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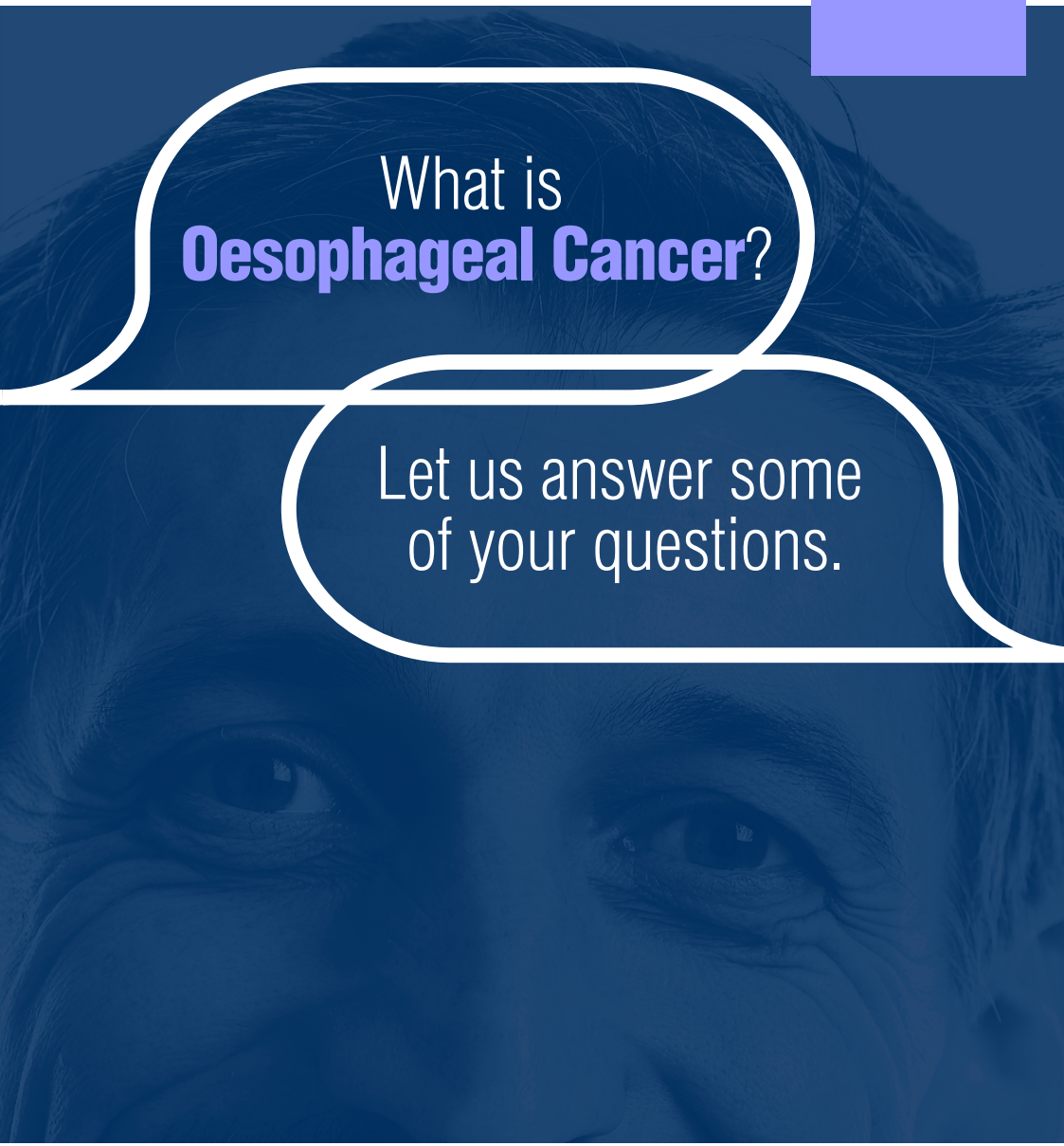
Oesophageal Cancer

What is Oesophageal Cancer?

Let us answer some of your questions.



ESMO Patient Guide Series

based on the ESMO Clinical Practice Guidelines

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Oesophageal Cancer
An ESMO guide for patients

Patient information based on ESMO Clinical Practice Guidelines

This guide has been prepared to help you, as well as your friends, family and caregivers, better understand oesophageal cancer and its treatment. It contains information on the causes of the disease and how it is diagnosed, up-to-date guidance on the types of treatments that may be available and any possible side effects of treatment.

The medical information described in this document is based on the ESMO Clinical Practice Guideline for oesophageal cancer, which is designed to help clinicians with the diagnosis and management of oesophageal cancer. All ESMO Clinical Practice Guidelines are prepared and reviewed by leading experts using evidence gained from the latest clinical trials, research and expert opinion.

The information included in this guide is not intended as a replacement for your doctor's advice. Your doctor knows your full medical history and will help guide you regarding the best treatment for you.

Words highlighted in **colour** are defined in the glossary at the end of the document.

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WHAT'S INSIDE

Oesophageal cancer: A summary of key information

The following information will be discussed in detail in this guide.

Introduction to oesophageal cancer

- Oesophageal cancer forms in the **oesophagus** (food pipe), which is part of the digestive system. The most common types of oesophageal cancer are **squamous cell carcinoma** (**SCC**) and **adenocarcinoma** (**AC**).
- There are several known **risk factors** for oesophageal cancer, including heavy alcohol consumption, smoking and obesity.
- Oesophageal cancer is the eighth most common cancer worldwide. It is far more common in men than women.

Diagnosis of oesophageal cancer

- Symptoms of oesophageal cancer include problems with swallowing, indigestion, weight loss and pain in the throat.
- A diagnosis of oesophageal cancer is usually based on the results of an **endoscopy**, which can show if there is a **tumour** in the **oesophagus**, and a **biopsy** to confirm the presence of cancer cells.
- Oesophageal cancer is categorised according to how far it has spread. Early-stage oesophageal cancer is contained within the area it first developed in and has not spread anywhere else in the body. Locally advanced oesophageal cancer has spread to neighbouring areas and may affect nearby **lymph nodes**. **Metastatic** oesophageal cancer has spread to another part of the body. This information is used to help decide the best treatment.
- Patients with **metastatic** oesophageal cancer may undergo **molecular testing** for the presence of certain **biomarkers**, as this can help to decide if certain types of **targeted therapy** or **immunotherapy** could be beneficial.

Treatment options for oesophageal cancer

- Treatment for oesophageal cancer depends on the size, location and stage of the **tumour**, whether it is **SCC** or **AC**, and the general health of the patient.
- Patients should be fully informed and involved in decisions about treatment options.

Early-stage and locally advanced oesophageal cancer

- Early-stage oesophageal **SCC** and **AC** are usually treated with surgery alone, either via **endoscopic mucosal resection** or **oesophagectomy**.
- Locally advanced **SCC** is often treated with **neoadjuvant chemoradiotherapy**, followed by surgery to remove the **tumour**. **Adjuvant nivolumab** is offered to some patients if the **tumour** has not been completely removed by surgery. An alternative option is **chemoradiotherapy** as a **curative** approach.
- Locally advanced **AC** may be treated with **neoadjuvant chemotherapy**, followed by surgery to remove the **tumour**, then **adjuvant chemotherapy**. An alternative option is **neoadjuvant chemoradiotherapy**, followed by surgery. **Adjuvant nivolumab** is offered to some patients if the **tumour** has not been completely removed by surgery.

Metastatic oesophageal cancer

- The standard **first-line** treatment for **metastatic SCC** is **chemotherapy**. The **chemotherapy** may be combined with **immunotherapy** (**pembrolizumab** or **nivolumab**), depending on the results of **molecular testing**. **Second-line** treatment is **nivolumab** in patients who received **first-line chemotherapy**. Patients who previously received **pembrolizumab** or **nivolumab** are usually offered **second-line chemotherapy**.
- **First-line** treatment for **metastatic AC** is **chemotherapy**. The **chemotherapy** may be combined with **targeted therapy** or **immunotherapy**, depending on the results of **molecular testing**. **Second-line** treatment may include a **targeted therapy** in combination with **chemotherapy**, a **targeted therapy** alone, **chemotherapy** alone or **immunotherapy**, depending on the results of **molecular testing**, the general health of the patient and the patient's preferences.

Additional interventions

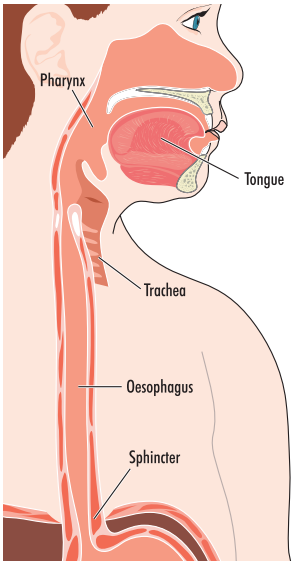
- Oesophageal cancer, and the treatments for it, can have a long-term impact on quality of life. **Oesophagectomy** can cause problems with eating and many patients find it difficult to maintain a healthy weight. Some patients will need to have a feeding tube.
- A **dietician** should provide advice on how and what to eat in order to stay healthy.
- Physical changes may affect self-esteem and can have an impact on relationships and sex. Many patients find it helpful to talk to other people about their feelings and experiences; this can include family and friends, or a trained professional such as a therapist. Talking to other people who have had treatment for oesophageal cancer can also help, and patient support groups can connect patients with fellow survivors.

Follow-up during/after treatment

- The timings of follow-up appointments vary between countries and practices. Follow-up appointments may include a physical examination, blood tests and/or a **computed tomography** scan.
- Patients who experience a **recurrence** of their cancer can usually have further treatment. The treatment will depend on the extent of the **recurrence**, previous treatments received, the overall health of the patient and the patient's preferences.
- Support groups can help patients and their families to better understand oesophageal cancer and to learn how to cope with all aspects of the disease, from diagnosis to long-term effects.
- Digestive Cancers Europe is a community of patient organisations that support people affected by digestive cancers, including oesophageal cancer: https://digestivecancers.eu/members

What is oesophageal cancer?

Oesophageal cancer is a type of cancer that develops in the **oesophagus** (food pipe), which is part of the digestive system. The **oesophagus** carries food from the mouth to the stomach.



*Anatomy of the **oesophagus**.*

A ring of muscle (**sphincter**) at the top of the **oesophagus** opens it up to allow food or liquid to enter. The lower end of the **oesophagus** joins the stomach at the **oesophagogastric junction** (**OGJ**). A **sphincter** here allows food to move from the **oesophagus** to the stomach and prevents stomach contents moving back from the stomach into the **oesophagus**.

Oesophageal cancer develops in the cells lining the **oesophagus**. Cancer that begins in the flat cells that cover the lining of the **oesophagus** is called **squamous cell carcinoma** (**SCC**) and cancer that begins in gland cells is called **adenocarcinoma** (**AC**).

Cancers in the upper and middle part of the **oesophagus** tend to be **SCC**, while cancers in the lower part of the **oesophagus** tend to be **ACs**.

What are the symptoms of oesophageal cancer?

The symptoms of oesophageal cancer may include:

- Difficulty swallowing (**dysphagia**)
- Persistent indigestion or heartburn
- Weight loss
- Pain in the throat or behind the breastbone

You should see your doctor if you experience any of these symptoms. However, it is important to remember that these symptoms can also occur in people who do not have oesophageal cancer; they may also be caused by other conditions.

