### ESOPHAGEAL AND ESOPHAGOGASTRIC JUNCTION CANCER TREATMENT REGIMENS (Part 1 of 7)

Clinical Trials: The National Comprehensive Cancer Network recommends cancer patient participation in clinical trials as the gold standard for treatment.

Cancer therapy selection, dosing, administration, and the management of related adverse events can be a complex process that should be handled by an experienced healthcare team. Clinicians must choose and verify treatment options based on the individual patient; drug dose modifications and supportive care interventions should be administered accordingly. The cancer treatment regimens below may include both U.S. Food and Drug Administration-approved and unapproved indications/regimens. These regimens are provided only to supplement the latest treatment strategies.

These Guidelines are a work in progress that may be refined as often as new significant data becomes available. The NCCN Guidelines® are a consensus statement of its authors regarding their views of currently accepted approaches to treatment. Any clinician seeking to apply or consult any NCCN Guidelines® is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment. The NCCN makes no warranties of any kind whatsoever regarding their content, use, or application and disclaims any responsibility for their application or use in any way.

Preoperative Chemoradiation<sup>1</sup>

Note: All recommendations are c	ategory 2A unless otherwise indicated.
Preferred Regimens	
REGIMEN	DOSING
Paclitaxel + carboplatin (Category 1) <sup>2</sup>	<b>Day 1:</b> Paclitaxel 50mg/m² IV + carboplatin AUC 2mg·min/mL IV. Repeat weekly for 5 weeks (Days 1, 8, 15, 22, and 29).
Cisplatin + 5-fluorouracil (5-FU) (Category 1) <sup>3,4</sup>	Days 1 and 29: Cisplatin 75–100mg/m² IV Days 1-4 and 29-32: 5-FU 750–1,000mg/m² IV continuous infusion over 24 hours on a 35-day cycle.  OR Days 1-5: Cisplatin 15mg/m² IV daily + 5-FU 800 mg/m² IV continuous infusion over 24 hours.  Repeat cycle every 21 days for 2 cycles with radiation.
Oxaliplatin + 5-FU + leucovorin <sup>5</sup>	Day 1: Oxaliplatin 85mg/m² IV + leucovorin 400mg/m² + fluorouracil 400mg/m² IVP followed by:  Days 1-2: Fluorouracil 800mg/m² IV continuous infusion over 24 hours.  Repeat cycle every 14 days for 3 cycles with radiation and 3 cycles after radiation.
Cisplatin + capecitabine (Category 1) <sup>56</sup>	Day 1: Cisplatin 30mg/m² IV Days 1-5: Capecitabine 800mg/m² orally twice daily Repeat cycle weekly for 5 weeks.
Oxaliplatin + capecitabine (Category 1) <sup>57</sup>	Days 1, 15, and 29: Oxaliplatin 85mg/m² IV Days 1-5: Capecitabine 625mg/m² orally twice daily for 5 weeks.
Other Regimens	
rinotecan + cisplatin (Category 2B) <sup>7</sup>	<b>Days 1, 8, 22, and 29:</b> Irinotecan 65mg/m <sup>2</sup> IV + cisplatin 30mg/m <sup>2</sup> IV.
Paclitaxel + 5-FU (Category 2B) <sup>8</sup>	Day 1: Paclitaxel 45-50mg/m² IV weekly Days 1-5: 5-FU 300mg/m²/day continuous IV infusion. Repeat cycle weekly for 5 weeks.
Paclitaxel + capecitabine (Category 2B) <sup>8</sup>	<b>Day 1:</b> Paclitaxel 45–50mg/m² IV <b>Days 1–5:</b> Capecitabine 625–825mg/m² orally twice daily.  Repeat cycle weekly for 5 weeks.
	(including esophagogastric junction)¹
Fluoropyrimidine + oxaliplatin (Preferred) <sup>20,23,24,c</sup>	Day 1: Oxaliplatin 85mg/m² IV + leucovorin 400mg/m² IV + fluorouracil 400mg/m² IVP followed by:  Days 1-2: Fluourouracil 1200mg/m² continuous IV infusion over 24 hours.  Repeat cycle every 14 days.³²  OR  Day 1: Oxaliplatin 85mg/m² IV + leucovorin 200mg/m² IV + fluorouracil 2600mg/m² continuous IV infusion over 24 hours.  Repeat cycle every 14 days.²6  OR  Day 1: Oxaliplatin 130mg/m² IV  Days 1-14: Capecitabine 1000mg/m² orally twice daily.  Repeat cycle every 14 days.³³
Fluorouracil + leucovorin + oxaliplatin + docetaxel (FLOT) (Category 1) <sup>9</sup>	<b>Day 1:</b> Fluorouracil 2600mg/m² IV over 24 hours + leucovorin 200mg/m² IV + oxaliplatin 85mg/m² IV + docetaxel 50mg/m² IV.  Repeat cycle every 2 weeks for 4 cycles preoperatively and 4 cycles postoperatively for a total of 8 cycles.
5-FU + cisplatin (Category 1) <sup>1</sup>	Day 1: Cisplatin 50mg/m² IV Days 1-2: Fluorouracil 2000mg/m² IV continuous infusion over 48 hours. Repeat cycle every 2 weeks for 4-6 cycles preoperatively and 4-6 cycles postoperatively for a total of 12 cycles.
	continued

