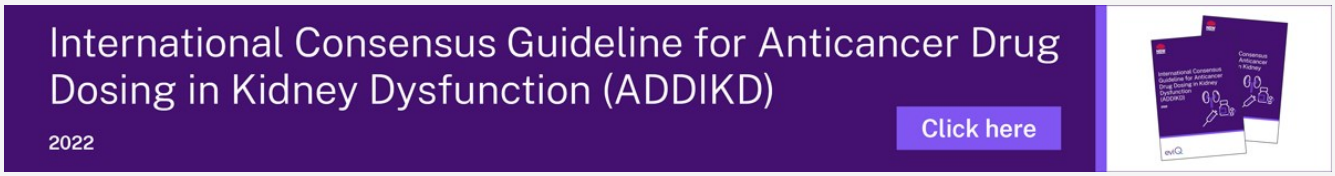
Gastrointestinal stromal cell tumour (GIST) metastatic imatinib

ID: 330 v.5 **Endorsed** Essential Medicine List

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:

- Gastrointestinal stromal cell tumour (GIST) metastatic sUNITinib
- Gastrointestinal stromal cell tumour (GIST) metastatic regorafenib
- Gastrointestinal stromal cell tumour (GIST) metastatic ripretinib

Treatment schedule - Overview

Drug	Dose	Route
Imatinib	400 mg ONCE a day	PO

Continuous until disease progression or unacceptable toxicity

Notes:

- Patients with metastatic or unresectable disease who achieve a response to treatment at an imatinib dose of 400 mg per day should be continued at this dose and assessed for response at regular intervals. Patients who fail to achieve a response to 400 mg per day may have their dose increased to 600 mg per day (PBS Authority applications for doses higher than 600 mg per day will not be approved).
- Response to treatment is defined as decrease from baseline in the sum of the products of the perpendicular diameters of all measurable lesions of 50% or greater (response definition based on the Southwest Oncology Group standard criteria[1]).

Drug status: Imatinib is PBS authority

Imatinib is available as **100 mg** and **400 mg** tablets

Cost: ~ $450 per cycle

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.*

Continuous treatment		
Metoclopramide	10 mg (PO)	one tablet when necessary (maximum of 30 mg/24 hours, up to 5 days)
Imatinib	400 mg (PO)	ONCE a day with food

Continuous until disease progression or unacceptable toxicity

Indications and patient population

- Unresectable or metastatic malignant gastrointestinal stromal tumour (GIST).

Clinical information

Caution with oral anti-cancer drugs	Select links for information on the safe prescribing, dispensing and administration of orally administered anti-cancer drugs. Read more about the COSA guidelines and oral anti-cancer therapy
Emetogenicity moderate to high	Routine antiemetic premedication may not be required for continuous dosing of some moderate to high emetic risk oral drugs. Consider if patient develops significant nausea or vomiting and reassess routinely. In clinical practice, the administration of oral metoclopramide may be sufficient to control nausea. Read more about preventing anti-cancer therapy induced nausea and vomiting
Cardiac toxicity	Imatinib has been associated with cardiac complications (i.e. left ventricular ejection fraction (LVEF) dysfunction and heart failure). For patients with pre existing cardiac disease, measure LVEF at baseline and as clinically indicated. Monitor patient for signs and symptoms of congestive heart failure. In patients with hypereosinophilic syndrome and cardiac involvement, cardiogenic shock and left ventricular dysfunction have been associated with initiation of imatinib. The condition was reported to be reversible with the administration of systemic steroids, circulatory support measures, and temporary withholding of imatinib. Read more about cardiac toxicity associated with anti-cancer drugs
Fluid retention/oedema	Patients may experience an increased incidence of fluid retention and periorbital oedema. Monitor for signs and symptoms of fluid retention and if severe fluid retention occurs treatment should be withheld until resolved. Periorbital oedema is a common side effect of imatinib which is usually mild to moderate and managed conservatively.
Hypothyroidism	Hypothyroidism has been reported in thyroidectomy patients undergoing thyroxine replacement during treatment with imatinib. Monitor for signs and symptoms of hypothyroidism in thyroidectomy patients.
Diarrhoea	Antidiarrhoeals (e.g. loperamide) are usually prescribed with this treatment. Read more about treatment induced diarrhoea
Blood tests	FBC, EUC, LFTs and TSH at baseline. Repeat FBC weekly for the first month, then every second week for the second month, then every 2 to 3 months. Repeat LFTs monthly or as clinically indicated. TSH and INR as clinicaly 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 .