Any symptoms of oesophageal cancer should be checked by a doctor

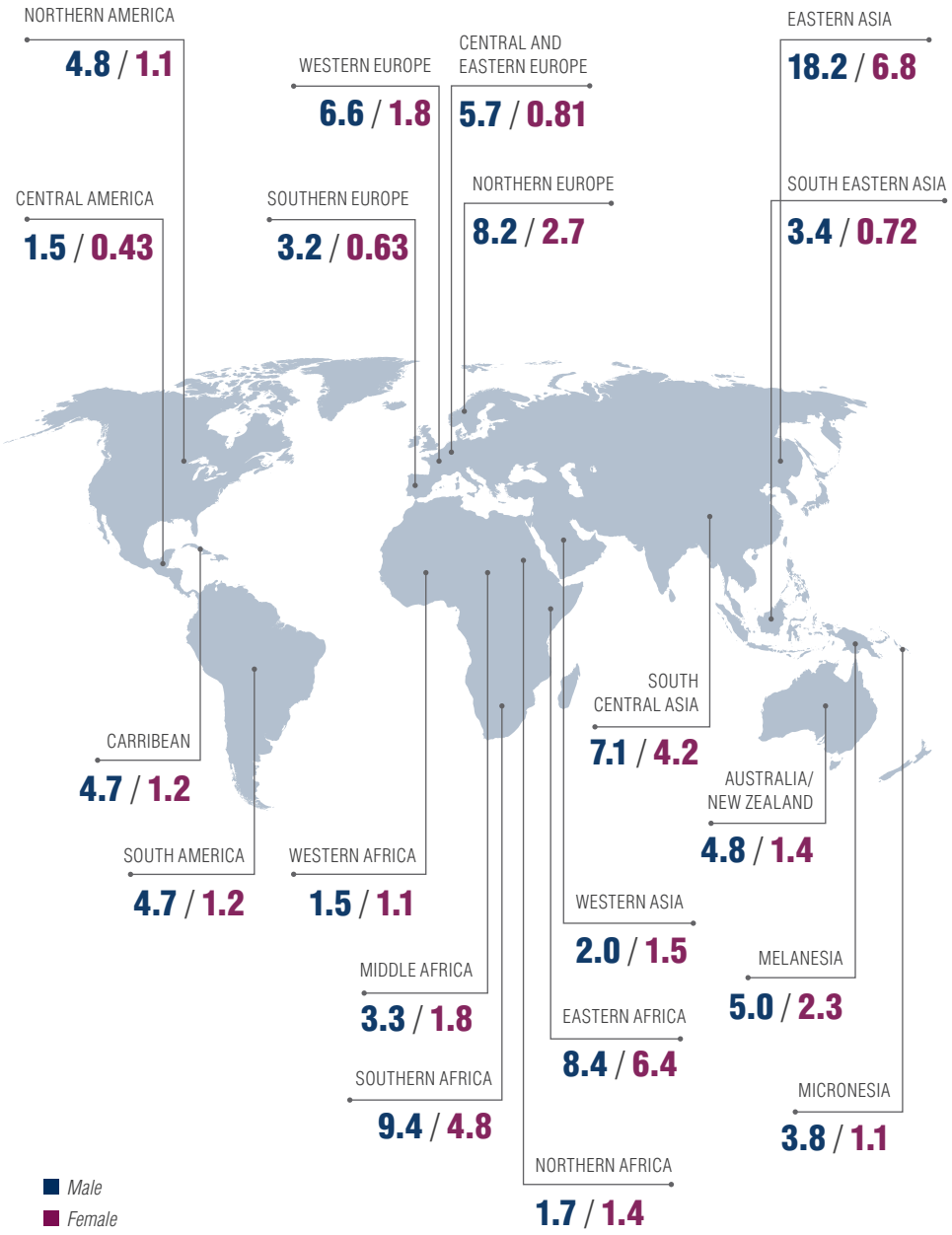
How common is oesophageal cancer?

Oesophageal cancer is the eighth most common cancer worldwide, with more than 600,000 new cases and 540,000 deaths in 2020. The highest incidence rates are in Eastern Asia, Southern Africa, Eastern Africa, Northern Europe and South Central Asia *(Obermannová et al., 2022; Ferlay et al., 2020)*.

Oesophageal cancer is far more common in in men than in women, with around 70% of cases occurring in men *(Obermannová et al., 2022)*.

Oesophageal cancer is the eighth most common cancer worldwide and is far more common in men than women

The map shows estimated numbers of new cases of oesophageal cancer diagnosed in 2020 per 100,000 people of each region's population (Ferlay et al., 2020).



What causes oesophageal cancer?

Several **risk factors** for developing oesophageal cancer have been identified. It is important to remember that having a **risk factor** increases the risk of cancer developing but it does not mean that you will definitely get cancer. Likewise, not having a **risk factor** does not mean that you definitely won't get cancer.

Several risk factors have been identified for oesophageal cancer

FACTORS THAT MAY INCREASE RISK
Heavy alcohol consumption
Smoking
Obesity
Gastro-oesophageal reflux
Oesophageal intestinal metaplasia

*There are various **risk factors** associated with developing oesophageal cancer although each factor may not apply to everyone who develops the disease.*

The **risk factors** for oesophageal **SCC** and **AC** vary. Heavy alcohol use and smoking are the major **risk factors** for **SCC**. In some regions, **betel quid** chewing and consumption of food and drink at very hot temperatures have also been associated with **SCC**. **Obesity**, **gastro-oesophageal reflux** and **oesophageal intestinal metaplasia** are key risk factors for **AC** *(Obermannová et al., 2022)*.

The risk of developing oesophageal cancer can be reduced by limiting exposure to **risk factors**; for example, reducing alcohol intake, stopping smoking and maintaining a healthy weight. Some people who are known to be at high risk for developing oesophageal cancer may be offered regular **endoscopic surveillance** to ensure any signs of cancer are identified early.

Lifestyle changes can reduce the risk of developing oesophageal cancer

How is oesophageal cancer diagnosed?

A diagnosis of oesophageal cancer is based on the results of the following examinations and tests:

Clinical examination

If you have symptoms of oesophageal cancer, your doctor may carry out a general clinical examination and feel around your throat for any areas that are swollen or feel unusual. Your doctor may also carry out blood tests.

Clinical examination can indicate if further tests are needed

Endoscopy

Your doctor may recommend that you have an **endoscopy** *(Obermannová et al., 2022)*. This procedure allows doctors to see inside your **oesophagus**, stomach and **duodenum** using a light and camera attached to a thin, flexible tube that is inserted into your **oesophagus** via the mouth. You will usually be awake during the **endoscopy**, although your throat will be numbed with a local **anaesthetic** and you may be offered a **sedative** to help you relax.

During the **endoscopy**, your doctor can take samples (**biopsies**) of any areas that look abnormal so they can be examined under a microscope to check for cancer cells. This will also tell the doctors whether you have **SCC** or **AC**.

Oesophageal cancer is usually diagnosed by taking biopsies during an endoscopy

How will my treatment be determined?

Your treatment will largely depend on the stage of your cancer.

Staging

Staging is used to describe the extent of the cancer overall; this includes its size and position and whether it has spread from where it started.

If your **endoscopy** and **biopsies** show that you have oesophageal cancer, you are likely to have a **computed tomography** (**CT**) scan of your abdomen, chest and pelvis *(Obermannová et al., 2022)*. **CT** is a type of **x-ray** technique that lets doctors see your internal organs in detail by showing very thin cross sections of the body.

The **CT** scan will allow the doctor to assess the location and size of the cancer and to check for any signs that the cancer has spread.

After diagnosis, imaging scans can show if the cancer has spread to other parts of the body

Other techniques that are used to assess the size and position of oesophageal cancer include:

- **Endoscopic ultrasound**: similar to an **endoscopy**, but the **endoscope** also has an **ultrasound** probe at its tip, which produces sound waves to create a picture of the internal organs.
- **Laparoscopy**: a minor operation in which a thin tube with a light and a camera are inserted through a small cut in the abdomen, allowing the doctor to check around the stomach and **oesophagus** and take **biopsies**.
- **Positron emission tomography** (**PET**) scan: a **radioactive** substance is injected into a vein to help find areas of cancer that a **CT** scan may miss. Most **PET** scans are now performed along with a **CT** scan.

The results of your **biopsies** and imaging scans will confirm what type of oesophageal cancer you have and how far your cancer has spread. Your doctor will categorise your disease as one of the following:

- Early-stage oesophageal cancer is contained within the area it first developed in and has not spread anywhere else in the body.
- Locally advanced oesophageal cancer has spread to neighbouring areas and may affect nearby **lymph nodes**.
- **Metastatic** oesophageal cancer has spread to another part of the body. **Tumours** found in other parts of the body away from the original **tumour** site are called **metastases**.

Lymph nodes are a small bean-shaped glands that are a part of the **lymphatic system**. **Lymph nodes** filter **lymph** as it passes through them and white blood cells attack any bacteria or viruses in the **lymph**. When cancer cells break away from a **tumour**, they can become stuck in nearby **lymph nodes**, so doctors always check **lymph nodes** to see if a cancer has spread.

TNM staging

Staging to determine the size and spread of the cancer is described using a sequence of letters and numbers. For oesophageal cancer, there are five stages designated with Roman numerals 0 to IV. Generally, the lower the stage, the better the **prognosis**. The TNM staging system considers:

- How far the **tumour** has grown into the **oesophagus** wall (T).
- Whether the cancer has spread to nearby **lymph nodes** (N).
- Whether it has spread to distant sites, or **metastases** (M).

Staging helps to determine the most appropriate treatment for oesophageal cancer

The staging system for oesophageal cancer is described in the table below *(Obermannová et al., 2022)*. This may seem complicated, but your doctor will be able to explain which parts of the table correspond to your cancer.

Stage 0. There are severely abnormal cells in the inner lining of the **oesophagus** (Tis-N0-M0)	**T**	• Carcinoma *in situ*/high grade **dysplasia** (Tis)
	N	• No regional **lymph node metastasis** (N0)
	M	• No distant **metastasis** (M0)
Stage IA. The cancer has grown no further than the thin muscle layer of the **oesophagus** wall (T1a-N0-M0)	**T**	• **Tumour** invades **lamina propria** or **muscularis mucosae** (T1a)
	N	• No regional **lymph node metastasis** (N0)
	M	• No distant **metastasis** (M0)
Stage IB. The cancer has grown into the thin muscle, supportive layer or thick muscle layer of the **oesophagus** (T1b-N0-M0)	**T**	• **Tumour** invades **submucosa** (T1b)
	N	• No regional **lymph node metastasis** (N0)
	M	• No distant **metastasis** (M0)
Stage IIA. The cancer has grown into the thick muscle or outer layer of the **oesophagus**. It hasn't spread to nearby **lymph nodes** (T2-N0-M0)	**T**	• **Tumour** invades **muscularis propria** (T2)
	N	• No regional **lymph node metastasis** (N0)
	M	• No distant **metastasis** (M0)

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Stage IIB. The cancer has grown into either the supportive layer or outer layer of the **oesophagus**. It might have spread to nearby **lymph nodes** (T1-N1-M0 or T3-N0-M0)	**T**	• **Tumour** invades **lamina propria**, **muscularis mucosae** or **submucosa** (T1) • **Tumour** invades **adventitia** (T3)
	N	• No regional **lymph node metastasis** (N0) • **Metastasis** in 1-2 regional **lymph nodes** (N1)
	M	• No distant **metastasis** (M0)
Stage IIIA. The cancer might have grown into the supportive or thick muscle layer of the **oesophagus**. It has spread to nearby lymph nodes (T1-N2-M0 or T2-N1-M0)	**T**	• **Tumour** invades **lamina propria**, **muscularis mucosae** or **submucosa** (T1) • **Tumour** invades **muscularis propria** (T2)
	N	• **Metastasis** in 1-2 regional **lymph nodes** (N1) • **Metastasis** in 3-6 regional **lymph nodes** (N2)
	M	• No distant **metastasis** (M0)
Stage IIIB. The cancer has spread into the thick muscle or outer layer or the **oesophagus** or into nearby tissue. It might have spread to nearby **lymph nodes** (T2-N2-M0 or T3-N1/2-M0 or T4a-N0/1-M0)	**T**	• **Tumour** invades **muscularis propria** (T2) • **Tumour** invades **adventitia** (T3) • **Tumour** invades **pleura**, **pericardium**, **azygos vein**, **diaphragm** or **peritoneum** (T4a)
	N	• No regional **lymph node metastasis** (N0) • **Metastasis** in 1-2 regional **lymph nodes** (N1) • **Metastasis** in 3-6 regional **lymph nodes** (N2)
	M	• No distant **metastasis** (M0)
Stage IVA. The cancer has grown into nearby tissue or structures. It might have spread to nearby **lymph nodes** (T4a-N2-M0 or T4b-any N-M0 or any T-N3-M0)	**T**	• Carcinoma *in situ*/high grade **dysplasia** (Tis) • **Tumour** invades **lamina propria**, **muscularis mucosae** or **submucosa** (T1) • **Tumour** invades **muscularis propria** (T2) • **Tumour** invades **adventitia** (T3) • **Tumour** invades **pleura**, **pericardium**, **azygos vein**, **diaphragm** or **peritoneum** (T4a) • **Tumour** invades other adjacent structures such as **aorta**, **vertebral body** or **trachea** (T4b)
	N	• No regional **lymph node metastasis** (N0) • **Metastasis** in 1-2 regional **lymph nodes** (N1) • **Metastasis** in 3-6 regional **lymph nodes** (N2) • **Metastasis** in ≥7 regional **lymph nodes** (N3)
	M	• No distant **metastasis** (M0)

