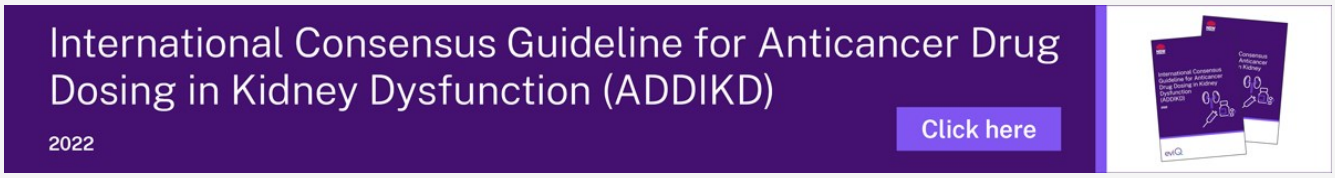
Gastric and gastroesophageal metastatic raMUCIRumab

ID: 1903 v.2 **Endorsed**

Check for clinical trials in this patient group. Link to Australian Clinical Trials website

The anticancer drug(s) in this protocol may have been included in the ADDIKD guideline. Dose recommendations in kidney dysfunction have yet to be updated to align with the ADDIKD guideline. Recommendations will be updated once the individual protocol has been evaluated by the reference committee. For further information refer to the ADDIKD guideline. To assist with calculations, use the eviQ Estimated Glomerular Filtration Rate (eGFR) calculator.



Related pages:

- Gastric and gastroesophageal metastatic PACLitaxel and raMUCIRumab

Treatment schedule - Overview

Cycle 1 and further cycles

Drug	Dose	Route	Day
raMUCIRumab	8 mg/kg	IV infusion	1

Frequency: 14 days

Cycles: Continuous until disease progression or unacceptable toxicity

Drug status: Ramucirumab is TGA approved but not PBS reimbursed for this indication

Treatment schedule - Detail

The supportive therapies (e.g. antiemetics, premedications, etc.), infusion times, diluents, volumes and routes of administration, if included, are listed as defaults. They may vary between institutions and can be substituted to reflect individual institutional policy.

*Antiemetics if included in the treatment schedule are based upon recommendations from national and international guidelines. These are **defaults only** and may be substituted to reflect individual institutional policy. Select here for recommended doses of alternative antiemetics.*

Cycle 1 and further cycles

Day 1		
Loratadine	10 mg (PO)	60 minutes before treatment
raMUCIRumab	8 mg/kg (IV infusion)	in a final volume of 250 mL sodium chloride 0.9% over approximately 60 minutes (maximum infusion rate 25 mg/min)

Frequency: 14 days

Cycles: Continuous until disease progression or unacceptable toxicity

Indications and patient population

Indication:

- second line therapy for advanced or metastatic gastric or gastro-oesophageal junction adenocarcinoma in patients with disease progression after prior platinum or fluoropyrimidine chemotherapy, given as monotherapy when treatment in combination with paclitaxel is not appropriate
- ECOG performance status 0 or 1.

Cautions:

- gastrointestinal (GI) perforation, fistulae, or any significant GI or non-GI bleeding
- any arterial thromboembolic event within 6 months and/or significant venous thromboembolism within 3 months
- patients with known coronary artery disease
- uncontrolled or poorly-controlled hypertension despite standard medical management
- major surgery within 28 days of administration
- CNS metastases.

Clinical information

Venous access required	IV cannula (IVC) or central venous access device (CVAD) is required to administer this treatment. Read more about central venous access device line selection
Hypersensitivity/infusion related reaction	Hypersensitivity reactions, including acute infusion related reaction (IRR) may occur. Hypersensitivity risk is greatest during the first two cycles of ramucirumab. Read more about Hypersensitivity reaction
Premedication	Premedication with a H1 antagonist is recommended prior to administration of ramucirumab. Please refer to the treatment schedule for a suggested premedication regimen. This may be substituted to reflect institutional policy. The product information for ramucirumab recommends: If a patient experiences a grade 1 or 2 infusion related reaction (IRR), premedication must be given for all subsequent infusions. If a patient experiences a second grade 1 or 2 IRR despite premedication with a H1 antagonist, administer dexamethasone or equivalent; then, for subsequent infusions, premedicate with the following or equivalent medications: promethazine (intravenously), paracetamol and dexamethasone.
Emetogenicity MINIMAL	No antiemetics should be routinely administered before treatment in patients without a history of nausea and vomiting. If patients experience nausea and/or vomiting, consider using the low antiemetic prophylaxis regimen. Read more about preventing anti-cancer therapy induced nausea and vomiting
Gastrointestinal perforation	Gastrointestinal (GI) perforation has been reported in patients treated with ramucirumab. Use with caution in patients at risk of GI perforation (e.g. prior surgery or radiotherapy). Patients should be monitored for signs and symptoms of GI perforation and ramucirumab should be permanently discontinued if GI perforation occurs.
Haemorrhage	Patients treated with ramucirumab have an increased risk of haemorrhage, especially severe gastrointestinal haemorrhage. Ramucirumab should be used with caution in patients at risk of bleeding (e.g. patients with conditions predisposing to bleeding, and patients taking concurrent anticoagulant or antiplatelet medications). Ramucirumab should be permanently discontinued in patients who experience Grade 3 or 4 bleeding.