The dose recommendations in kidney dysfunction (i.e.renal impairment) displayed may not reflect those in the ADDIKD guideline and have been included for historical reference only. Recommendations will be updated once the individual protocol has been evaluated by the reference committee, with this version of the protocol then being archived. Clinicians are expected to refer to the ADDIKD guideline prior to prescribing in kidney dysfunction.
International Consensus Guideline for Anticancer Drug Dosing in Kidney Dysfunction (ADDIKD).

Haematological toxicity	
ANC x 10^9/L (pre-treatment blood test)	
1.0 to less than 1.5	Refer to local institutional guidelines; it is the view of the expert clinicians that treatment should continue if patient is clinically well.
0.5 to less than 1.0	Delay treatment until recovery
less than 0.5	Delay treatment until recovery and consider reducing imatinib to 300 mg daily (if starting dose was 400 mg) or to 400 mg daily (if starting dose was 600 mg) for subsequent cycles
Febrile neutropenia or previous delay for myelosuppression	Delay treatment until recovery and consider reducing imatinib to 300 mg daily (if starting dose was 400 mg) or to 400 mg daily (if starting dose was 600 mg) for subsequent cycles
Platelets x 10^9/L (pre-treatment blood test)	
75 to less than 100	The general recommendation is to delay, however if the patient is clinically well it may be appropriate to continue treatment; refer to treating team and/or local institutional guidelines.
50 to less than 75	Delay treatment until recovery
Previous delay for	Delay treatment until recovery and consider reducing imatinib to 300 mg daily (if starting

Haematological toxicity	
myelosuppression	dose was 400 mg) or to 400 mg daily (if starting dose was 600 mg)for subsequent cycles

Renal impairment
No dose modification necessary; use with caution in patients with severe renal impairment

Hepatic impairment	
Hepatic dysfunction	
Mild	No dose modification necessary
Moderate	No dose modification necessary
Severe	Reduce dose to 300 mg daily (if starting dose was 400 mg) or to 400 mg daily (if starting dose was 600 mg)

Diarrhoea	
Grade 3	Delay treatment until toxicity has resolved to Grade 2 or less and reduce the dose to 300 mg daily (if starting dose was 400 mg) or to 400 mg daily (if starting dose was 600 mg) for subsequent cycles
Grade 4	Omit imatinib

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*

Imatinib		
	Interaction	**Clinical management**
Gemfibrozil	Increased toxicity OR reduced efficacy of imatinib possible due to inhibition of CYP2C8-mediated metabolism of imatinib OR reduced imatinib absorption and impaired CYP2C8-mediated conversion of imatinib to its active metabolite by gemfibrozil	Avoid combination Caution advised if other CYP2C8 inhibitors are to be used (e.g. trimethoprim, glitazones, montelukast etc.)
CYP3A4 inhibitors (e.g. aprepitant, azole antifungals, clarithromycin, erythromycin, grapefruit juice, ritonavir etc.)	Increased toxicity of imatinib possible due to reduced clearance	Monitor for imatinib toxicity
CYP3A4 inducers (e.g. carbamazepine, phenytoin, phenobarbitone, rifampicin, St John's wort etc.)	Reduced efficacy of imatinib possible due to increased clearance	Avoid combination or monitor for decreased clinical response to imatinib
Drugs metabolised by CYP3A4 (e.g. atorvastatin, benzodiazepines, calcineurin inhibitors, clarithromycin, dihydroergotamine, simvastatin, etc.)	Increased effect/toxicity of these drugs possible due to inhibition of CYP3A4 by imatinib resulting in reduced clearance	Avoid combination or monitor for increased effect/toxicity of interacting drugs
Levothyroxine (thyroxine, Oroxine®, Eutroxsig®)	Reduced efficacy of thyroid replacement therapy resulting in hypothyroid symptoms; possibly due to induction of levothyroxine metabolism by imatinib and subsequent TSH elevation	Monitor closely for signs and symptoms of hypothyroidism, serum thyroxine and TSH levels; increase levothyroxine dose if needed
Paracetamol	Risk of liver toxicity due to inhibition of metabolism of paracetamol by imatinib	Avoid combination or monitor liver function closely

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.

Administration

This is a continuous oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each treatment.