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Stage IVB. The cancer has spread to distant body parts (any T-any N-M1)	**T**	• Carcinoma *in situ*/high grade **dysplasia** (Tis) • **Tumour** invades **lamina propria**, **muscularis mucosae** or **submucosa** (T1) • **Tumour** invades **muscularis propria** (T2) • **Tumour** invades **adventitia** (T3) • **Tumour** invades other adjacent structures (T4b)
	N	• No regional **lymph node metastasis** (N0) • **Metastasis** in 1-2 regional **lymph nodes** (N1) • **Metastasis** in 3-6 regional **lymph nodes** (N2) • **Metastasis** in ≥7 regional **lymph nodes** (N3)
	M	• Distant **metastasis** (M1)

The staging information above is complex, but the most important thing you need to know is the overall stage your cancer, as shown below:

Stage I	The earliest stage, when the cancer has not spread beyond the thick muscle of the **oesophagus** wall
Stage II	The cancer has grown beyond the thick muscle of the **oesophagus** wall and might have spread to one or two nearby **lymph nodes**
Stage III	The cancer has spread beyond the outer layer of the **oesophagus** and into nearby tissues. It might have spread to several nearby **lymph nodes**, but it has not spread to other organs
Stage IV	The cancer has grown into nearby tissues and organs or has spread across your body

Molecular tests

The **biopsies** taken during your **endoscopy** may also undergo **molecular testing**, or you may have further **biopsies** for **molecular testing** at a later time (usually if the cancer is **metastatic**). This type of testing can identify specific biological molecules (**biomarkers**) in your cancer cells, which can help doctors to decide which type of treatment will be best for you.

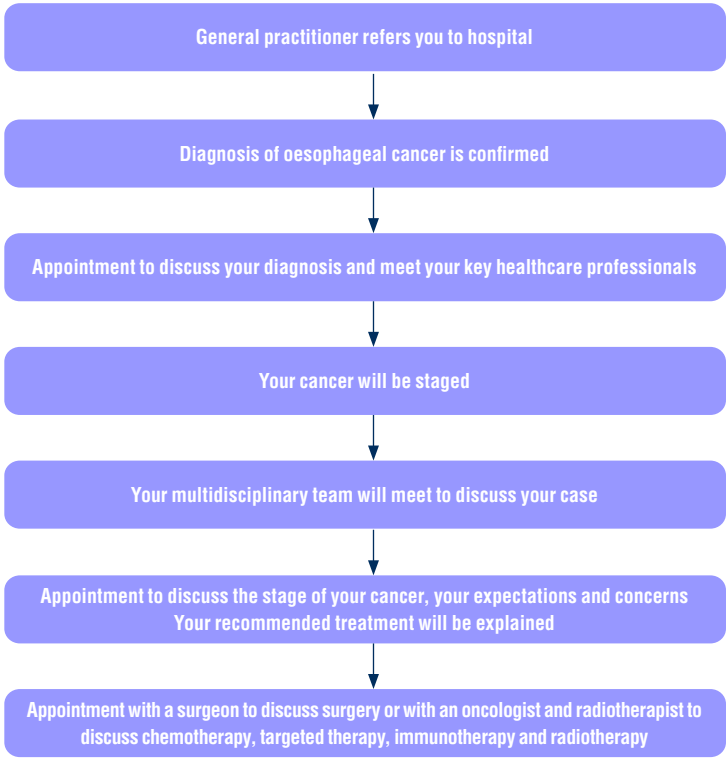
If you have **SCC** and **molecular testing** shows that your **metastatic** oesophageal cancer has a high level of a **biomarker** called **programmed death-ligand 1** (**PD-L1**) then your cancer is considered to be **PD-L1**-positive and you may be offered specific treatments (**immunotherapy**) to block **PD-L1** *(Obermannová et al., 2022)*.

If you have **AC** or cancer of the **OGJ** and **molecular testing** shows that your **metastatic** oesophageal cancer has a high level of **PD-L1** or **human epidermal growth factor receptor 2** (**HER2**), then you may be offered specific treatments for **PD-L1**-positive or **HER2**-positive disease. If your cancer is found to have a high number of **mutations** within microsatellites (short, repeated sequences of **DNA**) or changes in certain **genes** that are involved in correcting mistakes made when **DNA** is copied in a cell, then you have **microsatellite instability-high** (**MSI-high**) or **mismatch repair-deficient** (**MMR-deficient**) cancer, which will influence the treatment you receive.

Biomarker research is evolving quickly, and other **biomarkers** to guide treatment may soon become available. It is important to understand, however, that **molecular testing** and **biomarker**-based treatment are not available in all countries.

What are the treatment options for oesophageal cancer?

Your treatment will depend upon the size, location and stage of your **tumour**, as well as your general health and level of fitness. The choice of treatments will be discussed with you and your preferences will be taken into account. Your treatment should be discussed by a **multidisciplinary team**, which means that experts in different areas of cancer treatment (e.g. oncologists, gastroenterologists, surgeons, radiologists, nurses and **dieticians**) come together to share their expertise in order to provide the best patient care. Every patient will have an individualised experience, but your journey to treatment may look something like this:



It is important for patients to feel fully involved in the treatment decision-making – when there are several treatments available, your doctor should involve you in making decisions about your care so that you can choose the care that meets your needs and reflects what is important to you. This is called 'shared decision-making'.

It is important that patients are fully involved in discussions and decisions about their treatment

Your doctor will be happy to answer any questions you have about your treatment. Five simple questions that may be helpful when talking with your doctor or any healthcare professional involved in your care are shown below.

"What treatment options do I have?"

"What are the possible advantages and disadvantages of these treatment options?"

"How likely am I to experience benefits or side effects?"

"Are there any clinical trial options?"

"How long will my treatment take?"

Your doctor may recommend one or more of the following approaches for treating oesophageal cancer:

Surgical resection

The aim of **resection** is to remove the cancer along with a healthy **margin** of tissue around the **tumour** to help stop it from coming back. It is important to understand that not all oesophageal cancers are suitable for surgery; it is not generally recommended for patients with **metastatic** disease. The type of surgical **resection** depends on the stage of the cancer.

Surgery options for oesophageal cancer include:

- **Endoscopic mucosal resection**, in which the **tumour** is removed from the lining of the **oesophagus** via an **endoscope**. This type of surgery is typically only used to remove early-stage oesophageal cancer.
- **Oesophagectomy**, in which the part of the **oesophagus** containing the **tumour** is removed. In a **total oesophagectomy**, the whole **oesophagus** is removed.

The type of surgery depends on the stage of the cancer

During an **oesophagectomy**, nearby **lymph nodes** will also be removed. This is to ensure all of the cancer is removed with a healthy **margin**. You may have **open surgery** or **keyhole surgery**, depending on the size and location of the **tumour** and the recommendation of your surgical team.

After an **oesophagectomy**, the surgeon may have to remodel your digestive system:

- After removing the section of the **oesophagus** that contains the **tumour**, the surgeon will reconnect the healthy parts of the **oesophagus**, pulling your stomach upwards slightly.
- After a total **oesophagectomy**, the surgeon will use your stomach (or sometimes a piece of the intestine) to replace the section of **oesophagus** that has been removed. Your stomach will now be situated in your chest.

Changes in your digestive system are a significant side effect of **oesophagectomy** that can have long-term effects on your physical and emotional wellbeing (see sections *'What are the possible side effects of treatment?'* and *'Additional interventions'* for more information).

Chemotherapy

Chemotherapy destroys cancer cells and is used in the treatment of locally advanced and **metastatic** oesophageal cancer. **Chemotherapy** is often given in combination with **radiotherapy** (called **chemoradiotherapy**).

Chemotherapy agents used in the treatment of oesophageal cancer include:

- **5-fluorouracil** (**5-FU**)
- **Capecitabine**
- **Carboplatin**
- **Cisplatin**
- **Docetaxel**
- **Irinotecan**
- **Oxaliplatin**
- **Paclitaxel**
- **Trifluridine + tipiracil** (**TAS-102**)

Chemotherapies can be used as single agents or in combination with each other; for example, **FLOT** is a combination of **5-FU**, **folinic acid**, **oxaliplatin** and **docetaxel** that is used in the treatment of oesophageal cancer. It is important to understand that not all of these agents are suitable for all patients. Some patients may not be well enough to tolerate treatment with certain **chemotherapy regimens**, so your doctor will take your general health and fitness into consideration when deciding on the best treatment for you.

Chemotherapy is frequently used in the treatment of oesophageal cancer

Before receiving certain types of **chemotherapy** (including **5-FU** and **capecitabine**), you may be tested for a deficiency in an **enzyme** called dihydropyrimidine dehydrogenase. If you have a deficiency in this **enzyme**, you may be treated with a lower dose of **chemotherapy** than usual, or your doctor might decide to use a different type of **chemotherapy**.

Radiotherapy

Radiotherapy uses **ionising radiation** to damage the **DNA** of cancerous cells, causing them to die. In the treatment of oesophageal cancer, **radiotherapy** is most often used in combination with **chemotherapy** as **chemoradiotherapy**.

Immunotherapy

Immunotherapies are treatments that block processes which reduce the body's immune response to cancer. The **immunotherapies** thereby help to reactivate the body's immune system to detect and fight the cancer.

Pembrolizumab and **nivolumab** are **intravenous immunotherapies** that block the actions of **programmed cell death protein-1** (**PD-1**). **PD-1** suppresses the body's immune response to cancer, but when its actions are blocked by **immunotherapy**, the immune system is reactivated to fight the cancer. **Pembrolizumab** is used in **metastatic SCC** and **AC** when **molecular testing** shows that the cancer is **PD-L1**-positive and in **metastatic AC** or **OGJ** cancer that is **MSI-high**/**MMR-deficient** (see section *'Molecular tests'* for more information). **Nivolumab** is used in the treatment of locally advanced and **metastatic SCC** and **AC**, sometimes only when **molecular testing** shows that the cancer is **PD-L1**-positive, and sometimes regardless of whether the cancer is **PD-L1**-positive or not.

Ipilimumab is a type of **immunotherapy** that blocks a protein called **cytotoxic T-lymphocyte-associated protein 4**. **Ipilimumab** is used in combination with **nivolumab** in the treatment of **metastatic PD-L1**-positive **SCC**.