Hypertension	Ramucirumab may increase the risk of hypertension. Pre-existing hypertension should be adequately controlled prior to commencing ramucirumab. Monitor blood pressure regularly throughout treatment. Withhold ramucirumab in patients who develop hypertension until it is adequately controlled. Commence or adjust antihypertensive medication as clinically indicated. Permanently discontinue ramucirumab if medically significant hypertension cannot be controlled with antihypertensive therapy.
Proteinuria	Patients may be at increased risk of developing severe proteinuria and/or nephrotic syndrome when treated with ramucirumab. Baseline urinalysis for proteinuria is recommended prior to commencement of therapy, and throughout treatment as clinically indicated. Treatment interruption may be required if proteinuria is significant. Ramucirumab should be discontinued in the event of nephrotic syndrome. Read more about proteinuria
Thromboembolism	Serious, sometimes fatal, arterial thromboembolic events (ATEs) including myocardial infarction, cardiac arrest, cerebrovascular accident, and cerebral ischaemia have been reported in clinical trials of ramucirumab. Ramucirumab should be permanently discontinued in patients who experience a severe ATE.
Wound healing	Ramucirumab has not been studied in patients with serious or non-healing wounds. There is potential for impaired wound healing based on the mechanism of action. Ramucirumab treatment should be withheld for at least 4 weeks prior to scheduled surgery and recommenced when wounds have adequately healed. If wound healing complications occur, withhold ramucirumab until the wound is fully healed.
Reversible posterior leukoencephalopathy syndrome (RPLS)	Ramucirumab should be discontinued in patients who develop reversible posterior leukoencephalopathy syndrome (RPLS). The risk of reinitiating ramucirumab therapy in patients previously experiencing RPLS is not known. Read more about reversible posterior leukoencephalopathy syndrome (RPLS)
Blood tests	FBC, EUC and LFTs at baseline and throughout treatment as clinically indicated.
Hepatitis B screening and prophylaxis	Routine screening for HBsAg and anti-HBc is NOT usually recommended for patients receiving this treatment. Read more about hepatitis B screening and prophylaxis in cancer patients requiring cytotoxic and/or immunosuppressive therapy
Vaccinations	Live vaccines are contraindicated in cancer patients receiving immunosuppressive therapy and/or who have poorly controlled malignant disease. Refer to the recommended schedule of vaccination for immunocompromised patients, as outlined in the Australian Immunisation Handbook. Read more about COVID-19 vaccines and cancer.
Fertility, pregnancy and lactation	Cancer treatment can have harmful effects on fertility and this should be discussed with all patients of reproductive potential prior to commencing treatment. There is a risk of foetal harm in pregnant women. A pregnancy test should be considered prior to initiating treatment in females of reproductive potential if sexually active. It is important that all patients of reproductive potential use effective contraception whilst on therapy and after treatment finishes. Effective contraception methods and adequate contraception timeframe should be discussed with all patients of reproductive potential. Possibility of infant risk should be discussed with breastfeeding patients. Read more about the effect of cancer treatment on fertility

Dose modifications

Evidence for dose modifications is limited, and the recommendations made on eviQ are intended as a guide only. They are generally conservative with an emphasis on safety. Any dose modification should be based on clinical judgement, and the individual patient's situation including but not limited to treatment intent (curative vs palliative), the anti-cancer regimen (single versus combination therapy versus chemotherapy versus immunotherapy), biology of the cancer (site, size, mutations, metastases), other treatment related side effects, additional

co-morbidities, performance status and patient preferences.Suggested dose modifications are based on clinical trial findings, product information, published guidelines and reference committee consensus . The dose reduction applies to each individual dose and not to the total number of days or duration of treatment cycle unless stated otherwise. Non-haematological gradings are based on Common Terminology Criteria for Adverse Events (CTCAE) unless otherwise specified. Renal and hepatic dose modifications have been standardised where possible. For more information see dosing considerations & disclaimer .