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

Treatment - Time out

Imatinib

- administer orally ONCE a day
- to be swallowed whole; do not break, crush or chew
- to be taken with a large glass of water and food to minimise GI irritation
- if difficulty is experienced swallowing the tablet advise patient to:
  - place tablets in a glass of water or apple juice (using ~50 mL for 100 mg tablet, ~200 mL for 400 mg tablet)
  - stir until tablet dissolves
  - drink straight away
  - rinse glass and drink this too

Note: missed doses should not be replaced; if a dose is forgotten or vomited, normal dosing should be resumed at the next scheduled dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Discharge information

Imatinib tablets

- With written instructions on how to take them .
- Advise patients to weigh themselves regularly and to report any increase by more than 1 to 2 kg in a week.

Antiemetics

- Antiemetics as prescribed.

Antidiarrhoeals

- Antidiarrhoeals as prescribed.

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)	
Nausea and vomiting	Read more about prevention of treatment induced nausea and vomiting

Early (onset days to weeks)	
Neutropenia	Abnormally low levels of neutrophils in the blood. This increases the risk of infection. Any fever or suspicion of infection should be investigated immediately and managed aggressively. Read more about immediate management of neutropenic fever
Thrombocytopenia	A reduction in the normal levels of functional platelets, increasing the risk of abnormal bleeding. Read more about thrombocytopenia
Diarrhoea	Read more about treatment induced diarrhoea
Fatigue	Read more about fatigue
Arthralgia and myalgia	Generalised joint pain or and/or stiffness and muscle aches, often worse upon waking or after long periods of inactivity. Can improve with movement. May be mild or severe, intermittent or constant and accompanied by inflammation. Read more about arthralgia and myalgia
Fluid retention and oedema	An excess amount of fluid around the cells, tissues or serous cavities of the body, leading to swelling.
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.
Skin rash	Anti-cancer drugs can cause a number of changes in the skin with maculo-papular rash the most common type of drug-induced skin reaction. Read more about skin rash
Photosensitivity	Increased sensitivity to ultraviolet (UV) light resulting in an exaggerated sunburn-like reaction accompanied by stinging sensations and urticaria.
Haemorrhage	
Cardiotoxicity	Cardiotoxicity may manifest as asymptomatic reduction in left ventricular ejection fraction (LVEF), arrhythmia, cardiomyopathy, hypertension, cardiac ischaemia and congestive heart failure (CHF). The risk of cardiotoxicity is increased by a number of factors, particularly a history of heart disease and electrolyte imbalances. Read more about cardiotoxicity associated with anti-cancer drugs

Late (onset weeks to months)	
Anaemia	Abnormally low levels of red blood cells (RBCs) or haemoglobin in the blood. Read more about anaemia

Evidence

The initial evidence supporting this regimen comes from a randomised, open label, multicentre phase II trial designed to evaluate the efficacy of imatinib in unresectable of metastatic gastrointestinal tumours expressing CD117.[1] A total of 147 patients were enrolled between July 2000 and April 2001 were randomised to receive either 400 mg or 600 mg daily of imatinib. At a median follow up of 71 months objective response rates (ORR) was 68.1% (1.4% complete response & 66.7% partial response), 15.6% had stable disease, 11.6% progressive disease. Patients who progressed on the lower-dose and were clinically well were allowed to crossover to the higher dose, approximately 25% of patients whose dose was increased experienced a clinical benefit. Dose escalation of imatinib may be a reasonable step for patients that experience progressive disease on lower dose.[2]

In a meta-analysis of 1640 patients, although there was no improvement in overall survival (OS), a small progression free survival (PFS) benefit of high dose (400 mg twice daily) was seen in patients with KIT exon 9 mutations.[3]

Recent evidence comes from the updated 10 year data of a worldwide intergroup phase III randomised trial, undertaken by the EORTC, Italian Sarcoma Group and AGITG. 946 patients with metastatic or unresectable GIST (CD117 positive) were randomly assigned to receive 400 mg daily or 400 mg twice daily of imatinib, study has determined the 400 mg daily dose to be the optimal dosing in the first line setting. Crossover from lower dose to higher dose at point of disease progression was allowed. Patients

with a KIT exon 9 mutation benefitted from treatment with imatinib at a higher dose (HR, 0.40; 95% CI, 0.22 to 0.72). Prognostic factors for surviving beyond 10 years were age (less than 60), performance status, size of lesion (smaller) and KIT exon 11 mutation.[4]

