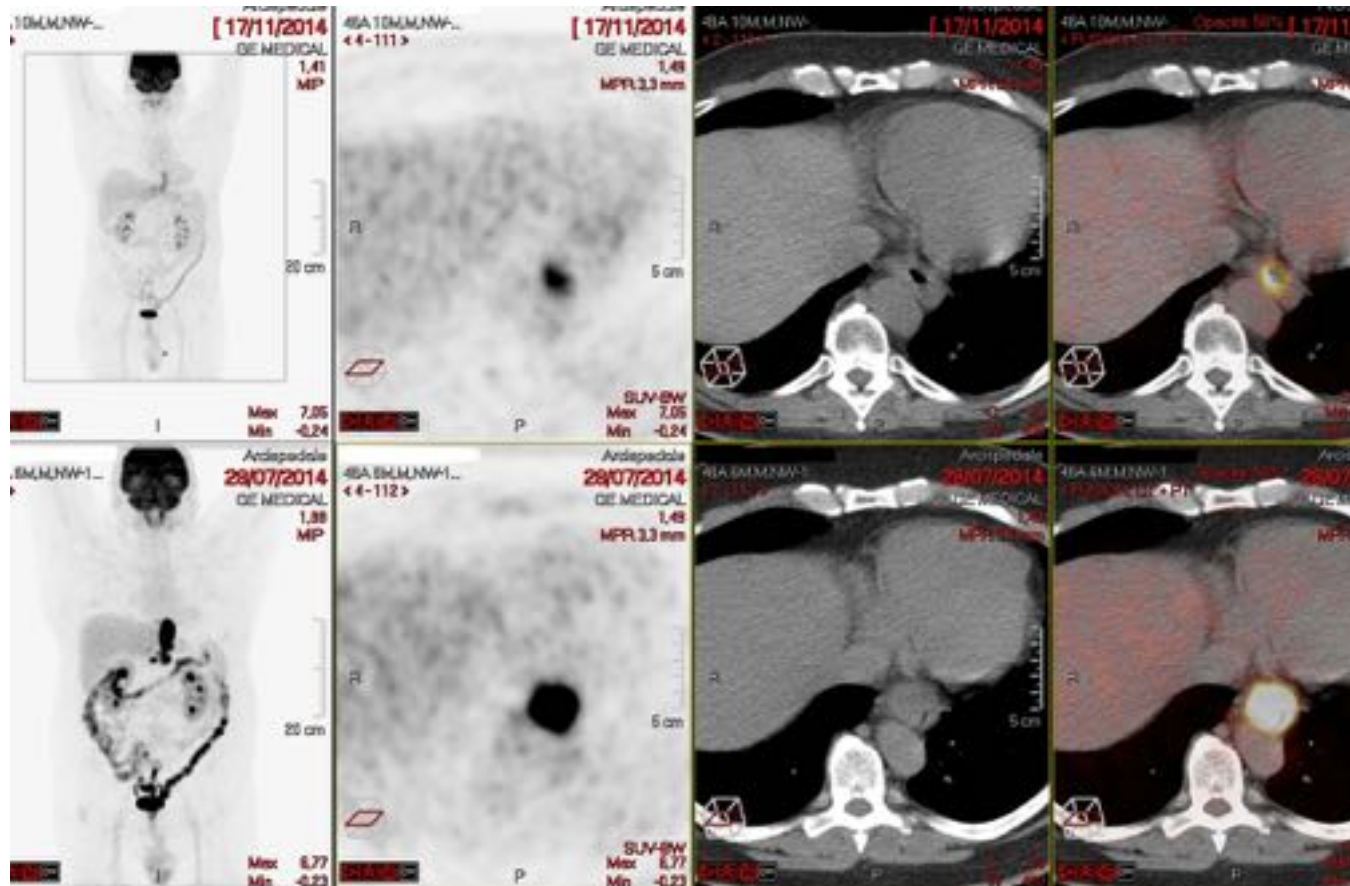


1 – year DFS: 94.4%
3 – year DFS: 74.4%

Results

Clinical response (cR) to NCRT was evaluated with esophagoscopy, CECT, EUS and PET, if necessary, before surgery, comparing pre-NCRT data with those obtained post-NCRT.