Renal impairment	
Mild or moderate	No dose reductions are recommended
Severe	No safety data available

Hepatic impairment	
Hepatic dysfunction	
Mild or moderate	There have been no formal studies with ramucirumab in patients with hepatic impairment. No dose reductions are recommended.
Severe	There have been no formal studies with ramucirumab in patients with hepatic impairment. No dose reductions are recommended. Use ramuciumab with caution in patients with severe liver cirrhosis (Child-Pugh B or C), cirrhosis with hepatic encephalopathy, clinically significant ascites due to cirrhosis, or hepatorenal syndrome. Use only if potential benefits outweigh the potential risk of progressive hepatic failure

Cease ramucirumab if any of the following occur:

- infusion-related reaction (IRR) greater than or equal to grade 3
- haemorrhagic event greater than or equal to grade 3
- arterial thromboembolic event
- gastrointestinal perforation or fistula formation
- uncontrolled severe hypertension or hypertensive crisis
- proteinuria > 3 g/24 hours or nephrotic syndrome
- episode of reversible posterior leukoencephalopathy syndrome (RPLS)

Interactions

Drug interactions in eviQ protocols are under review and being updated to align with current literature. Further site-wide updates and changes will occur in due course. References & Disclaimer

The drug interactions shown below are not an exhaustive list. For a more comprehensive list and for detailed information on specific drug interactions and clinical management, please refer to the specific drug product information and the following key resources:

- *MIMS - interactions tab (includes link to a CYP-450 table) (login required)*
- *Australian Medicines Handbook (AMH) – interactions tab (login required)*
- *Micromedex Drug Interactions (login required)*
- *Cancer Drug Interactions*
- *Cytochrome P450 Drug Interactions*

Ramucirumab

No pharmacokinetic interactions were observed between ramucirumab and paclitaxel.
No other drug-drug interaction studies have been performed.

General		
	Interaction	**Clinical management**
Warfarin	Anti-cancer drugs may alter the anticoagulant effect of warfarin.	Monitor INR regularly and adjust warfarin dosage as appropriate; consider alternative anticoagulant.
Direct oral anticoagulants (DOACs) e.g. apixaban, rivaroxaban, dabigatran	Interaction with both CYP3A4 and P-gp inhibitors /inducers. DOAC and anti-cancer drug levels may both be altered, possibly leading to loss of efficacy or toxicity (i.e. increased bleeding).	Apixaban: avoid concurrent use with strong CYP3A4 and P-gp inhibitors. If treating VTE, avoid use with strong CYP3A4 and P-gp inducers. Rivaroxaban: avoid concurrent use with strong CYP3A4 and P-gp inhibitors. Dabigatran: avoid combination with strong P-gp inducers and inhibitors. If concurrent use is unavoidable, monitor closely for efficacy/toxicity of both drugs.
Digoxin	Anti-cancer drugs can damage the lining of the intestine; affecting the absorption of digoxin.	Monitor digoxin serum levels; adjust digoxin dosage as appropriate.
Antiepileptics	Both altered antiepileptic and anti-cancer drug levels may occur, possibly leading to loss of efficacy or toxicity.	Where concurrent use of an enzyme-inducing antiepileptic cannot be avoided, monitor antiepileptic serum levels for toxicity, as well as seizure frequency for efficacy; adjust dosage as appropriate. Also monitor closely for efficacy of the anti-cancer therapy.
Antiplatelet agents and NSAIDs	Increased risk of bleeding due to treatment related thrombocytopenia.	Avoid or minimise combination. If combination deemed essential, (e.g. low dose aspirin for ischaemic heart disease) monitor for signs of bleeding.
Serotonergic drugs, including selective serotonin reuptake inhibitors (SSRIs e.g. paroxetine) and serotonin noradrenaline reuptake inhibitors (SNRIs e.g. venlafaxine)	Increased risk of serotonin syndrome with concurrent use of 5-HT3 receptor antagonists (e.g. palonosetron, ondansetron, granisetron, tropisetron, dolasetron, etc.)	Avoid combination. If combination is clinically warranted, monitor for signs and symptoms of serotonin syndrome (e.g. confusion, agitation, tachycardia, hyperreflexia). For more information link to TGA Medicines Safety Update
Vaccines	Diminished response to vaccines and increased risk of infection with live vaccines.	Live vaccines (e.g. BCG, MMR, zoster and varicella) are contraindicated in patients on immunosuppressive therapy. Use with caution in patients on non-immunosuppressive therapy. For more information; refer to the recommended schedule of vaccination for cancer patients, as outlined in the Australian Immunisation Handbook

Administration

eviQ provides safe and effective instructions on how to administer cancer treatments. However, eviQ does not provide every treatment delivery option, and is unable to provide a comprehensive list of cancer treatment agents and their required IV line giving set/filter. There may be alternative methods of treatment administration, and alternative supportive treatments that are also appropriate. Please refer to the individual

product information monographs via the TGA website for further information.

Day 1

Approximate treatment time: 90 minutes

Handling of monoclonal antibodies and waste management

Safe administration

General patient assessment prior to each day of treatment.

Any toxicity grade 2 or greater may require dose reduction, delay or omission of treatment and review by medical officer before commencing treatment.