## ESOPHAGEAL AND ESOPHAGOGASTRIC JUNCTION CANCER TREATMENT REGIMENS (Part 2 of 7)

CANCER TREATMENT REGIMENS (Part 2 of 7)		
Preoperative Chemotherapy (only for adenocarcinoma of the thoracic esophagus or EGJ)		
REGIMEN	DOSING	
Fluorouracil + cisplatin	Day 1: Cisplatin 80mg/m² IV	
(Category 2B) <sup>11</sup>	<b>Days 1-4:</b> Fluorouracil 1000mg/m <sup>2</sup> IV continuous infusion over 24 hours daily. Repeat cycle every 3 weeks for 2 cycles preoperatively.	
Definitive Chemoradiation (N		
Preferred Regimens	ionsurgicar)	
Cisplatin + 5-FU (Category 1) <sup>12</sup>	Day 1: Cisplatin 75–100mg/m <sup>2</sup> IV	
oispiauli · 3-10 (Oategory 1)	Days 1-4: 5-FU 750-1,000mg/m²/day continuous IV infusion over 24 hours daily. Repeat cycle every 28 days for 2-4 cycles for 2 cycles with radiation followed by 2 cycles without radiation.	
Oxaliplatin + 5-FU (Category 1) <sup>5,6</sup>	Days 1, 15, and 29: Oxaliplatin 85mg/m² IV for 3 doses Days 1-33: 5-FU 180mg/m² IV daily. OR	
	Day 1: Oxaliplatin 85mg/m² IV + leucovorin 400mg/m² IV + 5-FU 400mg/m² IVP Days 1 and 2: 5-FU 800mg/m² continuous IV over 24 hours daily.  Repeat cycle every 14 days for 3 cycles with radiation followed by 3 cycles without radiation.	
Cisplatin + capecitabine (Category 1) <sup>53</sup>	Day 1: Cisplatin 30mg/m² IV Days 1-5: Capecitabine 800mg/m² orally twice daily. Repeat cycle weekly for 5 weeks.	
Oxaliplatin + capecitabine (Category 1) <sup>57</sup>	Days 1, 15, and 29: Oxaliplatin 85mg/m² IV Days 1-5: Capecitabine 625mg/m² orally twice daily. Repeat cycle weekly for 5 weeks.	
Paclitaxel + carboplatin <sup>2</sup>	<b>Day 1:</b> Paclitaxel 50mg/m² IV + carboplatin AUC 2mg·min/mL IV. Repeat cycle weekly for 5 weeks.	
Other Regimens		
Paclitaxel + cisplatin <sup>13</sup>	Days 1, 8, 15, and 22: Paclitaxel 60mg/m <sup>2</sup> IV Day 1: Cisplatin 75mg/m <sup>2</sup> IV given for 1 cycle.	