Efficacy

In the initial phase II trial, updated long-term results demonstrated that at a median follow up of 63 months, median survival was 57 months for all patients, with no significant differences between the two dose groups (HR 0.873, p=0.5506). Mutational analyses was performed on 87% of patients, data demonstrated patients with KIT exon 11 mutation had a median OS 63 months, KIT exon 9 mutation median OS 44 months, other KIT mutations or no mutations had significant shorter median OS of 26 months.[2]

In the phase III trial, at a median follow up of 10.9 years, there was no significant difference in terms of PFS between 400 mg and 800 mg groups, with median PFS of 1.7 years in the lower dose group and 2.0 years in the higher dose group (HR 0.91 [0.79 – 1.04], p=0.18). There was no significant difference between the groups in terms of OS, with OS of 3.9 years in both treatment arms (HR 0.93 [0.80 – 1.07], p=.31). 10 year OS rates were 9.5% and 9.2% for the 400 mg and 800 mg arms respectively. Of 417 patients in the 400 mg group who had progressive disease, 196 crossed over to the 800 mg group at disease progression. A year after crossover, 17.4% of patients remained on the treatment.[4]

Kaplan-Meier curves PFS (A) & OS (B) phase III randomised trial comparing imatinib 400mg daily versus 800mg daily, showing no statistical benefit [4]

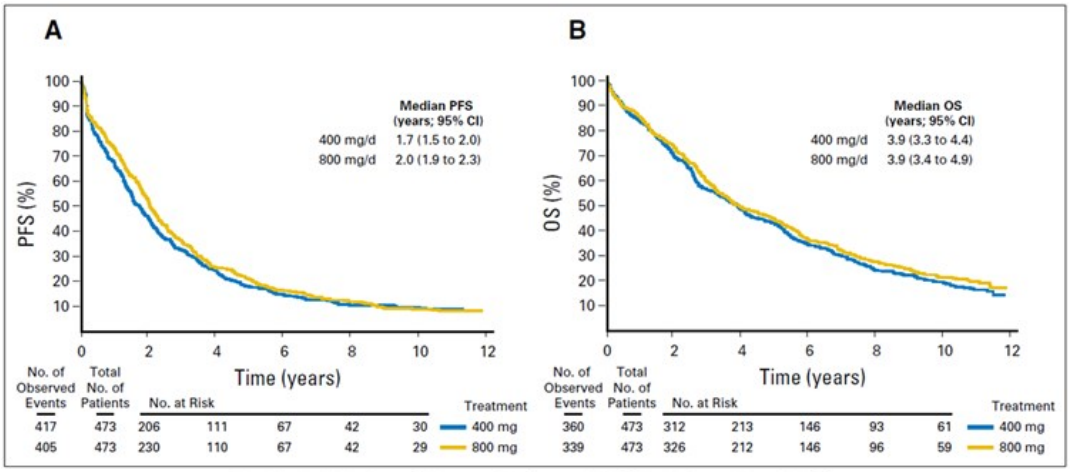
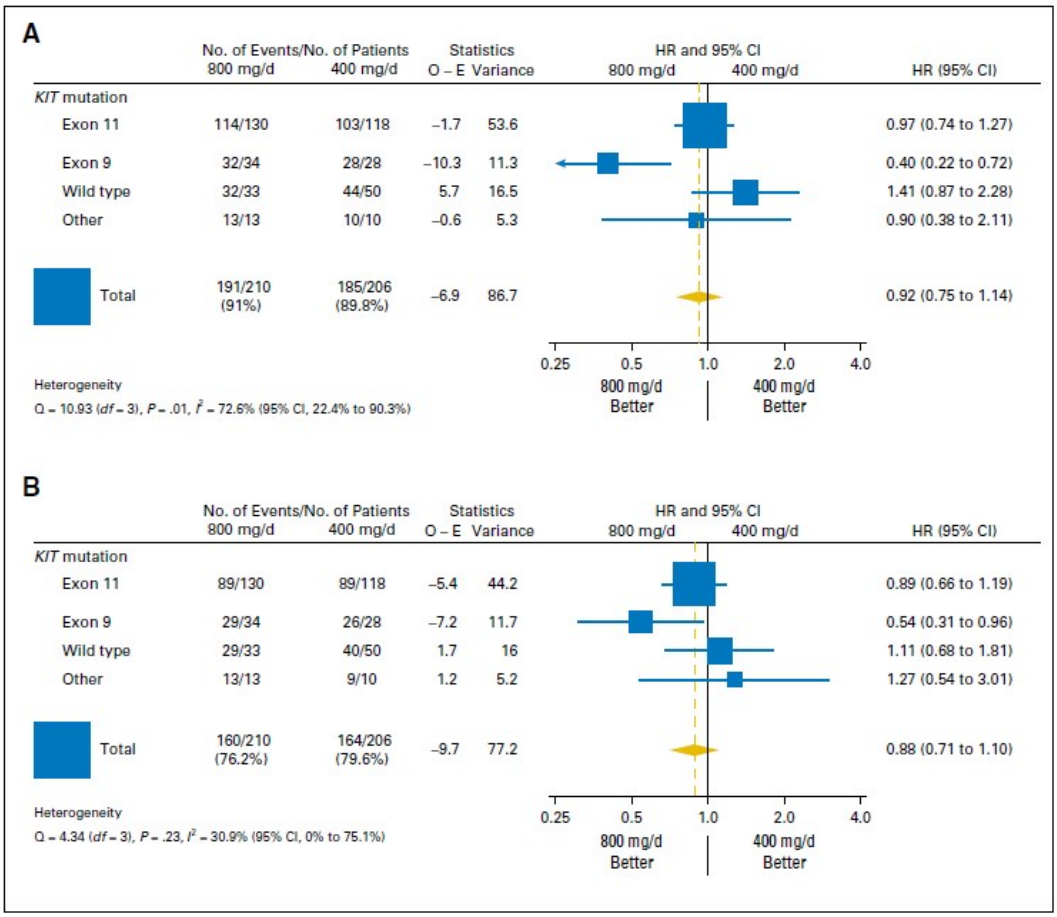