Prime required IV lines with sodium chloride 0.9%:

- a separate line with a protein-sparing 0.22 micron filter must be used for ramucirumab
- attach a second IV line via a luer lock connector as close as possible to the site of injection
  - this may be required in case of a hypersensitivity reaction.

Insert IV cannula or access TIVAD or CVAD.

Pre treatment medication

Verify premedication taken or administer as prescribed.

Treatment - Time out

Ramucirumab

- ramucirumab is only compatible with 0.9% sodium chloride

Prior to administration check

- blood pressure
- baseline urinalysis for protein and repeat as clinically indicated (read more about proteinurea)

Administer ramucirumab:

- via IV infusion over approximately 60 minutes (maximum infusion rate 25 mg/min)
- observe for signs of infusion related reactions
- flush with ~100 mL sodium chloride 0.9%.

Stop infusion at first sign of a reaction:

- if a grade 1 or 2 (mild to moderate) infusion related reaction occurs reduce the infusion rate by 50% for the duration of the infusion and all subsequent infusions
- if a grade 3 or 4 (severe to life threatening) infusion related reaction occurs seek medical attention immediately and permanently discontinue ramucirumab.

Remove IV cannula and/or deaccess TIVAD or CVAD.

Discharge information

Patient information

- Ensure patient receives patient information sheet.

Side effects

The side effects listed below are not a complete list of all possible side effects for this treatment. Side effects are categorised into the approximate onset of presentation and should only be used as a guide.

Immediate (onset hours to days)	
Hypersensitivity reaction	Anaphylaxis and infusion related reactions can occur with this treatment. Read more about hypersensitivity reaction
Headache	

Early (onset days to weeks)	
Abdominal pain	Dull ache, cramping or sharp pains are common with some anti-cancer drugs. These are caused by either increased or decreased gastrointestinal motility and can be associated with diarrhoea or constipation.
Diarrhoea	Read more about treatment induced diarrhoea
Hypertension	High blood pressure is commonly associated with many anti-cancer drugs. Pre-existing hypertension should be controlled prior to initiation of drugs capable of causing hypertension.
Proteinuria	Read more about proteinuria
Haemorrhage	
Arterial thromboembolic events	Arterial thromboembolic events, including myocardial infarction, cardiac arrest, cerebrovascular accident and cerebral ischaemia can occur. Patients should be carefully assessed for risk factors, and consideration given for antithrombotic prophylaxis in high risk patients.
Gastrointestinal perforation	A rupture of the wall of the stomach, small intestine or large bowel. Symptoms include acute abdominal pain, tenderness and signs of sepsis.
Reversible posterior leukoencephalopathy syndrome (RPLS)	A neurological disorder which may present with headache, seizures, lethargy, confusion, blindness and/or other visual and neurological disturbances. Mild to severe hypertension may also occur. Read more about reversible posterior leukoencephalopathy syndrome (RPLS)

Evidence

The evidence supporting this protocol is provided by a phase III, multicentre, international, randomised trial (REGARD) involving 355 patients comparing ramucirumab monotherapy with placebo in patients with locally advanced or metastatic gastric or gastro-oesophageal junction adenocarcinoma following progression on platinum or fluoropyrimidine-based chemotherapy.[1]

Between Oct 6, 2009 and Jan 26, 2012, 238 patients were randomised to receive ramucirumab 8 mg/kg and 117 patients were randomised to receive a placebo. Both ramucirumab and placebo were administered by intravenous infusion every 14 days until disease progression or unacceptable toxicity.[1]

The primary end point was overall survival and secondary end points were progression-free survival, objective response rate, duration of response, quality of life, safety and ramucirumab immunogenicity.[1]

Efficacy

Ramucirumab compared to placebo demonstrated a low magnitude benefit in terms of overall survival (grade 1 out of 5, where grades 4 and 5 represent substantial improvement, according to the European Society for Medical Oncology Magnitude of Clinical benefit Scale [ESMO-MCBS] v1.1). [2]

At the time of data cutoff, the median overall survival (OS) was 5.2 months in the ramucirumab group vs 3.8 months in the placebo group (HR=0.776; CI 95% 0.603 to 0.998 ; p=0.047). The estimated rates of 6 month overall survival were 41.8% (95% CI 35.4 to 48.1) in the ramucirumab group and 31.8% (23.3 to 40.2) in the placebo group; rates at 12 months were 17.6% (11.8 to 24.3) vs 11.8% (6.0 to19.7) respectively.[1]

Median progression-free survival was 2.1 months in patients receiving ramucirumab and 1.3 months in patients receiving placebo (HR=0.483; CI 95% 0.376 to 0.620 ; p=<0.0001).[1]