Docetaxel + cisplatin <sup>14,15</sup>	Days 1 and 22: Docetaxel 60mg/m² IV Days 1 and 22: Cisplatin 60–80mg/m² IV given for 1 cycle. OR	
	Day 1: Docetaxel 20–30mg/m² IV Day 1: Cisplatin 20–30mg/m² IV given for weekly for 5 weeks.	
Irinotecan + cisplatin (Category 2B) <sup>7</sup>	<b>Days 1, 8, 22, and 29:</b> Irinotecan 65mg/m² IV <b>Days 1, 8, 22, and 29:</b> Cisplatin 30mg/m² IV.	
Paclitaxel + 5-FU (Category 2B) <sup>8</sup>	Day 1: Paclitaxel 45-50mg/m² IV weekly Days 1-5: 5-FU 300mg/m² IV continuous infusion daily. Repeat cycle weekly for 5 weeks.	
Paclitaxel + capecitabine (Category 2B) <sup>8</sup>	Day 1: Paclitaxel 45–50mg/m² IV Days 1-5: Capecitabine 625–825mg/m² PO twice daily. Repeat cycle weekly for 5 weeks.	
Postoperative Chemoradiation (Including Esophagogastric Junction) <sup>1</sup>		
5-FU + leucovorin (Preferred) <sup>16,58</sup>	Cycles 1, 3, and 4 (before and after radiation)  Days 1-5: 5-FU 425mg/m²/day IV + leucovorin 20mg/m²/day IV.  Repeat cycle every 4 weeks.	
	Cycle 2 (with radiation)  Days 1-4 and 31-33: 5-FU 400mg/m² IV + leucovorin 20mg/m² IV +Radiotherapy 4,500cGy at 180cGy/day, 5 days/week for 5 weeks.	
	<b>NOTE:</b> The NCCN panel acknowledges that the Intergroup 0116 Trial formed the basis for postoperative adjuvant chemoradiation strategy. However, the panel does not recommend the above specified doses or schedule of cytotoxic agents because of concerns regarding toxicity. The panel recommends one of the following modifications instead:	
Capecitabine <sup>59</sup>	<b>Days 1-14:</b> Capecitabine 750-1000mg/m² orally twice daily; cycled every 28 days; 1 cycle before and 2 cycles after chemoradiation.	
5-FU + leucovorin <sup>1</sup>	Day 1: Leucovorin 400mg/m² IV + 5-FU 400mg/m² followed by	
	5-FU 2400mg/m² IV continuous infusion over 46 hours. Cycled every 14 days; 2 cycles before and 4 cycles after chemoradiation.	
	continued	