Novel immunotherapies are now available for the treatment of oesophageal cancer

Targeted therapy

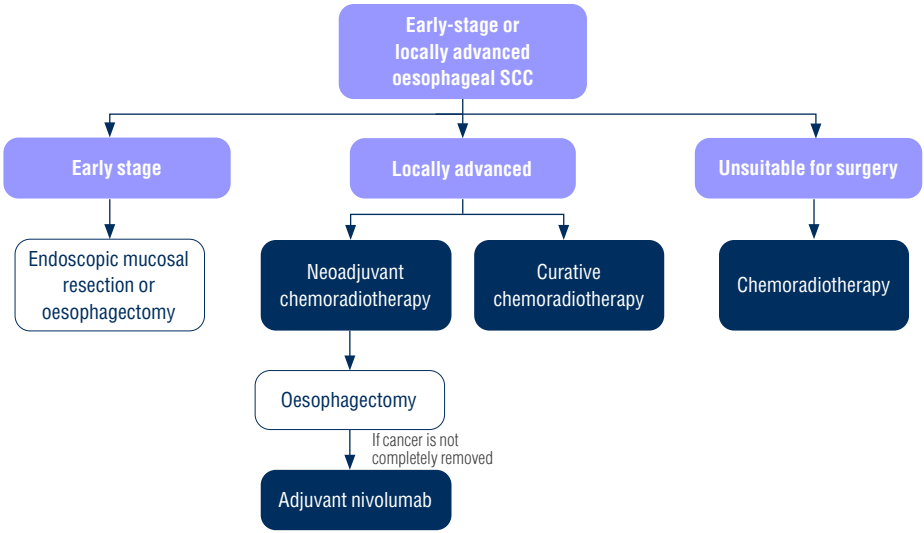
Targeted therapies are drugs that block specific biological processes in cancer cells that encourage them to grow. **Ramucirumab** is a **monoclonal antibody** that attaches to a protein called **vascular endothelial growth factor receptor 2** (**VEGFR2**). By blocking **VEGFR2**, **ramucirumab** stops the cancer developing the blood vessels it needs to grow. **Trastuzumab** is another **monoclonal antibody**, which attaches to **HER2** in cancer cells and kills them. This treatment has also been combined with a **chemotherapy** agent to produce **trastuzumab deruxtecan**. **Trastuzumab** and **trastuzumab deruxtecan** are only used when **molecular testing** shows that the cancer is **HER2**-positive (see section *'Molecular tests'* for more information). **Ramucirumab**, **trastuzumab** and **trastuzumab deruxtecan** are used in the treatment of **metastatic** oesophageal **AC** and are given **intravenously**.

What are the treatment options for early-stage and locally advanced oesophageal squamous cell carcinoma?

Early-stage **SCC** is usually treated with surgery alone, either via **endoscopic mucosal resection** or **oesophagectomy** *(Obermannová et al., 2022)*.

Patients with locally advanced **SCC** often receive **chemoradiotherapy** before the **tumour** is surgically removed (known as **neoadjuvant chemoradiotherapy**). After **oesophagectomy**, **adjuvant** therapy with **nivolumab** may be offered if tests on the removed tissue indicate that any of the **tumour** may have been left behind. An alternative approach is to use **chemoradiotherapy** as a **curative** approach, with regular follow up appointments to check for **recurrence**. If the **chemoradiotherapy** is not successful, or if there are **recurrences**, **resection** may be an option in some patients *(Obermannová et al., 2022)*.

Patients who are unsuitable for surgery, or who do not want to undergo surgery, typically receive **chemoradiotherapy** *(Obermannová et al., 2022)*.



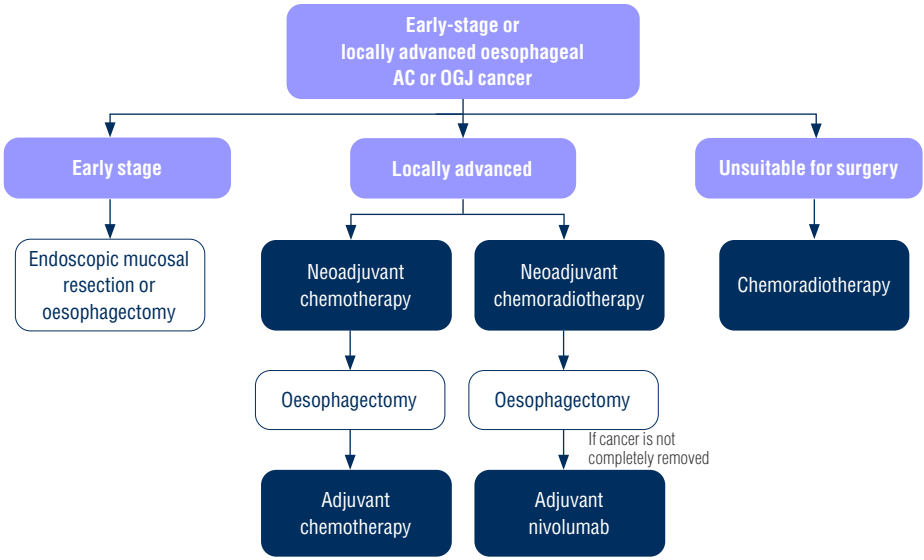
*Overview of treatment options for early-stage and locally advanced oesophageal **SCC**.*
***SCC**, squamous cell carcinoma.*

What are the treatment options for early-stage and locally advanced oesophageal adenocarcinoma or oesophagogastric junction cancer?

Early-stage **AC** or **OJG** cancer is usually treated with surgery alone, either via **endoscopic mucosal resection** or **oesophagectomy** *(Obermannová et al., 2022)*.

Patients with locally advanced **AC** or **OGJ** cancer may be offered **neoadjuvant chemotherapy** with **FLOT**, followed by **resection**, then **adjuvant FLOT**. Alternatively, **neoadjuvant chemoradiotherapy** may be used before **resection**, with **adjuvant nivolumab** added if tests on the removed tissue indicate that any of the **tumour** may have been left behind *(Obermannová et al., 2022)*.

Patients who are unsuitable for surgery, or who do not want to undergo surgery, typically receive **chemoradiotherapy** *(Obermannová et al., 2022)*.

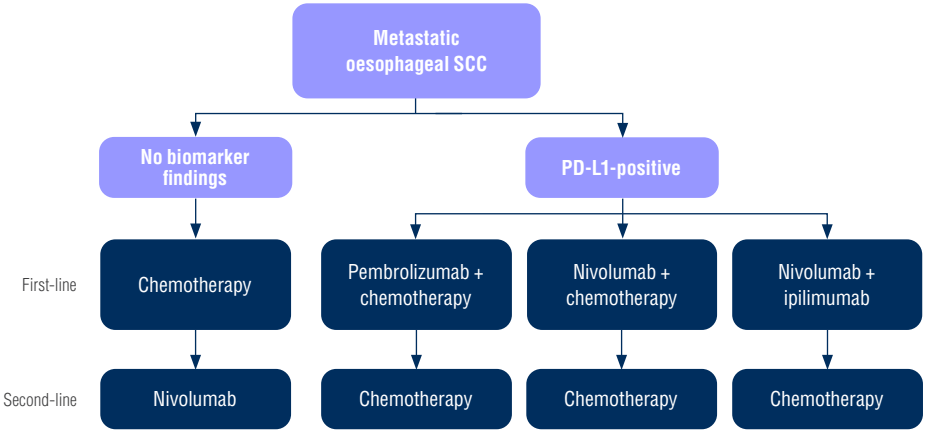


*Overview of treatment options for early-stage and locally advanced oesophageal **AC** and **OGJ** cancer.*
***AC**, adenocarcinoma; **OGJ**, oesophagogastric junction.*

What are the treatment options for metastatic oesophageal squamous cell carcinoma?

The standard **first-line** treatment for **metastatic SCC** is **chemotherapy**. Patients with **PD-L1**-positive disease are typically treated with either **pembrolizumab** or **nivolumab** in combination with **chemotherapy**. Some patients with **PD-L1**-positive disease may be offered nivolumab in combination with **ipilimumab** *(Obermannová et al., 2022)*.

If the cancer progresses after **first-line** treatment, **nivolumab** is the recommended **second-line** treatment for patients who received **first-line chemotherapy**. Patients who previously received **pembrolizumab** or **nivolumab** are usually offered **second-line chemotherapy** *(Obermannová et al., 2022)*.

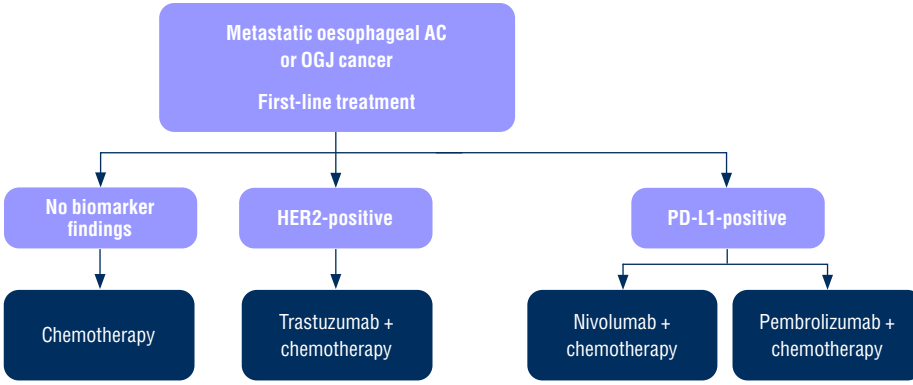


*Overview of treatment options for **metastatic** oesophageal **SCC**.*
***PD-L1**, programmed death-ligand 1; **SCC**, squamous cell carcinoma.*

What are the treatment options for metastatic oesophageal adencocarcinoma or oesophagogastric junction cancer?

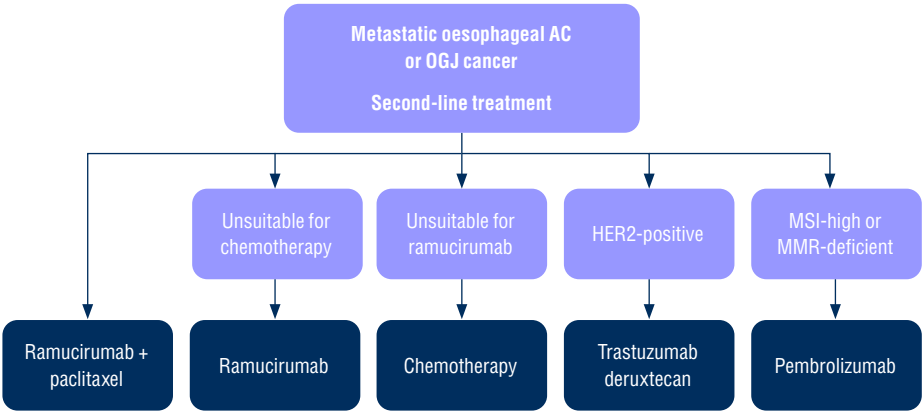
Treatment for **metastatic** oesophageal **AC** and **OGJ** cancer is based on recommendations for patients with stomach cancer. This is because there are similarities between these types of cancer *(Obermannová et al., 2022; Lordick et al., 2022).*

The first-line treatment for **metastatic AC** or **OGJ** cancer is **chemotherapy**. Patients with **HER2**-positive cancer are usually offered **trastuzumab** in combination with the **chemotherapy**, and patients with **PD-L1**-positive cancer typically receive **nivolumab** or **pembrolizumab** in combination with the **chemotherapy** *(Lordick et al., 2022).*



*Overview of **first-line** treatment options for **metastatic AC** and **OGJ** cancer.*
***AC**, adenocarcinoma; **HER2**, human epidermal growth factor receptor 2; **OGJ**, oesophagogastric junction; **PD-L1**, programmed death-ligand 1.*

If the cancer progresses after **first-line** treatment, **ramucirumab** in combination with the **chemotherapy** drug **paclitaxel** is usually recommended as **second-line** treatment. **Ramucirumab** can be used alone in patients who are unsuitable for **chemotherapy**, and patients who are unsuitable for treatment with **ramucirumab** may receive **chemotherapy** alone. Patients with **HER2**-positive disease may be offered **trastuzumab deruxtecan**, and patients with **MSI-high** or **MMR-deficient** disease can be treated with **pembrolizumab** *(Lordick et al., 2022)*.



*Overview of **second-line** treatment options for **metastatic AC** and **OGJ** cancer.*
***AC**, adenocarcinoma; **HER2**, human epidermal growth factor receptor 2; **MMR**, mismatch repair; **MSI**, microsatellite instability, **OGJ**, oesophagogastric junction.*

Third-line treatment of **metastatic AC** or **OGJ** cancer is typically **chemotherapy** with **TAS-102**, which can be taken orally. In patients who are unable to take oral drugs, **intravenous chemotherapy** is recommended *(Lordick et al., 2022)*.