Fig 2. Kaplan-Meier plots of (A) progression-free survival (PFS) and (B) overall survival (OS).

Forest plot for interaction effect of KIT mutation status on treatment effect predicting (A) PFS and (B) OS [4]



Toxicity

Imatinib was generally well tolerated, however 98% of patients experienced grade 1 or 2 adverse events potentially relating to therapy. The most common events were oedema (74% mostly periorbital), nausea 52%, diarrhoea 45%. The most serious adverse events were gastrointestinal or intra abdominal haemorrhages in patients with large bulky tumours, approximately 5% of patients.[1]

Toxicity[1]	Any grade (%)	Grade 3 or 4 (%)
Oedema	71	1
Nausea	50	1
Diarrhoea	40	1
Myalgia	37	0
Fatigue	30	0
Dermatitis/rash	25	3
Headache	19	0
Abdominal pain	26	1
Haemorrhage	11	4

References

1 Demetri, G.D., M. V. Mehren, C.D. Blanke, et al. 2002. "Efficacy and Safety of Imatinib Mesylate in Advanced Gastrointestinal Stromal Tumors." N Engl J Med 347(7):472-480.

2 Blanke, C. D., G. D. Demetri, M. V. Mehren, et al. 2008. "Long-Term Results From a Randomized Phase II Trial of Standard- Versus Higher-Dose Imatinib Mesylate for Patients With Unresectable or Metastatic Gastrointestinal Stromal Tumors Expressing KIT." J.Clin Oncol. 26(4):620-625.

3 Gastrointestinal Stromal Tumor Meta-Analysis, Group. 2010. "Comparison of two doses of imatinib for the treatment of unresectable or metastatic gastrointestinal stromal tumors: a meta-analysis of 1,640 patients." J Clin Oncol 28(7):1247-1253.

4 Casali, P. G., J. Zalcberg, A. L. Cesne, et al. 2017. "Ten-Year Progression-Free and Overall Survival in Patients With Unresectable or Metastatic GI Stromal Tumors: Long-Term Analysis of the European Organisation for Research and Treatment of Cancer, Italian Sarcoma Group, and Australasian Gastrointestinal Trials Group Intergroup Phase III Randomized Trial on Imatinib at Two Dose Levels." J.Clin Oncol. 35(15):1713-1720.

History

Version 5

Date	Summary of changes
12/05/2023	Protocol reviewed electronically by Medical Oncology Reference committee 2022. Evidence section updated to align with new 10 year available data. Version number changed to V.5. Next review in 2 years.

Version 4

Date	Summary of changes
10/05/2018	Haematological dose modifications updated as per consensus of the expert clinician group. Version number changed to V.4.
25/09/2020	Protocol reviewed electronically by the Medical Oncology Reference committee. Nil changes. Next review in 2 years.
21/06/2021	Changed antiemetic clinical information block to moderate to high, to align with new categories. See ID 7 Prevention of anti-cancer therapy induced nausea and vomiting (AINV v5).