## ESOPHAGEAL AND ESOPHAGOGASTRIC JUNCTION CANCER TREATMENT REGIMENS (Part 3 of 7)

CANC	ER TREATMENT REGIMENS (Part 3 of 7)	
Postoperative Chemoradiation (Including Esophagogastric Junction)¹(continued)		
REGIMEN	DOSING	
5-FU with radiation <sup>60</sup>	Days 1–5 OR Days 1–7: 5-FU 200-250mg/ $\rm m^2$ IV continuous infusion over 24 hours daily, once weekly for 5 weeks.	
Capecitabine with radiation <sup>61</sup>	Days 1-5 OR Days 1-7: Capecitabine 625–825mg/m² orally twice daily, once weekly for 5 weeks.	
Postoperative Chemotherapy		
Capecitabine + Oxaliplatin <sup>17,d</sup>	Day 1: Oxaliplatin 130mg/m² IV Days 1-14: Capecitabine 1000mg/m² orally twice daily. Repeat cycle every 21 days.	
Systemic Therapy for Metast	atic or Locally Advanced Cancer (where local therapy is not indicated)	
First-line therapy		
Trastuzumab + chemotherapy (for HER2-neu malignancies) <sup>18</sup>	Day 1: Trastuzumab 8mg/kg IV loading dose (Cycle 1 only) followed by trastuzumab 6mg/kg IV every 3 weeks, plus chemotherapy (Category 2B).  OR  Day 1: Trastuzumab 6mg/kg IV loading dose (Cycle 1 only) followed by trastuzumab	
	4mg/kg IV every 14 days.	
Preferred Regimens		
DCF (docetaxel + leucovorin + cisplatin + 5-FU) <sup>25</sup>	$\begin{array}{l} \textbf{Day 1:} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	
Modified DCF (docetaxel + oxaliplatin + 5-FU) <sup>26</sup>	Day 1: Docetaxel 50mg/m² IV + oxaliplatin 85mg/m² IV Days 1 and 2: 5-FU 1200mg/m² IV continuous infusion over 24 hours. Repeat cycle every 14 days.	
Modified DCF (docetaxel + carboplatin + 5-FU) (Category 2B) <sup>27</sup>	Day 1: Docetaxel 75mg/m² IV Day 2: Carboplatin AUC 6mg·min/mL IV Days 1-3: 5-FU 1200mg/m² IV continuous infusion over 24 hours daily. Repeat cycle every 21 days.	
Fluoropyrimidine and cisplatin (5-FU + cisplatin) (Category 1) <sup>18,b</sup>	Day 1: Cisplatin 75-100mg/m² IV Days 1-4: 5-FU 750-1,000mg/m² IV continuous infusion over 24 hours daily. Repeat cycle every 4 weeks.	
Fluoropyrimidine and cisplatin (5-FU + cisplatin + leucovorin) (Category 1) <sup>20,21,b</sup>	Day 1: Cisplatin 50mg/m² IV Day 1: Leucovorin 200mg/m² IV Day 1: 5-FU 2,000mg/m² IV continuous infusion over 24 hours. Repeat cycle every 14 days.	
Fluoropyrimidine and cisplatin (capecitabine + cisplatin) (Category 1) <sup>22</sup>	Day 1: Cisplatin 80mg/m² IV Day 1-14: Capecitabine 1,000mg/m² orally twice daily. Repeat cycle every 3 weeks	
Fluoropyrimidine and oxaliplatin (oxaliplatin + leucovorin + 5-FU) <sup>20,23</sup>	Day 1: Oxaliplatin 85mg/m² IV + leucovorin 400mg/m² IV + 5-FU 400mg/m² IVP Days 1 and 2: 5-FU 1200mg/m² IV continuous infusion over 24 hours daily. Repeat cycle every 14 days.  OR	
	<b>Day 1:</b> Oxaliplatin 85mg/m² IV + leucovorin 200mg/m² IV + 5-FU 2600mg/m² IV continuous infusion over 24 hours.  Repeat cycle every 14 days.	
Fluoropyrimidine and oxaliplatin (oxaliplatin + capecitabine) <sup>24</sup>	Day 1: Oxaliplatin 130mg/m² IV Days 1-14: Capecitabine 1000mg/m² orally twice daily. Repeat cycle every 21 days.	
Other Regimens		
Paclitaxel + cisplatin or carboplatin <sup>28-32</sup>	Day 1: Paclitaxel 135-200mg/m² IV Day 2: Cisplatin 75mg/m² IV Repeat cycle every 21 days. OR Day 1: Paclitaxel 90mg/m² IV + cisplatin 50mg/m² IV	
	Repeat cycle every 14 days.  OR  Day 1: Paclitaxel 200mg/m² IV + carboplatin 5mg·min/mL.	
Docetaxel + cisplatin <sup>31,32</sup>	Repeat cycle every 21 days.  Day 1: Docetaxel 70–85mg/m² IV + cisplatin 70–75mg/m² IV.	
	Repeat cycle every 21 days.	
	Continued	