Clinical trials

Your doctor may ask whether you would like to take part in a **clinical trial**. This is a research study conducted with patients in order to *(ClinicalTrials.gov, 2019)*:

- Test new treatments.
- Look at new combinations of existing treatments or change the way they are given to make them more effective or reduce side effects.
- Compare the effectiveness of drugs used to control symptoms.
- Identify new **biomarkers** to guide treatment.

Clinical trials help to improve knowledge about cancer and develop new treatments, and there can be many benefits to taking part. You will have to undergo various tests before entering a trial and be carefully monitored during and after the study. Although the new treatment may offer benefits over existing therapies, it's important to bear in mind that some new treatments are found not to be as good as existing treatments or to have side effects that outweigh the benefits *(ClinicalTrials.gov, 2019)*.

Clinical trials help to improve knowledge about diseases and develop new treatments – there can be many benefits to taking part

You have the right to accept or refuse participation in a **clinical trial** without any consequences for the quality of your treatment. If your doctor does not ask you about taking part in a **clinical trial** and you want to find out more about this option, you can ask your doctor if there is a trial for your type of cancer taking place nearby *(ClinicalTrials.gov, 2019)*.

The European Medicines Agency has a register of all European **clinical trials**. You can find it here: https://www.clinicaltrialsregister.eu/

Additional interventions

Patients may find that supplementary care helps them to cope with their diagnosis, treatment and the impact of oesophageal cancer on their quality of life

Your cancer, and the treatment you receive for it, can cause complications that require further interventions. During the course of your cancer, anti-cancer treatments should be supplemented with interventions that aim to prevent the complications of disease and treatment, and to maximise your quality of life. These interventions may include supportive, **palliative**, survivorship and end-of-life care, which should all be coordinated by a **multidisciplinary team** *(Jordan et al., 2018)*.

Ask your doctor or nurse about which additional interventions are available; you and your family may receive support from several sources, such as a **dietician**, physiotherapist, social worker, priest or other spiritual advisor, complementary therapist or occupational therapist.

Prehabilitation

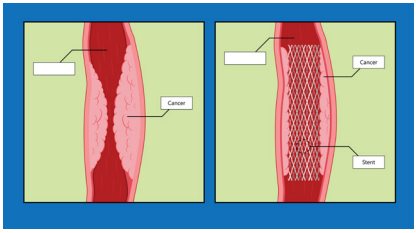
Your doctor or nurse may encourage you to make some lifestyle changes before your treatment begins, in order to help with your recovery afterwards. This is called **prehabilitation**. **Prehabilitation** usually focuses on eating habits and body weight, physical exercise and mental wellbeing. Stopping smoking and reducing alcohol intake are also encouraged, as this can help with recovery as well as improving your overall health.

In patients with oesophageal cancer, nutrition is a key part of **prehabilitation**. Your doctor will want to ensure you are able to get enough nutrients from your diet before you begin **curative** treatment (e.g. **resection**). Occasionally, tube feeding is required to achieve this (see section *'Palliative care'* for more information on tube feeding). Physical fitness is known to improve outcomes and quality of life in patients with oesophageal cancer, so your doctor may encourage you to undertake a gentle exercise programme before, during and after your treatment, if you are able to *(Obermannová et al., 2022)*.

Supportive care

Supportive care involves the management of cancer symptoms and the side effects of therapy. Oesophageal cancer, and the treatment you receive for it, can have significant effects on your quality of life, so you will receive supportive care to help you adjust.

Surgery for oesophageal cancer can cause problems with eating (see section *'What are the possible side effects of treatment?'* for more information), but support will be available to help you with this. A **dietician** can provide advice on how and what to eat following your surgery in order to reduce the side effects and ensure you eat enough to stay at a healthy weight.



Some **tumours** can partly or completely block the **oesophagus** and make it difficult to swallow. Your doctor may recommend that a **stent** (a small metal or plastic tube) is inserted to relieve the blockage and open up the **oesophagus** again.

The use of a stent can occasionally cause problems, such as pain in the **oesophagus** and mild bleeding. In some rare cases, it may lead to a tear in the **oesophagus**. Other potential issues include movement of the **stent**, **tumour** growth into the **stent**, and **gastro-oesophageal reflux**.

It is important to understand the risks and benefits through discussions with your doctor.

Palliative care

Palliative care is a term used to describe care interventions in advanced disease, including the management of symptoms as well as support for coping with a **prognosis**, making difficult decisions and preparation for end-of-life care. **Palliative** care in patients with oesophageal cancer may include treatment for **dysphagia**, malnutrition and pain *(Pichel et al., 2022)*.

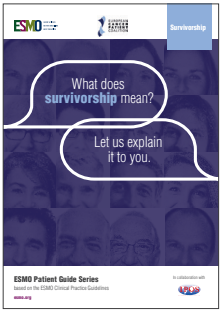
In some cases, tube feeding may be necessary. There are different types of tube feeding, which place liquid food directly into the stomach or intestine. Your doctor and **dietician** will explain which type of tube you need and what type of liquid feed is best for you. Some types of feeding tubes pass directly through the skin and into the stomach or intestine via an opening called a **stoma**. An example of this is a **jejunostomy**, in which a soft plastic feeding tube (called a J-tube) is placed through the skin of the abdomen into the middle section of the small intestine. If you have a **stoma**, you will be taught how to care for it. A specialist nurse will show you how to clean it and how to tackle any problems. These changes can be distressing, and it is important to allow yourself time to adjust. Some patients may feel nervous about coping with these changes when going about their normal life, but you will get used to your new feeding method. If you tell your family and friends how you feel, they can support you.

Survivorship care

Support for patients surviving cancer includes social support, education about the disease and rehabilitation. Psychosocial problems impacting on your quality of life may include anxiety around eating, concerns about the physical changes to your body, weight loss, and effects on your relationships. Having a **stoma** can affect the way you feel about yourself and having sex, and you and your partner might need a bit of time to get used to what a **stoma** looks like. It's important for you and your partner to be open about what's worrying you.

Your cancer diagnosis, as well as the treatment and side effects, can affect you emotionally for a long time after your treatment has finished, but there are things you can do to minimise the effects on your mental health. You may find it helpful to educate yourself about all aspects of your cancer and treatment so you can fully understand the changes that you are experiencing. Don't be afraid to ask your doctor to explain things several times to ensure you are fully informed. Having a frank conversation with your surgeon before undergoing surgery can help to prepare you for the physical changes.

Talking to other people about your feelings and experiences can help you to process the changes – some people choose to talk to family and friends, while others prefer to talk to a trained professional such as a cancer nurse or therapist. Some patients find it helpful to talk to people who have been through a similar experience – your doctor or nurse will be able to tell you if there is a support group in your area (see section *'Support groups'* for more information). Patients often find that social support is essential for coping with the cancer diagnosis, treatment and emotional consequences. A survivor care plan can help you to recover wellbeing in your personal, professional and social life. For further information and advice on survivorship, see ESMO's patient guide on survivorship (https://www.esmo.org/for-patients/patient-guides/survivorship).



End-of-life care

End-of-life care for patients with incurable cancer primarily focuses on making the patient comfortable and providing adequate relief of physical and psychological symptoms, for example ensuring the appropriate use of painkillers to aid comfort. For further information and advice on the management of cancer-related pain, see ESMO's patient guide on cancer pain (https://www.esmo.org/for-patients/patient-guides/cancer-pain-management).

Discussions about end-of-life care can be upsetting, but support should always be available to you and your family at this time. Your doctor or nurse will help to guide you through the options available.

What are the possible side effects of treatment?

As with any medical treatment, you may experience side effects from your anti-cancer treatment. The most common side effects for each type of treatment are highlighted below, along with some information on how they can be managed. You may experience side effects other than those discussed here. It is important to talk to your doctor about any potential side effects that are worrying you.

Doctors classify side effects from any cancer therapy by assigning each event a 'grade', on a scale of 1–4, by increasing severity. In general, grade 1 side effects are considered to be mild, grade 2 moderate, grade 3 severe and grade 4 very severe. However, the precise criteria used to assign a grade to a specific side effect varies depending on which side effect is being considered. The aim is always to identify and address any side effect before it becomes severe, so you should always report any worrying symptoms to your doctor as soon as possible.

It is important to talk to your doctor about any treatment-related side effects that are worrying you

Fatigue is very common in patients undergoing cancer treatment and can result from either the cancer itself or the treatments. Your doctor can provide you with strategies to limit the impact of **fatigue**, including getting enough sleep, eating healthily and staying active (see section *'Looking after your health'* for more information) *(Cancer.Net, 2020)*.

Surgery

Oesophagectomy is a major operation and it will take some time to recover – you will have to stay in hospital for at least a week. It is normal to experience pain for the first week or so and your doctor or nurse will be able to give you painkillers to help keep you feeling comfortable. You may have an **intravenous** drip to keep you hydrated in the first few days. You will gradually be able to drink and some patients will be able to eat a light diet. You will be encouraged to move around as soon as possible after your operation to speed up your recovery; however, it is normal to feel tired for several weeks after surgery.

If you have a **stoma**, you will be taught how to care for it before going home and you will receive support to ensure you are comfortable with whichever tube feeding system you have. Most patients, however, will be able to eat and drink normally following **oesophagectomy**, although it may take some time for your body to adjust to losing part or all of your **oesophagus**.

Most patients experience problems with eating following **oesophagectomy**. You may find it difficult to swallow or experience indigestion, nausea or diarrhoea. You may be advised to eat slowly and chew food well. Some patients find it easier to have a soft food diet to begin with. It will take some time for your eating habits to return to normal after **oesophagectomy**. You may feel better after a couple of months, but for some patients it can take up to 2 years. It is important that you continue to eat the same amount of food that you usually would – your **dietician** will be able to help you adjust your eating habits to ensure you can maintain your weight. For more information on eating healthily before, during and after treatment for oesophageal cancer, see Digestive Cancer Europe's dietary advice for patients (https://digestivecancers.eu/publication/dietary-advice-booklet-for-patients-with-oesophageal-or-gastric-cancer/).

Some patients find that their voice changes after **oesophagectomy**. This can occur if nerves close to the **larynx** (voice box) are damaged during the operation. This side effect is usually temporary, but occasionally it is permanent. Some patients may be offered surgery to repair damaged vocal cords.

Oesophagectomy is a major operation and can have long-term health implications

Radiotherapy

Radiotherapy for oesophageal cancer can cause pain in the mouth and throat, **dysphagia**, nausea, vomiting and voice changes. The side effects usually start a few days after the **radiotherapy** begins and should start to get better 1 to 2 weeks after the end of treatment.

Radiotherapy may also cause the skin in the treatment area to become red/dark and sore (like mild sunburn). You may be given cream to soothe the skin, and the soreness usually disappears a few weeks after finishing treatment.

Chemotherapy

Side effects from **chemotherapy** vary depending upon the drugs and doses used – you may get some of those listed below but you are very unlikely to get all of them. You may also experience some side effects that are not listed below. The main areas of the body affected by **chemotherapy** are those where new cells are being quickly made and replaced (**bone marrow**, **hair follicles**, the digestive system, the lining of your mouth). Some patients find that their sense of taste is affected – changes in **enzymes** in your mouth can lead to a metallic taste and blisters. Reductions in your levels of **neutrophils** (a type of white blood cell) can lead to **neutropenia**, which can make you more susceptible to infections. Most side effects of **chemotherapy** are temporary and can be controlled with drugs or lifestyle changes – your doctor will help you to manage them *(Macmillan, 2022)*. The table below lists the most important side effects of **chemotherapy** drugs that may be used in the treatment of oesophageal cancer.