Kaplan-Meier analysis of A) Overall survival and B) Progression-free survival

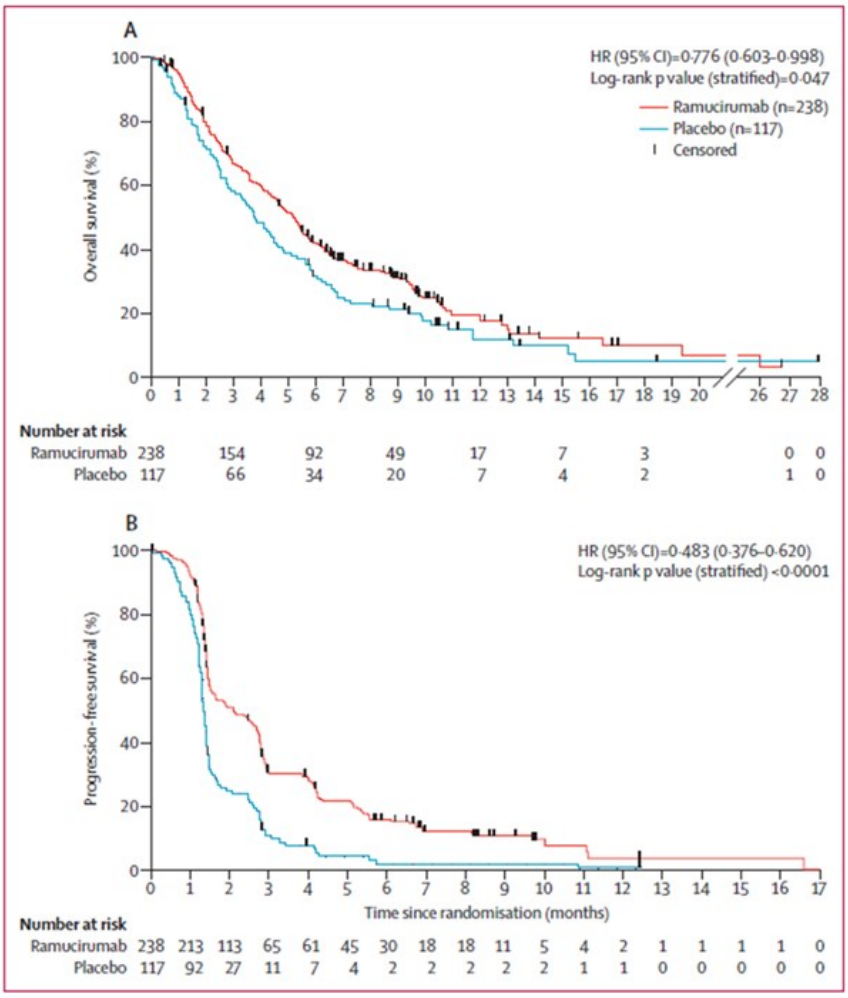


Figure 2: **Kaplan-Meier estimates of overall survival (A) and progression-free survival (B)**
HR=hazard ratio.

Objective tumour response

	Ramucirumab (n=238)	Placebo (n=117)	p value
Best overall response			
Complete response	1 (<1%)	0	..
Partial response	7 (3%)	3 (3%)	..
Stable disease	108 (45%)	24 (21%)	..
Progressive disease	78 (33%)	63 (54%)	..
Not evaluable	44 (18%)	27 (23%)	..
Objective response	8 (3%)	3 (3%)	0·76
Disease control rate*	116 (49%)	27 (23%)	<0·0001

Data are n (%), unless otherwise indicated. *Denotes best response for complete response, partial response, or stable disease.

Table 2: **Objective tumour response**

Quality of life data was recorded but was not reliable due to a low proportion of patients reporting. There was a trend to improved quality of life of ramucirumab however this was not statistically significant (p=0.23).[1]

Toxicity

Ramucirumab was well tolerated in the REGARD trial. There were similar rates for most adverse events between the ramucirumab and placebo groups.[1]

Adverse events

	Ramucirumab (n=236)		Placebo (n=115)	
	Any event	Grade ≥3	Any event	Grade ≥3
Fatigue*	84 (36%)	15 (6%)	46 (40%)	11 (10%)
Abdominal pain†	68 (29%)	14 (6%)	32 (28%)	3 (3%)
Decreased appetite	57 (24%)	8 (3%)	26 (23%)	4 (3%)
Vomiting	47 (20%)	6 (3%)	29 (25%)	5 (4%)
Constipation	36 (15%)	1 (<1%)	26 (23%)	3 (3%)
Anaemia‡	35 (15%)	15 (6%)	17 (15%)	9 (8%)
Dysphagia	25 (11%)	5 (2%)	12 (10%)	5 (4%)
Dyspnoea	22 (9%)	4 (2%)	15 (13%)	7 (6%)
Adverse events of special interest				
Hypertension§	38 (16%)	18 (8%)	9 (8%)	3 (3%)
Bleeding or haemorrhage¶	30 (13%)	8 (3%)	13 (11%)	3 (3%)
Arterial thromboembolism‖	4 (2%)	3 (1%)	0	0
Venous thromboembolism**	9 (4%)	3 (1%)	8 (7%)	5 (4%)
Proteinuria	7 (3%)	1 (<1%)	3 (3%)	0
Gastrointestinal perforation	2 (<1%)	2 (<1%)	1 (<1%)	1 (<1%)
Fistula formation	1 (<1%)	1 (<1%)	1 (<1%)	1 (<1%)
Infusion-related reaction	1 (<1%)	0	2 (2%)	0
Cardiac failure	1 (<1%)	0	0	0