# **ESOPHAGEAL AND ESOPHAGOGASTRIC JUNCTION CANCER TREATMENT REGIMENS** (Part 4 of 7)

Systemic Therapy for Metastatic or Locally Advanced Cancer (where local therapy is not indicated)¹ (continued)		
Other Regimens (continued)	anoutour (continuou)	
REGIMEN	DOSING	
Fluoropyridimine <sup>21,33,34</sup>	Day 1: Leucovorin 400mg/m² IV + 5-FU 400mg/m² IVP Days 1 and 2: 5-FU 1200mg/m² IV continuous infusion over 24 hours daily. Repeat cycle every 14 days.  OR Days 1-5: 5-FU 800mg/m² IV continuous infusion over 24 hours daily. Repeat cycle every 28 days.  OR Days 1-14: Capecitabine 1000-1250mg/m² orally twice daily.	
	Repeat cycle every 21 days.	
Taxane <sup>35-38</sup>	Day 1: Docetaxel 75–100mg/m² IV. Repeat cycle every 21 days. OR Day 1: Paclitaxel 135–250mg/m² IV. Repeat cycle every 21 days. OR Day 1: Paclitaxel 80mg/m² IV once weekly. Repeat cycle every 28 days.	
5-FU and irinotecan (irinotecan + leucovorin + 5-FU) <sup>39,62,f</sup>	Day 1: Irinotecan 80mg/m² IV + Ieucovorin 500mg/m² IV + 5-FU 2000mg/m² IV continuous infusion over 24 hours.  Repeat cycle weekly for 6 weeks followed by 2 weeks off treatment.  OR  Day 1: Irinotecan 180mg/m² IV + Ieucovorin 400mg/m² IV + 5-FU 400mg/m² IVP  Day 1-2: 5-FU 1200mg/m² IV continuous infusion over 24 hours.  Repeat cycle every 14 days. (only for adenocarcinoma)	
ECF (epirubicin + cisplatin + 5-FU) (Category 2B) <sup>40</sup>	Day 1: Epirubicin 50mg/m² IV bolus + cisplatin 60mg/m² IV Days 1-21: 5-FU 200mg/m² IV continuous infusion over 24 hours daily. Repeat cycle every 21 days.	
ECF modifications (epirubicin + oxaliplatin + 5-FU) (Category 2B) <sup>41,42</sup>	Days 1: Epirubicin 50mg/m² IV + oxaliplatin 130mg/m² IV Days 1-21: 5-FU 200mg/m² IV continuous infusion over 24 hours. Repeat cycle every 21 days.	
ECF modifications (epirubicin + cisplatin + capecitabine) (Category 2B) <sup>41,42</sup>	Day 1: Epirubicin 50mg/m² IV + cisplatin 60mg/m² IV Days 1-21: Capecitabine 625mg/m² IV orally twice daily. Repeat cycle every 21 days.	
ECF modifications (epirubicin + oxaliplatin + capecitabine) (Category 2B) <sup>41,42</sup>	<b>Day 1:</b> Epirubicin 50mg/m² IV + oxaliplatin 130mg/m² IV <b>Days 1–21:</b> Capecitabine 625mg/m² IV orally twice daily. Repeat cycle every 21 days.	
Second-line or Subsequent T	herapy¹	
Preferred Regimens		
Ramucirumab + paclitaxel (for adenocarcinoma) (Category 1 for EGJ adenocarcinoma; Category 2A for esophageal adenocarcinoma) <sup>43</sup>	Days 1 and 15: Ramucirumab 8mg/kg IV Days 1, 8, and 15: Paclitaxel 80mg/m² IV. Repeat cycle every 28 days.	
Docetaxel (Category 1) <sup>35,36</sup>	<b>Day 1:</b> Docetaxel 75–100mg/m <sup>2</sup> IV. Repeat cycle every 21 days.	
Paclitaxel (Category 1) <sup>37,38,44</sup>	Day 1: Paclitaxel 135-250mg/m² IV. Repeat cycle every 21 days.  OR Day 1: Paclitaxel 80mg/m² IV once weekly. Repeat cycle every 28 days.  OR Days 1, 8, and 15: Paclitaxel 80 mg/m² IV. Repeat cycle every 28 days.	
Irinotecan (Category 1) <sup>44-47</sup>	Day 1: Irinotecan 250-350mg/m² IV. Repeat cycle every 21 days. OR Day 1: Irinotecan 150-180mg/m² IV. Repeat cycle every 14 days. OR Days 1 and 8: Irinotecan 125mg/m² IV. Repeat cycle every 21 days.	
	continued	