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CHEMOTHERAPY DRUG	POSSIBLE SIDE EFFECT	HOW THE SIDE EFFECTS MAY BE MANAGED
5-fluorouracil (5-FU) (SPC, 2022)	• **Anaemia** • **Anorexia** • **Asthenia** • Cardiac effects • Diarrhoea • **Fatigue** • **Hand-foot syndrome** • **Leukopenia** • **Mucositis** • Nausea • **Neutropenia** • **Thrombocytopenia**	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **neutropenia**, **anaemia**, **leukopenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results and will advise you on how to prevent infections • Effects on the **gastrointestinal system** (nausea, diarrhoea) and **mucositis** may result in loss of appetite (**anorexia**) or feelings of weakness (**asthenia**). Your doctor or nurse will be able to help you to prevent or manage these side effects • Very effective drugs are available to prevent nausea • Your treatment schedule may need to be adjusted if you experience severe **hand-foot syndrome** but in most cases, symptoms will be mild and treatable with creams and ointments and will subside once you have finished treatment • Your cardiac function will be monitored before and during treatment to minimise the risk of cardiac impairment
Capecitabine (SPC, 2022)	• **Anaemia** • **Anorexia** • **Asthenia** • Diarrhoea • **Fatigue** • **Hand-foot syndrome** • **Leukopenia** • **Mucositis** • Nausea • **Neutropenia** • **Thrombocytopenia**	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **neutropenia**, **anaemia**, **leukopenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results and will advise you on how to prevent infections • Effects on the **gastrointestinal system** (nausea, diarrhoea) and **mucositis** may result in loss of appetite (**anorexia**) or feelings of weakness (**asthenia**). Your doctor or nurse will be able to help you to prevent or manage these side effects • Very effective drugs are available to prevent nausea • Your treatment schedule may need to be adjusted if you experience severe **hand-foot syndrome** but in most cases, symptoms will be mild and treatable with creams and ointments and will subside once you have finished treatment
Carboplatin (SPC, 2020)	• **Anaemia** • Decreased fertility in men • **Leukopenia** • Nausea • **Neutropenia** • **Thrombocytopenia** • Vomiting	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **anaemia**, **leukopenia**, **neutropenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results, and will advise you on how to prevent infections • Very effective drugs are available to prevent nausea and vomiting • Treatment can cause reduced/abnormal sperm production, which can result in irreversible infertility in some patients

continued overleaf

CHEMOTHERAPY DRUG	POSSIBLE SIDE EFFECT	HOW THE SIDE EFFECTS MAY BE MANAGED
Cisplatin (SPC, 2021)	• **Anaemia** • Changes in blood **electrolytes** • Kidney disorders: kidney failure, **nephrotoxicity** • **Leukopenia** • Nausea • **Ototoxicity** • **Peripheral neuropathy** • **Thrombocytopenia** • Vomiting	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **anaemia**, **leukopenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results, and will advise you on how to prevent infections • Very effective drugs are available to prevent nausea and vomiting • Report any signs of **peripheral neuropathy** (tingling or numbness in your hands or feet) to your doctor or nurse, who will help you to manage this side effect • You will have tests before and during treatment to check how well your kidneys are functioning. You will be asked to drink plenty of fluids (1.5–2 litres per day) to prevent your kidneys from becoming damaged. You should avoid drinking alcohol, as this can result in dehydration and kidney dysfunction • Tell your doctor if you notice any changes in your hearing or experience ringing in your ears (**tinnitus**). Changes in hearing can occasionally be permanent • Changes in blood **electrolytes** may occur as a result of changes in kidney function or diarrhoea. It is important to drink plenty of fluids and tell your doctor or nurse if you experience any lethargy or confusion
Docetaxel (SPC, 2020)	• **Alopecia** • **Anaemia** • **Anorexia** • **Asthenia** • Diarrhoea • **Extravasation**-related tissue damage • Increased infections • **Mucositis** • Nail disorders • Nausea • **Neutropenia** • **Oedema** • **Peripheral neuropathy** • Skin reaction • **Thrombocytopenia** • Vomiting	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **neutropenia**, **anaemia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results and will advise you on how to prevent infections • Report any signs of **peripheral neuropathy** (tingling or numbness in your hands or feet) to your doctor or nurse, who will help you to manage this side effect • Effects on the **gastrointestinal system** (nausea, vomiting, diarrhoea) and **mucositis** may result in loss of appetite (**anorexia**) or feelings of weakness (**asthenia**). Your doctor or nurse will be able to help you to prevent or manage these side effects • Very effective drugs are available to prevent nausea and vomiting • Let your doctor know if you experience any nail changes, skin reactions or fluid retention/swelling (**oedema**) – they will help you to manage these side effects • **Alopecia** can be upsetting for many patients; your doctor or nurse will provide you with information on how to cope with this side effect. Some hospitals can provide **cold caps** to reduce hair loss • Let your doctor know if you experience any burning or skin changes at the injection site, so that they can decide how to manage these. Many **extravasations** cause very little damage, but you may need to be treated with an antidote and apply compresses to the area for a few days *(Pérez Fidalgo et al., 2012)*

continued overleaf

CHEMOTHERAPY DRUG	POSSIBLE SIDE EFFECT	HOW THE SIDE EFFECTS MAY BE MANAGED
Irinotecan (SPC, 2022)	• **Alopecia** • **Anaemia** • Diarrhoea • Increased infections • Increased liver **enzymes** • **Mucositis** • Nausea • **Neutropenia** • **Thrombocytopenia** • Vomiting	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **anaemia**, **neutropenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results and will advise you on how to prevent infections • Your doctor or nurse will be able to help you to prevent or manage effects on the **gastrointestinal system** such as nausea, vomiting and diarrhoea. Very effective drugs are available to prevent nausea and vomiting • **Alopecia** can be upsetting for many patients; your doctor or nurse will provide you with information on how to cope with this side effect. Some hospitals can provide **cold caps** to reduce hair loss • Your liver function will be monitored during treatment
Oxaliplatin (SPC, 2022)	• Abdominal pain • Allergic reaction • **Alopecia** • **Anaemia** • **Anorexia** • **Asthenia** • **Fatigue** • High blood glucose • Increased liver **enzymes** • Injection site reactions • **Leukopenia** • **Lymphopenia** • Nausea • **Neutropenia** • **Peripheral neuropathy** • Taste changes • **Thrombocytopenia** • Vomiting	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **anaemia**, **neutropenia**, **leukopenia**, **lymphopenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results and will advise you on how to prevent infections • Effects on the **gastrointestinal system** (nausea, vomiting, abdominal pain) and taste changes may result in loss of appetite (**anorexia**) or feelings of weakness (**asthenia**). Your doctor or nurse will be able to help you to prevent or manage these side effects • Very effective drugs are available to prevent nausea and vomiting • Report any signs of **peripheral neuropathy** (tingling or numbness in your hands or feet) to your doctor or nurse, who will help you to manage this side effect • Let your doctor or nurse know if you experience any burning or skin changes at the injection site so that they can decide how to manage these • Your liver function will be monitored during treatment

continued overleaf

CHEMOTHERAPY DRUG	POSSIBLE SIDE EFFECT	HOW THE SIDE EFFECTS MAY BE MANAGED
Paclitaxel (SPC, 2020)	• **Alopecia** • **Anaemia** • **Arthralgia** • Diarrhoea • Hypersensitivity reactions • Increased infections • **Leukopenia** • **Mucositis** • **Myalgia** • Nail disorders • Nausea • **Neutropenia** • Nose bleeds • **Peripheral neuropathy** • **Thrombocytopenia** • Vomiting	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **anaemia**, **neutropenia**, **leukopenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results and will advise you on how to prevent infections • Report any effects on the **gastrointestinal system** (nausea, vomiting, diarrhoea) to your doctor or nurse as they may be able to help you to prevent or manage these side effects. Very effective drugs are available to prevent nausea and vomiting • Report any signs of **peripheral neuropathy** (tingling or numbness in your hands or feet) to your doctor or nurse, who will help you to manage this side effect • Let your doctor or nurse know if you experience nose bleeds, nail changes, **arthralgia** or **myalgia**, so that they can decide how to manage these • **Alopecia** can be upsetting for many patients; your doctor or nurse will provide you with information on how to cope with this side effect. Some hospitals can provide cold caps to reduce hair loss
Trifluridine + tipiracil (**TAS-102**) (SPC, 2021)	• **Anaemia** • **Anorexia** • Diarrhoea • **Fatigue** • **Leukopenia** • Nausea • **Neutropenia** • Nose bleeds • **Thrombocytopenia**	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **anaemia**, **leukopenia**, **neutropenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results and will advise you on how to prevent infections • Effects on the **gastrointestinal system** (nausea, diarrhoea) may result in loss of appetite (**anorexia**). Your doctor or nurse will be able to help you to prevent or manage these side effects • Very effective drugs are available to prevent nausea

Important side effects associated with individual chemotherapy drugs used in the treatment of oesophageal cancer*. The most recent Summary of Product Characteristics (SPC) for any individual drug can be located at: http://www.ema.europa.eu/ema/.*

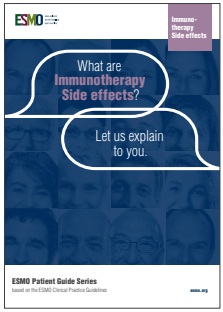
Immunotherapy

Common side effects in patients treated with **immunotherapy** include effects on the **gastrointestinal system** and **thyroid** dysfunction. Many of the side effects from **immunotherapy** can be effectively managed if they are recognised and treated early.

It is important to be aware that **immunotherapy** can cause **autoimmunity**, in which the immune system incorrectly identifies its own tissues as foreign bodies and attacks them. **Autoimmunity** can cause inflammation that may affect any organ in the body. In some cases, this side effect can be life-threatening; therefore, it is essential that you alert your doctor or nurse immediately if you notice any side effects or if you feel at all unwell when being treated with an **immunotherapy** drug.

The table below lists the most important specific side effects of the **immunotherapy** drugs used in the treatment of oesophageal cancer.

For further information and advice on **immunotherapy** side effects, see ESMO's patient guide on **immunotherapy**-related side effects and their management (https://www.esmo.org/for-patients/patient-guides/immunotherapy-side-effects).



IMMUNOTHERAPY	POSSIBLE SIDE EFFECT	HOW THE SIDE EFFECTS MAY BE MANAGED
Ipilimumab (SPC, 2022) **Nivolumab** (SPC, 2022) **Pembrolizumab** (SPC, 2022)	• Cardiac effects • **Colitis** • Cough • Diarrhoea • **Endocrine** disorders • Eye problems (e.g. **uveitis**) • **Fatigue** • Headache • **Hepatitis** • Kidney disorders • **Musculoskeletal** pain • **Pneumonitis** • Rash	• Effects on the **gastrointestinal system** (e.g. diarrhoea) may result in **fatigue**. Your doctor or nurse will be able to help you to prevent or manage these side effects • Your cardiac function will be monitored before and during treatment to minimise the risk of cardiac impairment • Your liver and kidney function will be monitored before and during treatment – your doctor may adjust your treatment according to test results • A cough, shortness of breath or other new or worsening breathing problems can be symptoms of **pneumonitis** – tell your doctor immediately if you have these symptoms • **Colitis**, **hepatitis** and **pneumonitis** are immune-related side effects. Your doctor or nurse will be able to help you recognise and manage these side effects • Let your doctor or nurse know if you experience eye problems, headaches or rash – they will help you to manage these side effects

Important side effects associated with immunotherapy drugs used in the treatment of oesophageal cancer.
The most recent Summary of Product Characteristics (SPC) for any individual drug can be located at: http://www.ema.europa.eu/ema/.

Targeted therapies

Common side effects in patients treated with **targeted therapies** include skin reactions and effects on the **gastrointestinal system** (e.g. nausea, diarrhoea). Many of the side effects from **targeted therapies** can be prevented or managed effectively. Always tell your doctor or nurse as soon as possible if you notice any side effects from taking a **targeted therapy**.

The table below lists the most important specific side effects of **targeted therapies** used in the treatment of oesophageal cancer.