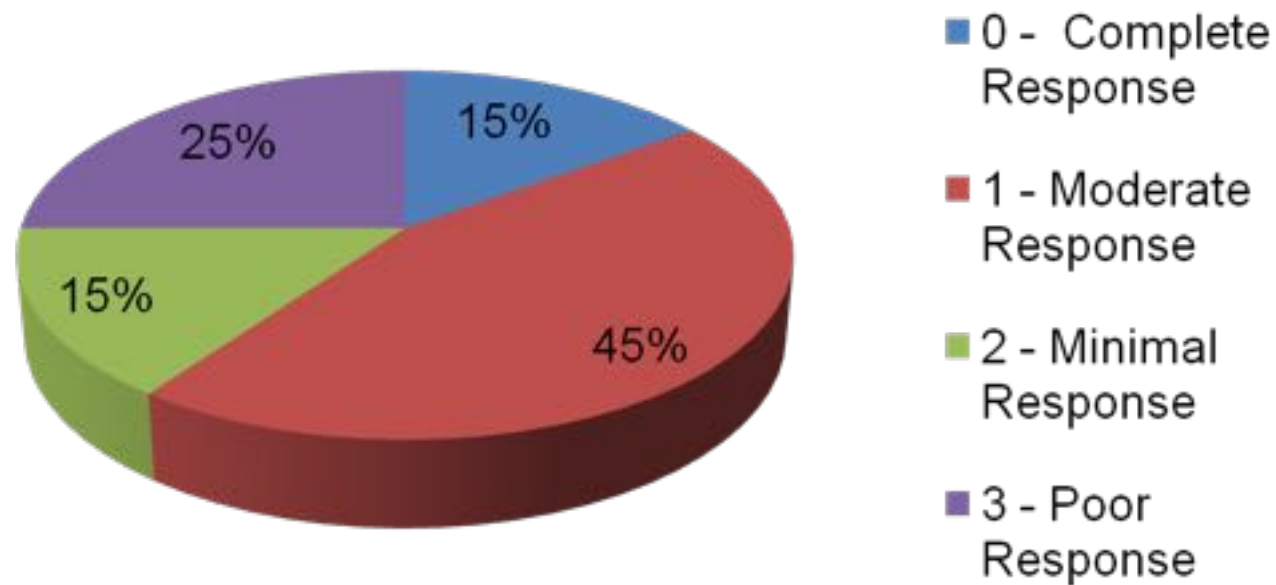
Partial or complete clinical response(cR) was achieved in 16 patients (80%).



Results

Pathologic response (pR) evaluation was performed by analyzing surgical specimens and was achieved in 15 patients (75%). In particular pathological complete response was obtained in 3 of them (15%).

Tumor Regression Score



Tumor recurrence: loco-regional and distant – failure

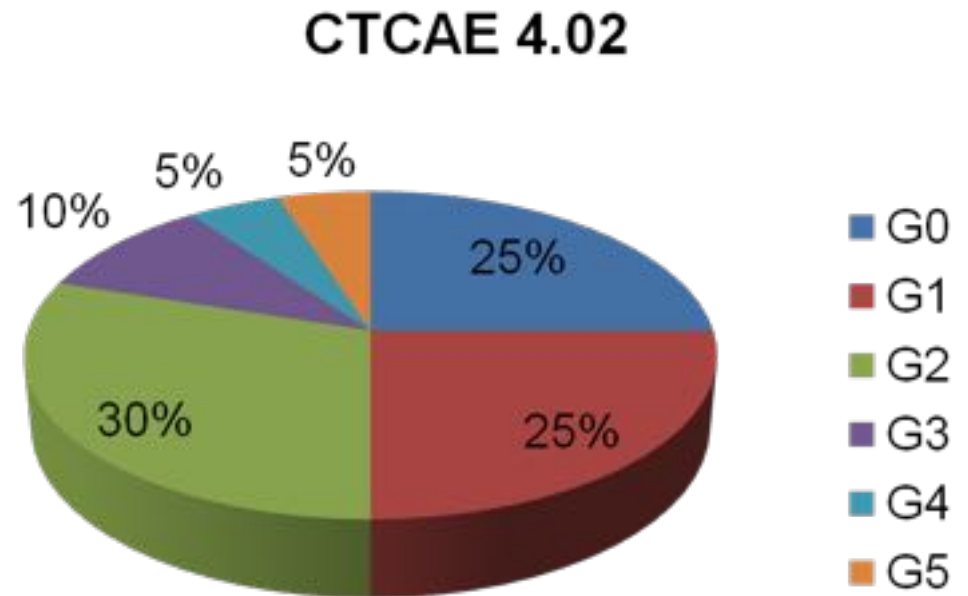
Local failure was considered to arise from residual malignant cells at the primary tumor site or regional lymph nodes (LNs) of the esophagus. Distant failure included non-regional LNs, serosal spread and hematogenous recurrences.

- 1 patient (5%) experienced loco-regional failure and synchronous distant metastases.
- 3 patients (15%) developed distant metastases

4 patients died (20%): 3 from esophageal cancer (15%) and 1 from hematological toxicity related to chemotherapy (5%).

Toxicity

- Acute toxicity of NCRT \leq G2 observed in 16 patients (80%).
- G3-4 in 3 patients (15%)
- One patient developed acute complication G5



The complication in postoperative day 90 were:

- anastomotic site leakage in 1 patient (5%)
- and anastomotic site stricture in 1 patient (5%).

Conclusions

In our experience, despite the limitations of a retrospective analysis and a small sample size, neoadjuvant chemoradiotherapy followed by esophagectomy, in selected patients with locally advanced esophageal cancer, provided **good local control and overall survival, with acceptable toxicity.**

As only a minority of patients developed locoregional relapse, future strategies should aim at preventing or treating early systemic disease.

Combination of chemoradiation with novel targeted agents may improve both locoregional and systemic control, ultimately resulting in prolonged survival.

Thank you for your attention