Version 3

Date	Summary of changes
31/05/2017	Transferred to new eviQ website. Version number changed to V.3. Hepatitis B screening changed to NOT recommended.
16/02/2018	Protocol reviewed electronically by Medical Oncology Reference Committee. No changes. Review in 2 years

Version 2

Date	Summary of changes
03/04/2012	New format to allow for export of protocol information. Protocol version number changed to V.2. Antiemetics and premedications added to the treatment schedule. Additional Clinical Information, Key Prescribing table and Key Administration table combined into new section titled Clinical Considerations. Drug specific information placed behind the drug name link.
13/09/2013	Protocol reviewed at Medical Oncology Reference Committee meeting. Evidence updated to include PFS benefit in patients with KIT exon 9 mutations Next review in 2 years.
16/12/2015	Protocol reviewed electronically by Medical Oncology Reference committee. No changes and next review in 2 years.
10/11/2016	The following change made post Medical Oncology Reference Committee meeting held on 21 October 2016: link to AGITG and ANZCTR added.

Version 1

Date	Summary of changes
01/09/2009	Review, new dose modifications and transferred to eviQ.
01/09/2011	PBS indication updated: statement "Imatinib is not PBS-subsidised for the treatment of patients with resectable malignant gastrointestinal stromal tumours" removed.

First approved: 9 January 2007
Last reviewed: 12 May 2023
Review due: 30 June 2025

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/330
13 Jul 2023

Patient information - Gastrointestinal stromal cell tumour (GIST) metastatic - Imatinib

Patient's name:

Your treatment

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

Imatinib		
This treatment is continuous. Your doctor will advise you how long to take the treatment for.		
Day	**Treatment**	**How it is given**
Continuous	**Imatinib** (*im-AT-in-ib*)	Take orally ONCE a day with food and a large glass of water. Tablet(s) should be swallowed whole. If you are unable to swallow the tablet(s) whole they may be dissolved in a glass of water or apple juice and the solution swallowed (see directions in *Other information about your treatment*). If you forget to take a tablet or vomit a tablet, take your normal dose the next time it is due. Do not take an extra dose.

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 38ºC 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:..... ....

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. Tell your doctor if you are taking warfarin. Tell your doctor if you are on an anticoagulant (medication used to treat or prevent blood clots) e.g. warfarin. You may need to have additional blood tests.

Other medications given during this treatment

- **Anti-sickness (anti-nausea) medication:** you may be given some anti-sickness medication. Make sure you take this medication as your doctor or nurse tells you, even if you don't feel sick. This can help to prevent the sickness starting.
- **Antidiarrhoeals:** you may be given some medication to treat diarrhoea. Your doctor or nurse will tell you how and when to take your antidiarrhoeal medication.

Instructions for dissolving imatinib tablets:

- Imatinib tablets should not be crushed, cut or chewed. For patients with swallowing difficulties imatinib tablets can be dissolved.
- You (or whoever is dissolving the tablets) should wear disposable gloves and try to minimise touching the tablets.
- Place the imatinib tablet(s) in a glass of water or apple juice (using approximately 50 mL for 100 mg tablet and approximately 200mL for 400mg tablet).
- Stir until tablet dissolves.
- Drink straight away.
- Rinse glass and drink this too.

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)	
Nausea and vomiting	• You may feel sick (nausea) or be sick (vomit). • Take your anti-sickness medication as directed even if you don't feel sick. • Drink plenty of fluids (unless you are fluid restricted). • Eat small meals more frequently. • Try food that does not require much preparation. • Try bland foods like dry biscuits or toast. • Gentle exercise may help with nausea. • Ask your doctor or nurse for eviQ patient information - Nausea and vomiting during cancer treatment. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you have uncontrolled vomiting or feel dizzy or light-headed.**
Early (onset days to weeks)	