TARGETED THERAPY	POSSIBLE SIDE EFFECT	HOW THE SIDE EFFECTS MAY BE MANAGED
Ramucirumab (SPC, 2022)	• Blood clots • Changes in blood **electrolytes** • Diarrhoea • **Fatigue** • Headache • **Hypertension** • Injection site reactions • Nose bleeds • **Proteinuria**	• Your blood pressure will be monitored during treatment and **anti-hypertensive** treatment will be given if necessary • Let your doctor or nurse know if you experience any burning or skin changes at the injection site so that they can decide how to manage these • Changes in blood **electrolytes** or **proteinuria** may occur as a result of changes in kidney function or diarrhoea. It is important to drink plenty of fluids and tell your doctor or nurse if you experience any lethargy or confusion • Let your doctor know if you experience headaches or nose bleeds so that they can decide how to manage these
Trastuzumab (SPC, 2021)	• **Arthralgia** • Cardiac disorders • Rash and other skin effects • Respiratory effects including **dyspnoea**	• Your cardiac function will be assessed before starting treatment with **trastuzumab** and will be monitored every 3-4 months during treatment. If your cardiac function is affected, your doctor may decide to reduce or pause **trastuzumab** treatment or prescribe you another drug to treat the cardiac side effects (*Curigliano et al. 2020)* • Let your doctor or nurse know if you experience respiratory problems. Troublesome **dyspnoea** can be treated with drugs called opioids or benzodiazepines, and in some cases, **steroids** are used *(Kloke and Cherny, 2015)* • Let your doctor or nurse know if you experience **arthralgia** or pain – they will help you to manage these side effects. They can also give you advice on skin reactions

continued overleaf

TARGETED THERAPY	POSSIBLE SIDE EFFECT	HOW THE SIDE EFFECTS MAY BE MANAGED
Trastuzumab deruxtecan (SPC, 2022)	• **Alopecia** • **Anaemia** • **Anorexia** • Cardiac effects • Diarrhoea • **Fatigue** • **Leukopenia** • Liver **enzymes** increased • **Lymphopenia** • Nausea • **Neutropenia** • Respiratory effects including **dyspnoea**, **pneumonitis** and **interstitial lung disease** • **Thrombocytopenia** • Vomiting	• Your blood cell counts will be monitored frequently throughout your treatment in order to detect any **anaemia**, **leukopenia**, **lymphopenia**, **neutropenia** or **thrombocytopenia** – your doctor may adjust your treatment according to test results • Effects on the **gastrointestinal system** (e.g. diarrhoea, nausea, vomiting) may result in loss of appetite (**anorexia**) and **fatigue**. Your doctor or nurse will be able to help you to prevent or manage these side effects • Your cardiac function will be monitored before and during treatment to minimise the risk of cardiac impairment • Your liver function will be monitored before and during treatment – your doctor may adjust your treatment according to test results • Let your doctor or nurse know if you experience respiratory problems. Troublesome **dyspnoea** can be treated with drugs called opioids or benzodiazepines, and in some cases, **steroids** are used *(Kloke and Cherny, 2015)* • A cough, shortness of breath or other new or worsening breathing problems can be symptoms of **interstitial lung disease** – tell your doctor immediately if you have these symptoms • **Alopecia** can be upsetting for many patients; your doctor or nurse will provide you with information on how to cope with this side effect

Important side effects associated with individual targeted therapies used in the treatment of oesophageal cancer*. The most recent Summary of Product Characteristics (SPC) for any individual drug can be located at: http://www.ema.europa.eu/ema/.*

What happens next?

Follow-up appointments

You will be able to discuss any concerns you have at your follow-up appointments

After treatment for oesophageal cancer, your doctor will arrange follow-up appointments to ensure that you are receiving dietary and psychological support, any **recurrences** are diagnosed and treated quickly, and any side effects are managed effectively.

Your doctor will let you know how often you need to return for further follow-up appointments; the schedule will vary between regions. During these appointments, you may have a physical examination, blood tests and/or a **CT** scan.

What if I need more treatment?

Despite the best possible treatment at diagnosis, there is a chance that your cancer may return. Cancer that comes back is called a **recurrence**. The treatment that you will be offered depends on the extent of the **recurrence**, your previous treatment and your overall health. Usually, **recurrences** of oesophageal cancer are treated in the same way as **metastatic** oesophageal cancer, but your doctor will discuss all of the treatment options with you.

Looking after your health

After you have had treatment for oesophageal cancer, you may feel very tired and emotional. Give your body time to recover and make sure you get enough rest, but there is no reason to limit activities if you are feeling well. It is important to take good care of yourself and get the support that you need.

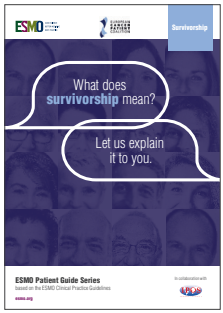
The following eight recommendations can form a good foundation for a healthy lifestyle after cancer *(Wolin et al., 2013)*:

- Don't smoke.
- Avoid second-hand smoke.
- Exercise regularly.
- Avoid weight gain.
- Eat a healthy diet as far as possible.
- Don't drink alcohol.
- Stay connected with friends, family and other cancer survivors.
- Attend regular check-ups.

A healthy, active lifestyle will help you to recover physically and mentally

A healthy diet and regular exercise are essential parts of a healthy lifestyle, helping you to keep physically fit and maintain a healthy weight. You should receive advice from a **dietician** and any weight loss should be investigated. It is very important that you listen carefully to the recommendations of your doctor or nurse and talk to them about any difficulties you have with exercise. It is also important that you do not change your diet or start a new exercise programme without talking to your doctor or nurse first.

For further information and advice regarding how to regain your life as far as possible after treatment for cancer, see ESMO's patient guide on survivorship (https://www.esmo.org/for-patients/patient-guides/survivorship).



Support groups

In Europe, there are patient advocacy groups, which help patients, caregivers and their families to navigate the oesophageal cancer landscape. They can be local, national or international, and they work to ensure patients and caregivers receive appropriate and timely care and education. These groups can provide you with the tools you may need to help you better understand your disease, and to learn how to cope with it, living the best quality of life that you can.

Digestive Cancers Europe (DiCE) is a community of patient organisations dedicated to empowering and providing a voice for people affected by digestive cancers, including oesophageal cancer. For further information about DiCE and to find support groups in your country, visit: https://digestivecancers.eu/members/

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GLOSSARY

5-FLUOROURACIL (5-FU)
A type of **chemotherapy** that is administered through a drip into a vein in your arm or chest

ADENOCARCINOMA
Cancer that begins in glandular (secretory) cells

ADJUVANT (TREATMENT)
Additional treatment given after the primary treatment to reduce the chance of the cancer coming back; usually refers to **radiotherapy** and/or **chemotherapy** after surgery

ADVENTITIA
The outer layer of fibrous connective tissue surrounding an organ

ALOPECIA
Hair loss

ANAEMIA
A condition in which there is a shortage of haemoglobin (a protein in red blood cells that carries oxygen throughout the body)

ANOREXIA
A lack or loss of appetite

ANTI-HYPERTENSIVE (TREATMENT)
A type of drug used to treat high blood pressure

AORTA
The largest artery in the body, which carries blood away from the heart

ARTHRALGIA
Joint pain

ASTHENIA
Abnormal feeling of weakness or lack of energy

AUTOIMMUNITY
A condition in which the body's immune system mistakes its own healthy tissues as foreign and attacks them. Most autoimmune diseases cause inflammation that can affect many parts of the body

AZYGOS VEIN
A blood vessel that carries blood from the back of the chest and abdomen to the heart

BETEL QUID
A type of smokeless tobacco that is widely used throughout Asia. It is a mixture of tobacco, crushed betel nut, spices and other ingredients

BIOMARKER
Biological molecule found in tissue, blood or other body fluids that is a sign of a condition or disease, or describes the behaviour of the disease

BIOPSY
A medical procedure in which a small sample of cells or tissue is taken for examination under a microscope

BONE MARROW
A spongy tissue found inside some bones (e.g. hip and thigh bones). It contains stem cells, which are cells that can develop into red blood cells, white blood cells or platelets

CAPECITABINE
A type of **chemotherapy** that is administered orally

CHEMORADIOTHERAPY
Chemotherapy and **radiotherapy** given together

CHEMOTHERAPY
A type of cancer treatment using medicine that kills the cancer cells by damaging them, so that they cannot reproduce and spread

CISPLATIN
A type of **chemotherapy** that is administered through a drip into a vein in your arm or chest

CLINICAL TRIAL
A study that compares the effects of one treatment with another

COLD CAP
A cap that cools the scalp before, during and after treatment to reduce the effects of the treatment on **hair follicles**

COLITIS
Inflammation of the colon. As an immune-related side effect, this is non-infectious

COMPUTED TOMOGRAPHY (CT)
A scan using **x-rays** and a computer to create detailed images of the inside of the body

CURATIVE (TREATMENT)
A treatment that is intended to cure the cancer

CYTOTOXIC T-LYMPHOCYTE-ASSOCIATED PROTEIN 4
A protein found on T cells that helps to control the body's immune responses

GLOSSARY

DIAPHRAGM
The muscle that separates the chest cavity from the abdomen; the **diaphragm** contracts and relaxes as we breathe in and out

DIETICIAN
A qualified health professional who is an expert on diet and nutrition

DNA
The chemical that carries genetic information in the cells of your body

DOCETAXEL
A type of **chemotherapy** that is administered through a drip into a vein in your arm or chest

DUODENUM
The first part of the small intestine

DYSPHAGIA
Difficulties with swallowing

DYSPLASIA
A term used to describe the presence of abnormal cells within a tissue or organ. **Dysplasia** is not cancer, but it may sometimes develop into cancer

DYSPNOEA
Shortness of breath

ELECTROLYTE
A substance that breaks up into particles with electrical charges when it is dissolved in water or body fluids. Some examples of ions are sodium, potassium and calcium

ENDOCRINE
Relates to tissue that makes and releases **hormones** that travel in the bloodstream and control the actions of other cells or organs

ENDOSCOPE
A thin, tube-like instrument used to look at tissues inside the body

ENDOSCOPIC MUCOSAL RESECTION
A procedure in which the **tumour** is removed from the lining of the digestive system using an **endoscope**

ENDOSCOPIC SURVEILLANCE
Regular examination of the digestive system with an **endoscope** to look for **dysplasia** and early signs of cancer

ENDOSCOPIC ULTRASOUND
A procedure in which an **endoscope** with an **ultrasound** probe and **biopsy** needle is inserted into the body to create an image by **ultrasound** and take a **biopsy**

ENDOSCOPY
Use of a thin, tube-like instrument used to look at tissues inside the body

ENZYME
A protein that speeds up chemical reactions in the body

EXTRAVASATION
Leakage of fluid, such as an anti-cancer drug, from a blood vessel or tube into the tissue around it

FATIGUE
Overwhelming tiredness

FIRST-LINE (TREATMENT)
The initial treatment(s) given to a patient

FLOT
A type of **chemotherapy** that is a combination of **5-FU**, **folinic acid**, **oxaliplatin** and **docetaxel**

FOLINIC ACID
A form of folic acid used to lessen the toxic effects of some anti-cancer drugs

GASTROINTESTINAL SYSTEM
The system of organs responsible for getting food into and out of the body and for making use of food to keep the body healthy – includes the **oesophagus**, stomach and intestine

GASTRO-OESOPHAGEAL REFLUX
The backward flow of stomach contents into the **oesophagus**

GENE
A piece of **DNA** responsible for making a substance that the body needs to function

HAIR FOLLICLE
A small sac in the skin which hair grows from

HAND-FOOT SYNDROME
A condition marked by pain, swelling, numbness, tingling or redness of the hands or feet. It sometimes occurs as a side effect of certain anti-cancer drugs

HEPATITIS
Inflammation of the liver with increased liver **enzyme** levels. As an immune-related side effect, this is non-infectious

HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR 2 (HER2)
A protein involved in cell growth, which is found on some types of cancer cells

GLOSSARY

HYPERTENSION
Abnormally high blood pressure

IMMUNOTHERAPY
A type of cancer treatment that stimulates the body's immune system to fight the cancer