Data are n (%), unless otherwise indicated. *Includes asthenia. †Includes upper or lower abdominal pain and hepatic pain. ‡Includes decreased haematocrit and red blood-cell count. §Includes increased blood pressure. ¶Includes epistaxis, gastric haemorrhage, gastrointestinal haemorrhage, gingival bleeding, haematemesis, haematoma, haematuria, haemoptysis, haemorrhage, haemorrhoidal haemorrhage, melaena, nail-bed bleeding, petechiae, rectal haemorrhage, and upper gastrointestinal haemorrhage. ‖Includes angina pectoris, cardiac arrest, cerebral ischaemia, cerebrovascular accident, myocardial infarction, and myocardial ischemia. **Includes pulmonary embolism, deep vein thrombosis, thrombosis, and venous thrombosis in a limb.

Table 3: **Adverse events, according to grade**

References

1 Fuchs, C., Tomasek, J., Yong, C., et al. (2014). Ramucirumab monotherapy for previously treated advanced gastric or gastro-oesophageal junction adenocarcinoma (REGARD): an international, randomised, multicentre, placebo-controlled, phase 3 trial. Lancet 383 (9911):31-39

2 Cherny, N., Dafni, U., Bogaerts, J., et al. 2017. "ESMO-Magnitude of Clinical benefit Scale version 1.1" Annals of Oncology 28: 2340-2366.

History

Version 2

Date	Summary of changes
27/04/2021	Patient information title updated- 'stomach or oesophageal cancer metastatic' added. Version number changed to V.2.

Version 1

Date	Summary of changes
16/02/2018	New protocol discussed at medical oncology reference committee meeting
21/03/2018	Protocol approved and published on eviQ. Review protocol in 1 year
20/05/2019	Protocol reviewed electronically by the Medical Oncology Reference Committee. No changes. Review 5 years

Date	Summary of changes

First approved: 21 March 2018
Last reviewed: 20 May 2019
Review due: 30 June 2024

The currency of this information is guaranteed only up until the date of printing, for any updates please check:
https://www.eviq.org.au/p/1903
13 Jul 2023

Patient information - Stomach or oesophageal cancer metastatic - Ramucirumab

Patient's name:

Your treatment

The treatment schedule below explains how the drug for this treatment is given.

Ramucirumab			
This treatment cycle is usually repeated every 14 days. Your doctor will advise you of the number of treatments you will have.			
Day	**Treatment**	**How it is given**	**How long it takes**
1	**Ramucirumab** *(RA-mue-SIR-ue-mab)*	By a drip into a vein	About 1 hour

When to get help

Anticancer drugs (drugs used to treat cancer) can sometimes cause serious problems. It is important to get medical help immediately if you become unwell.

IMMEDIATELY go to your nearest hospital Emergency Department, or contact your doctor or nurse if you have any of the following at any time:	**Emergency contact details** Ask your doctor or nurse from your treating team who to contact if you have a problem
• a temperature of 38°C or higher • chills, sweats, shivers or shakes • shortness of breath • uncontrolled vomiting or diarrhoea • pain, tingling or discomfort in your chest or arms • you become unwell.	Daytime: Night/weekend: Other instructions:

During your treatment immediately tell the doctor or nurse looking after you if you get any of the following problems:

- leaking from the area where the drugs are being given
- pain, stinging, swelling or redness in the area where the drugs are being given or at any injection sites
- a skin rash, itching, feeling short of breath, wheezing, fever, shivers, or feeling dizzy or unwell in any way (allergic reaction).

Other information about your treatment

Changes to your dose or treatment delays

Sometimes a treatment may be started at a lower dose or the dose needs to be changed during treatment. There may also be times when your treatment is delayed. This can happen if your doctor thinks you are likely to have severe side effects, if you get severe side effects, if your blood counts are affected and causing delays in treatment, or if you are finding it hard to cope with the treatment. This is called a dose reduction, dose change or treatment delay. Your doctor will explain if you need any changes or delays to your treatment and the reason why.

Blood tests and monitoring

You will need to have a blood test before you start treatment and regularly throughout your treatment. Your doctor or nurse will tell you when to have these blood tests.