### ESOPHAGEAL AND ESOPHAGOGASTRIC JUNCTION CANCER TREATMENT REGIMENS (Part 5 of 7)

Second-line or Subsequent Therapy¹ (continued)  Preferred Regimens (continued)		
Ramucirumab (for adeno- carcinoma) (Category 1 for EGJ adenocarcinoma; Category 2A for esophageal adenocarcinoma) <sup>48</sup>	<b>Days 1 and 15:</b> Ramucirumab 8mg/kg IV. Repeat cycle every 28 days.	
Fluorouracil + irinotecan (if not previously used in first-line therapy; only for adenocarcinoma) <sup>45,f</sup>	Day 1: Irinotecan 180mg/m² IV + leucovorin 400mg/m² IV + fluorouracil 400mg/m² IVP followed by:  Days 1-2: Fluorouracil 1200mg/m² IV continuous infusion over 24 hours daily. Repeat cycle every 14 days.	
Other Regimens		
Irinotecan + cisplatin <sup>23,51</sup>	<b>Days 1 and 8:</b> Irinotecan 65mg/m² IV + cisplatin 25–30mg/m² IV. Repeat cycle every 21 days.	
Docetaxel + irinotecan (Category 2B) <sup>55</sup>	<b>Days 1 and 8:</b> Docetaxel 35mg/m² IV plus irinotecan 50mg/m² IV. Repeat cycle every 21 days.	
Pembrolizumab <sup>54</sup> (for second-line or subsequent therapy for MSI-H/dMMR tumors; for third-line or subsequent therapy for PD-L1-positive esophageal and EGJ adenocarcinoma))	<b>Day 1:</b> Pembrolizumab 200mg IV. Repeat cycle every 21 days.	

#### Principles of Systemic Therapy<sup>1</sup>

- Systemic therapy regimens recommended for advanced esophageal and esophagogastric junction (EGJ) adenoarcinoma, squamous cell carcinoma of the esophagus, and gastric adenocarcinoma may be used interchangeably
  (except as indicated).
- Regimens should be chosen in the context of performance status, comorbidities, and toxicity profile.
- Trastuzumab should be added to chemotherapy for HER2 overexpressing metastatic adenocarcinoma.
- Two-drug cytotoxic regimens are preferred for patients with advanced disease because of lower toxicity. Three-drug
  cytotoxic regimens should be reserved for medically fit patients with good PS and access to frequent toxicity evaluation.
- Modifications of category 1 regimen or use of category 2A or 2B regimens may be preferred (as indicated), with
  evidence supporting more favorable toxicity profile without compromising efficacy.
- Doses and schedules for any regimen that is not derived from category 1 evidence is a suggestion, and subject to appropriate modifications depending on the circumstances.
- Alternate combinations and schedules of cytotoxics based on the availability of the agents, practice preferences, and contraindications are permitted.
- Preoperative chemoradiation is the preferred approach for localized adenocarcinoma of the thoracic esophagus or EGJ. Perioperative chemotherapy is an alternative option for distal esophagus and EGJ.
- In the adjuvant setting, upon completion of chemotherapy or chemoradiation, patients should be monitored for any long-term treatment-related complications.
- a Modified regimens substituting oxaliplatin and/or capecitabine are also acceptable.
- b May be coupled with cetuximab administered as an initial dose of cetuximab 400 mg/m² IV on Day 1 over 120 minutes; followed by weekly doses of 250 mg/m² IV over 60 minutes.
- c The use of this regimen and dosing schedules is based on extrapolations from published literature and clinical practice.
- d Cisplatin may not be used interchangeably with oxaliplatin in this setting.
- e For second-line or subsequent therapy for MSI-H/dMMR tumors; for third-line or subsequent therapy for PD-L1-positive esophageal and EGJ adenocarcinoma.
- f Capecitabine cannot be used interchangeably with fluorouracil in regimens containing irinotecan.

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- Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology™. Esophageal and Esophagogastric Cancer. V1.2018. Available at: http://www.nccn.org/professionals/ physician\_gls/pdf/esophageal.pdf. Accessed April 10, 2018.
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### ESOPHAGEAL AND ESOPHAGOGASTRIC JUNCTION CANCER TREATMENT REGIMENS (Part 6 of 7)

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