INTERSTITIAL LUNG DISEASE
A group of diseases that cause scarring of the lungs. This is an immune-related side effect of some cancer therapies

INTRAVENOUS
Administered into a vein

IONISING RADIATION
Any type of particle or electromagnetic wave that carries enough energy to ionise or remove electrons from an atom (e.g. **x-rays**)

IPILIMUMAB
A type of **immunotherapy** that blocks a protein called **cytotoxic T-lymphocyte-associated protein 4** on the surface of certain immune cells called T cells; this activates the T cells to find and kill cancer cells. It is administered through a drip into a vein in the arm or chest

IRINOTECAN
A type of **chemotherapy** that is administered through a drip into a vein in your arm or chest

JEJUNOSTOMY
Surgery to create an opening into the jejunum (part of the small intestine) from the outside of the body. A **jejunostomy** allows a feeding tube to be put into the small intestine

KEYHOLE SURGERY
Minimally invasive surgery carried out through a very small incision, with special instruments

LAMINA PROPRIA
A thin layer of connective tissue under the thin layer of tissues covering the **oesophagus**

LAPAROSCOPY
A procedure that involves the insertion of a thin, tube-like instrument with a light and a lens for viewing (laparoscope) through the abdominal wall to examine the inside of the abdomen and/or remove tissue

LARYNX
Voice box

LEUKOPENIA
A decrease in the number of leukocytes (a type of white blood cell) in the blood, which places individuals at increased risk of infection

LOCAL ANAESTHETIC
A medication that causes reversible absence of pain sensation around the site of administration

LYMPH
The fluid that circulates throughout the **lymphatic system**; it contains infection-fighting white blood cells

LYMPH NODES
Small structures throughout the **lymphatic system** that work as filters for harmful substances, such as cancer cells or bacteria

LYMPHATIC SYSTEM
A network of tissues and organs that help rid the body of toxins, waste and other unwanted materials. The primary function of the **lymphatic system** is to transport **lymph**, a fluid containing infection-fighting white blood cells, throughout the body

LYMPHOPENIA
An abnormally low level of lymphocytes (a type of white blood cell) in the blood, which places individuals at increased risk of infection

(RESECTION) MARGIN
The edge or border of the tissue removed in cancer surgery. The **margin** is described as negative or clean when no cancer cells are found at the edge of the tissue, suggesting that all of the cancer has been removed. The **margin** is described as positive or involved when cancer cells are found at the edge of the tissue, suggesting that all of the cancer has not been removed

METASTASES/METASTASIS
Cancerous **tumours** that have originated from a primary **tumour**/growth in another part of the body

METASTATIC (CANCER)
A cancer that has spread from its site of origin to different parts of the body

MICROSATELLITE INSTABILITY-HIGH (MSI-HIGH)
Cancer cells that have a high number of **mutations** within microsatellites (short, repeated sequences of **DNA**). **MSI-high** cancer cells may not be able to correct mistakes that occur when **DNA** is copied in the cell

MISMATCH REPAIR-DEFICIENT (MMR-DEFICIENT)
Cancer cells that have **mutations** in certain **genes** that are involved in correcting mistakes made when **DNA** is copied in a cell. **MMR-deficient** cells usually have many **DNA mutations**

GLOSSARY

MOLECULAR TESTING
A laboratory method that uses a sample of tissue, blood, or other body fluid to check for certain **genes**, proteins or other molecules

MONOCLONAL ANTIBODY
A type of **targeted therapy**. **Monoclonal antibodies** recognise and attach to specific proteins produced by cells. Each **monoclonal antibody** recognises one particular protein. They work in different ways depending on the protein they are targeting

MUCOSITIS
Inflammation and ulceration of the membranes lining the **gastrointestinal system**

MULTIDISCIPLINARY TEAM
A group of healthcare workers who are members of different disciplines (e.g. oncologist, nurse specialist, gastroenterologist, dietician, radiologist) and provide specific services to the patient. The activities of the team are brought together using a care plan

MUSCULARIS MUCOSAE
A thin layer of muscle in the innermost layer of the **oesophagus**

MUSCULARIS PROPRIA
A thick layer of muscle in the **oesophagus**

MUSCULOSKELETAL
Relating to muscles, bones, tendons, ligaments, joints and cartilage

MUTATION
A permanent alteration in the **DNA** sequence that makes up a **gene**, such that the sequence differs from what is found in most people and alters the function of the related protein

MYALGIA
Muscular pain

NEOADJUVANT (TREATMENT)
Treatment given as a first step to shrink a **tumour** before the main treatment (usually surgery) is given. Examples of **neoadjuvant** therapy include **chemotherapy** and **radiotherapy**

NEPHROTOXICITY
Toxicity in the kidneys

NEUTROPENIA
An abnormally low level of **neutrophils** in the blood which increases the risk of infection

NEUTROPHIL
A type of white blood cell that plays an important role in fighting off infection

NIVOLUMAB
A type of **immunotherapy** that blocks a protein called **PD-1** on the surface of certain immune cells called T cells; this activates the T cells to find and kill cancer cells. It is administered through a drip into a vein in your arm or chest

OBESITY
Abnormal or excessive fat accumulation that may impair health

OEDEMA
A build-up of fluid in the body which causes the affected tissue to become swollen

OESOPHAGEAL INTESTINAL METAPLASIA
A condition in which the cells in the lining of the **oesophagus** change to resemble the tissues that line the intestines. This change is a precursor to cancer

OTOTOXICITY
A medication side effect involving damage to the inner ear

OESOPHAGECTOMY
An operation to remove a part of the **oesophagus**

OESOPHAGOGASTRIC JUNCTION (OGJ)
The place where the **oesophagus** is connected to the stomach

OESOPHAGUS
The food pipe; the tube that connects your throat with your stomach

OPEN SURGERY
Surgery which the incision is large enough to let the surgeon see into the body

OXALIPLATIN
A type of **chemotherapy** that is administered through a drip into a vein in your arm or chest

PACLITAXEL
A type of **chemotherapy** that is administered through a drip into a vein in your arm or chest

PALLIATIVE (CARE)
The care of patients with advanced, progressive illness. It focuses on providing relief from pain, symptoms and physical and emotional stress, without dealing with the cause of the condition

GLOSSARY

PEMBROLIZUMAB
A type of **immunotherapy** that blocks a protein called **PD-1** on the surface of certain immune cells called T cells; this activates the T cells to find and kill cancer cells. It is administered through a drip into a vein in the arm or chest

PERICARDIUM
The membrane that encloses the heart

PERIPHERAL NEUROPATHY
Damage to the nerves in the extremities of the body. Symptoms may include pain, sensitivity, numbness or weakness in the hands, feet or lower legs

PERITONEUM
A membrane that forms the lining of the abdominal cavity

PLEURA
One of the two membranes around the lungs. These two membranes are called the visceral and parietal pleurae

PNEUMONITIS
Inflammation of the lung tissue. As an immune-related side effect, this is non-infectious

POSITRON EMISSION TOMOGRAPHY (PET)
An imaging test that uses a dye with **radioactive** tracers, which is injected into a vein in your arm

PREHABILITATION
A type of healthcare intervention that takes place before a planned treatment, in order to reduce side effects and aid recovery

PROGNOSIS
The likely outcome of a medical condition

PROGRAMMED CELL DEATH PROTEIN-1 (PD-1)
A cellular protein thought to be involved in helping the tumour to evade detection by the body's immune system

PROGRAMMED DEATH-LIGAND 1 (PD-L1)
A cellular protein thought to be involved in helping the **tumour** to evade detection by the body's immune system

PROTEINURIA
An abnormally high level of protein in the urine; may indicate kidney dysfunction

RADIOACTIVE
A material that is unstable and spontaneously emits energy (radiation)

RADIOTHERAPY
Treatment involving the use of high-energy radiation, which is commonly used to treat cancer

RAMUCIRUMAB
A type of **targeted therapy** that blocks the action of **VEGFR2**, and prevents the cancer cells from developing their own blood supply, thus helping to slow down **tumour** growth. It is administered through a drip into a vein in your arm or chest

RECURRENCE
Return of a cancer

REGIMEN
Treatment plan

RESECTION
Surgery to remove tissue

RISK FACTOR
Something that increases the chance of developing a disease

SECOND-LINE (TREATMENT)
Subsequent treatments given to a patient once the previous therapy has not worked or has been stopped because of the occurrence of side effects or other concerns

SEDATIVE
A drug used to calm a person down, relieve anxiety or help a person sleep

SPHINCTER
A ring-shaped muscle that relaxes or tightens to open or close a passage or opening in the body

SQUAMOUS CELL CARCINOMA (SCC)
Cancer that begins in squamous cells, which are thin, flat cells forming the surface of the skin, the lining of hollow organs of the body, and the lining of the respiratory and digestive tracts

STENT
A small tube that is used to keep a duct, airway or artery open

STEROID
A type of drug used to relieve swelling and inflammation

STOMA
A surgically-created opening from an area inside the body to the outside

GLOSSARY

SUBMUCOSA
A supporting layer of tissue under the innermost layer of the **oesophagus**

TARGETED THERAPY
A type of cancer treatment that uses drugs or other substances to precisely identify and attack cancer cells, usually while doing little damage to normal cells

THIRD-LINE (TREATMENT)
A third treatment **regimen** given to a patient once the previous two lines (**first-line** and **second-line**) of therapy have not worked or have been stopped because of the occurrence of side effects or other concerns

THROMBOCYTOPENIA
A decrease in platelets in the blood. This causes bleeding into the tissues, bruising, and slow blood clotting after injury

THYROID
A gland located in the neck, which helps to regulate growth and metabolism

TINNITUS
The hearing of a sound (such as ringing, whining or buzzing) when no external sound is present

TOTAL OESOPHAGECTOMY
An operation to remove all of the **oesophagus**

TRACHEA
The windpipe – the wide, hollow tube that connects the larynx to the bronchi of the lungs

TRASTUZUMAB
A type of **targeted therapy** used to treat **HER2**-positive oesophageal cancer

TRASTUZUMAB DERUXTECAN
A type of **targeted therapy** combined with **chemotherapy** used to treat **HER2**-positive oesophageal cancer

TRIFLURIDINE + TIPIRACIL (TAS-102)
A type of **chemotherapy** that is administered orally

TUMOUR
A lump or growth of abnormal cells. **Tumours** may be benign (not cancerous) or malignant (cancerous). In this guide, the term '**tumour**' refers to a cancerous growth, unless otherwise stated

ULTRASOUND
A type of medical scan where sound waves are converted into images by a computer

UVEITIS
A condition in which the uvea (the middle layer of the wall of the eye) is inflamed

VASCULAR ENDOTHELIAL GROWTH FACTOR RECEPTOR 2 (VEGFR2)
A receptor for vascular endothelial growth factor, which is a protein produced by cells that stimulates the growth of new blood vessels

VERTEBRAL BODY
A thick oval segment of bone forming the front of the bones of the spine

X-RAY
An imaging test, using a type of radiation that can pass through the body, which allows your doctor to see images of inside your body

This guide has been prepared to help you, your friends and your family better understand the nature of oesophageal cancer and the treatments that are available. The medical information described in this document is based on the clinical practice guidelines of the European Society for Medical Oncology (ESMO) for the management of oesophageal cancer. We recommend that you ask your doctor about the tests and types of treatments available in your country for your type and stage of oesophageal cancer.

This guide has been written by Kstorfin Medical Communications Ltd on behalf of ESMO.

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GOOD SCIENCE
BETTER MEDICINE
BEST PRACTICE

We can help you understand oesophageal cancer and the available treatment options.

The ESMO Guides for Patients are designed to assist patients, their relatives and caregivers to understand the nature of different types of cancer and evaluate the best available treatment choices. The medical information described in the Guides for Patients is based on the ESMO Clinical Practice Guidelines, which are designed to guide medical oncologists in the diagnosis, follow-up and treatment in different cancer types.

For more information, please visit **www.esmo.org**