Surgery and wound healing

This treatment may affect wound healing. Tell your doctor if you are planning to have surgery or have a wound that has not healed.

Other medications given during this treatment

- **Ramucirumab premedication:** before your treatment with ramucirumab you may need to take a tablet called a premedication to help prevent you from having a reaction to the ramucirumab.

Side effects

Cancer treatments can cause damage to normal cells in your body, which can cause side effects. Everyone gets different side effects, and some people will have more problems than others.

The table below shows some of the side effects you may get with this treatment. You are unlikely to get all of those listed and you may also get some side effects that have not been listed.

Tell your doctor or nurse about any side effects that worry you. Follow the instructions below and those given to you by your doctor or nurse.

Immediate (onset hours to days)	
Allergic reaction	• Allergic reactions are uncommon but can be life threatening. • **If you feel unwell during the infusion or shortly after it, or:** ◦ **get a fever, shivers or shakes** ◦ **feel dizzy, faint, confused or anxious** ◦ **start wheezing or have difficulty breathing** ◦ **have a rash, itch or redness of the face** **<u>While you are in hospital:</u> Tell your doctor or nurse immediately.** **<u>After you leave:</u> Contact your doctor or nurse immediately, or go to the nearest hospital Emergency Department.**
Headache	• You can take paracetamol if you have a headache. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get a very bad headache that is not helped by pain medication.**

Early (onset days to weeks)	
Stomach pain	• You may get: ◦ dull aches ◦ cramping or pain ◦ bloating or flatulence (gas). • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you have stomach pain that you are unable to control.**

Diarrhoea	• You may get bowel motions (stools, poo) that are more frequent or more liquid. • You may also get bloating, cramping or pain. • Take your antidiarrhoeal medication as directed by your doctor. • Drink plenty of fluids (unless you are fluid restricted). • Eat and drink small amounts more often. • Avoid spicy foods, dairy products, high fibre foods, and coffee. • Ask your doctor or nurse for eviQ patient information - Diarrhoea during cancer treatment. • **Tell your doctor or nurse immediately, or go to your nearest hospital Emergency Department if your diarrhoea is not controlled, you have 4 or more loose bowel motions per day, and if you feel dizzy or light-headed.**
High blood pressure (hypertension)	• You may not have any signs or symptoms if you have high blood pressure. • If it is severe you may get headaches, shortness of breath or feel dizzy. • Your blood pressure will be taken regularly during your treatment. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the signs or symptoms listed above.**
Kidney changes or damage	• This treatment may cause changes to how your kidneys work. This may cause protein in your urine. • This is not something that you will notice. • You will have blood and urine tests to check that your kidneys are working properly.
Bleeding (haemorrhage)	• Tell your doctor or nurse if you have a wound that does not heal. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the following signs or symptoms:** ◦ **unusual bleeding or bruising** ◦ **bright red or black, tarry bowel motions (stools, poo)** ◦ **stomach pain** ◦ **slurred speech** ◦ **shortness of breath** ◦ **a fast heartbeat.**
Blood clots (thromboembolism)	• Blood clots can occur with this treatment. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the following signs or symptoms:** ◦ **redness, heat or pain in your leg(s)** ◦ **numbness or weakness in your face, arm or leg** ◦ **chest pain** ◦ **sudden shortness of breath** ◦ **dizziness** ◦ **trouble speaking** ◦ **blurred vision** ◦ **severe headache** ◦ **unexplained falls or loss of balance.**
Bleeding into stomach or bowel	• This side effect is rare, but can be very serious. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of these signs or symptoms:** ◦ **severe stomach pain** ◦ **swollen and hot skin around your stomach** ◦ **bleeding** ◦ **nausea or vomiting** ◦ **fever or chills** ◦ **a fast heartbeat** ◦ **you feel short of breath.**

Changes in the way your brain works [reversible posterior leukoencephalopathy syndrome (RPLS)]	• This treatment can have an effect on your brain, but this is rare. • **Tell your doctor or nurse immediately or go to the nearest hospital Emergency Department if you get any of the following signs or symptoms:** ◦ **headaches or vision problems** ◦ **nausea and vomiting** ◦ **tiredness** ◦ **confusion** ◦ **fits (seizures)** ◦ **high blood pressure.**

General advice for people having cancer treatment

Blood clot risk

- Cancer and anticancer drugs can increase the risk of a blood clot (thrombosis).
- Tell your doctor if you have a family history of blood clots.
- A blood clot can cause pain, redness, swelling in your arms or legs, shortness of breath or chest pain.
- If you have any of these symptoms go to your nearest hospital Emergency Department.