Infection risk (neutropenia)	• This treatment lowers the amount of white blood cells in your body. The type of white blood cells that help to fight infection are called neutrophils. Having low level of neutrophils is called neutropenia. If you have neutropenia, you are at greater risk of getting an infection. It also means that your body can't fight infections as well as usual. This is a serious side effect, and can be life threatening. • Wash your hands often. • Keep a thermometer at home and take your temperature regularly, and if you feel unwell. • Do your mouth care regularly. • Inspect your central line site (if you have one) daily for any redness, pus or swelling. • Limit contact with people who are sick. • Learn how to recognise the signs of infection. • Ask your doctor or nurse for eviQ patient information - Infection during cancer 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:** ◦ **a temperature of 38°C or higher** ◦ **chills, shivers, sweats or shakes** ◦ **a sore throat or cough** ◦ **uncontrolled diarrhoea** ◦ **shortness of breath** ◦ **a fast heartbeat** ◦ **become unwell even without a temperature.**
Low platelets (thrombocytopenia)	• This treatment lowers the amount of platelets in your blood. Platelets help your blood to clot. When they are low, you are at an increased risk of bleeding and bruising. • Try not to bruise or cut yourself. • Avoid contact sport or vigorous exercise. • Clear your nose by blowing gently. • Avoid constipation. • Brush your teeth with a soft toothbrush. • Don't take aspirin, ibuprofen or other similar anti-inflammatory medications unless your doctor tells you to. • Tell your doctor or nurse if you have any bruising or bleeding. • **Tell your doctor or nurse immediately, or go to your nearest hospital Emergency Department if you have any uncontrolled bleeding.**
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.**
Tiredness and lack of energy (fatigue)	• You may feel very tired, have no energy, sleep a lot, and not be able to do normal activities or things you enjoy. • Do not drive or operate machinery if you are feeling tired. • Nap for short periods (only 1 hour at a time) • Prioritise your tasks to ensure the best use of your energy. • Eat a well balanced diet and drink plenty of fluids (unless you are fluid restricted). • Try some gentle exercise daily. • Allow your friends and family to help. • **Tell your doctor or nurse if you get any of the symptoms listed above.**

Joint and muscle pain and stiffness	• You may get muscle, joint or general body pain and stiffness. • Applying a heat pack to affected areas may help. • Talk to your doctor or nurse about other ways to manage these symptoms. You may need medication to help with any pain.
Extra fluid in the body (fluid retention)	• You may gain weight over a short amount of time. • Your hands and feet may become swollen, appear red or feel hot and uncomfortable. • Wear loose clothing and shoes that are not too tight. • Try not to stand up or walk around too much at one time. • If your ankles or legs get swollen, try raising them. • Make sure that any cuts or areas of broken skin are treated as soon as possible. • **Tell your doctor or nurse as soon as possible if you get any of the symptoms listed above or gain 1 to 2 kg in a week.** • **Tell your doctor or nurse immediately or go to the nearest hospital Emergency Department if you become short of breath.**
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.**
Skin rash	• You may get a red, bumpy rash and dry, itchy skin. • Moisturise your skin with a gentle non-perfumed moisturising cream like sorbolene or aqueous cream. • Do not scratch your skin. • Protect your skin from the sun by wearing sun-protective clothing, a wide-brimmed hat, sunglasses and sunscreen of SPF 50 or higher. • **Talk to your doctor or nurse about other ways to manage your skin rash.**
Skin that is more sensitive to the sun (photosensitivity)	• After being out in the sun you may develop a rash like a bad sunburn. • Your skin may become red, swollen and blistered. • Avoid direct sunlight. • Protect your skin from the sun by wearing sun-protective clothing, a wide-brimmed hat, sunglasses and a sunscreen of SPF 50 or higher. • **Tell your doctor or nurse if you get any of the symptoms listed above.**
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.**
Heart problems	• You may get: ◦ chest pain or tightness ◦ shortness of breath ◦ swelling of your ankles ◦ an abnormal heartbeat. • Heart problems can occur months to years after treatment. • Tell your doctor if you have a history of heart problems or high blood pressure. • Before or during treatment, you may be asked to have a test to see how well your heart is working. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the symptoms listed above.**

Late (onset weeks to months)	
Low red blood cells (anaemia)	• You may feel dizzy, light-headed, tired and appear more pale than usual. • Tell your doctor or nurse if you have any of these signs or symptoms. You might need a blood transfusion. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you have any chest pain, trouble breathing, or feel like your heart is racing.**

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.
- Some pain medications, e.g. paracetamol, can interact with your treatment. Check with your doctor or pharmacist before taking any medications for a headache or mild pain.
- 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.
- Grapefruit and grapefruit juice can interact with your medication and should be avoided while you are on this treatment.
- 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 13 11 20 for cancer information and support

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

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