Medications and vaccinations

- Before you start treatment, tell your doctor about any medications you are taking, including vitamins or herbal supplements.
- Don't stop or start any medications during treatment without talking to your doctor and pharmacist first.
- Paracetamol is safe to take if you have a headache or other mild aches and pains. It is recommended that you avoid taking aspirin, ibuprofen and other anti-inflammatory type medications for pain while you are having treatment. However, if these medications have been prescribed by your doctor, do not stop taking them without speaking with your doctor.
- Vaccinations such as flu and tetanus vaccines are safe to receive while having treatment. Do not have any live vaccines during your treatment or for 6 months after it finishes. If you are unsure, check with your doctor before you have any vaccinations.
- People you live with should be fully vaccinated, including having live vaccines according to the current vaccination schedule. Extra care needs to be taken with hand washing and careful disposal of soiled nappies for infants who have recently received the rotavirus vaccine.

Other medical and dental treatment

- If you go to hospital or any other medical appointment (including dental appointments), always tell the person treating you that you are receiving anticancer drugs.
- Before you have any dental treatment, talk to your doctor.

Diet

- While you are receiving this treatment it is important that you try to maintain a healthy diet.
- Speak to your doctor or nurse about whether drinking alcohol is safe with your treatment.
- If you have any concerns about recent weight loss or weight gain or questions about your diet, ask to speak to a dietitian.

Fertility

- Some cancer treatments can reduce your fertility. This can make it difficult or impossible to get pregnant or father a child.
- Talk to your doctor or nurse before you start any treatment. Depending on your situation there may be fertility sparing options available to you and/or your partner, discuss these with your doctor or nurse.

Pregnancy and breastfeeding

- Some cancer treatments can be dangerous to unborn babies. Talk to your doctor or nurse if you think there is any chance that you could be pregnant.
- Do not try to get pregnant or father a child during this treatment. Contraception should be used during treatment and after stopping treatment. Ask your doctor or nurse about what type of contraception you should use.
- If you are planning pregnancy/fatherhood after completing this treatment, talk to your doctor. Some doctors advise waiting between 6 months and 2 years after treatment.
- Do not breastfeed if you are on this treatment, as anti-cancer medications can also pass into breast milk.

Sex life and sexuality

- The desire to have sex may decrease as a result of this treatment or its side effects.

- Your emotions and the way you feel about yourself may also be affected by this treatment.
- It may help to discuss your concerns with your partner and doctor or nurse.

Quitting smoking

- It is never too late to quit smoking. Quitting smoking is one of the best things you can do to help your treatment work better.
- There are many effective tools to improve your chances of quitting.
- Talk to your treating team for more information and referral to a smoking cessation support service.

Staying active

- Research shows that exercise, no matter how small, has many benefits for people during and after cancer treatment.
- Talk to your doctor before starting an exercise program. Your doctor can advise whether you need a modified exercise program.

For more information about cancer treatment, side effects and side effect management see our Patient and carers section.

Where to get more information

Telephone support

- Call Cancer Council on 13 11 20 for cancer information and support

Stomach and oesophageal cancer information

- Pancare Foundation – pancare.org.au

General cancer information and support

- Australian Rare Cancer (ARC) Portal – arcportal.org.au/
- Beyondblue – beyondblue.org.au
- Cancer Australia – canceraustralia.gov.au
- Cancer Council Australia – cancer.org.au
- Cancer Voices Australia – cancervoicesaustralia.org
- CanTeen – canteen.org.au
- Carers Australia – carersaustralia.com.au
- CHILL Cancer related hair loss - scalpcooling.org
- eviQ Cancer Treatments Online – eviQ.org.au
- LGBTQI+ People and Cancer - cancercouncil.com.au/cancer-information/lgbtqi
- Look Good Feel Better – lgfb.org.au
- Patient Information – patients.cancer.nsw.gov.au
- Radiation Oncology Targeting Cancer – targetingcancer.com.au
- Redkite – redkite.org.au
- Return Unwanted Medicines – returnmed.com.au
- Staying active during cancer treatment – patients.cancer.nsw.gov.au/coping-with-cancer/physical-wellbeing/staying-active

Quit smoking information and support

Quitting smoking is helpful even after you have been diagnosed with cancer. The following resources provide useful information and support to help you quit smoking. Talk to your treating team about any other questions you may have.

- Call Quitline on 13 QUIT (13 78 48)
- iCanQuit – iCanQuit.com.au
- Patient Information – patients.cancer.nsw.gov.au/coping-with-cancer/physical-wellbeing/quitting-smoking
- Quitnow – quitnow.gov.au

Additional notes:

This document is a guide only and cannot cover every possible situation. The health professionals caring for you should always consider your individual situation when making decisions about your care. Contact your cancer clinic staff or doctor if you have any questions or concerns about your treatment, or you are having problems coping with side effects. While eviQ endeavours to link to reliable sources that provide accurate information, eviQ and the Cancer Institute NSW do not endorse or accept responsibility for the accuracy, currency, reliability or correctness of the content of linked external information sources. Use of this document is subject to eviQ's disclaimer available at www.eviQ.org.au

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