

## PHARMACY

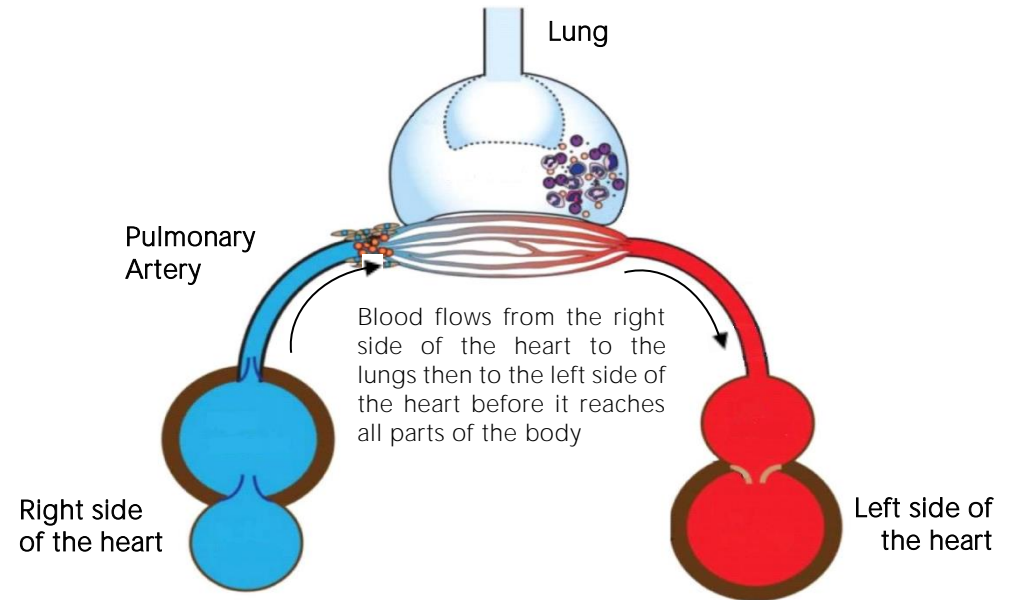
Drug Information

### Medications to Treat Pulmonary Hypertension



#### What is Pulmonary Hypertension?

Pulmonary Hypertension (PH) occurs when the pressure in the blood vessel leading from the heart to the lungs (pulmonary artery) is too high. Pulmonary hypertension cannot be cured and may worsen over time, but treatment can reduce symptoms and help you feel better. Left untreated, it may be life-threatening, hence it is important that treatment is started as soon as possible.



#### What are the Medications Used for Pulmonary Hypertension?

- These medications lower the pressure in the blood vessels, reducing the workload on the right side of the heart.
- The medications are started at a lower dose and your cardiologist may later adjust your dosage to better control your condition.
- Every patient responds to treatment in different ways.
- It may take three to six months to notice a positive change from these medications.

Medications and how they work	Side effects	Management
Phosphodiesterase-5 (PDE-5) Inhibitor <ul style="list-style-type: none"> <li>• Sildenafil</li> <li>• Tadalafil</li> </ul>	<ul style="list-style-type: none"> <li>• Flushing</li> <li>• Dizziness</li> <li>• Headache</li> <li>• Blocked nose</li> <li>• Stomach discomfort</li> <li>• Muscle pain</li> <li>• Diarrhea</li> </ul> <p>Rare side effects:</p> <ul style="list-style-type: none"> <li>• Visual disturbance – vision colour changes, blurred vision, light-sensitivity</li> <li>• Prolonged (lasting more than four hours) or painful erection</li> </ul>	<ul style="list-style-type: none"> <li>• Get up slowly from a sitting or lying position to minimise dizziness</li> <li>• Paracetamol can be used when you experience <del>for</del> pain</li> <li>• Take <del>it</del> after food if you are experiencing diarrhoea or stomach discomfort</li> <li>• Seek medical attention immediately if you experience any rare side effects</li> </ul>
Endothelin receptor antagonist (ERA) <ul style="list-style-type: none"> <li>• Macitentan (Opsumit®)</li> <li>• Ambrisentan</li> <li>• Bosentan (Tracleer®)</li> </ul>	<ul style="list-style-type: none"> <li>• Flushing</li> <li>• Dizziness</li> <li>• Headache</li> <li>• Blocked nose</li> <li>• Stomach discomfort</li> <li>• Leg swelling</li> <li>• Breathlessness</li> <li>• Drop in blood count</li> </ul> <p>Rare side effects (raised liver enzymes):</p> <ul style="list-style-type: none"> <li>• Yellowing of skin or eye whites</li> <li>• Severe stomach pain</li> <li>• Tea-coloured (dark brown) urine</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor your weight daily. Inform your healthcare professional if your weight increase more than 2kg from baseline</li> <li>• Get up slowly from a sitting or lying position to minimise dizziness</li> <li>• Flushing and headaches may go away with time</li> <li>• Take it with food if any stomach discomfort occurs</li> <li>• Routine blood tests will be done to monitor you closely</li> <li>• Seek medical attention if you experience severe giddiness, worsening leg swelling or worsening breathlessness</li> </ul>

Medications and how they work	Side effects	Management
Guanylate cyclase (sGC) stimulator <ul style="list-style-type: none"> <li>• Riociguat</li> </ul> <p>(Refer to “How are the Medications Taken?” section below)</p>	<ul style="list-style-type: none"> <li>• Dizziness</li> <li>• Headache</li> <li>• Leg swelling</li> <li>• Stomach discomfort</li> <li>• Nausea</li> <li>• Abnormal bleeding (e.g. blood in the stools, urine, or phlegm; abnormal vaginal bleeding, unexplained bruising)</li> </ul>	<ul style="list-style-type: none"> <li>• Get up slowly from a sitting or lying position to minimise dizziness</li> <li>• Take painkillers (such as paracetamol) if you experience headache or body ache</li> <li>• Inform your doctor if you notice any signs of abnormal bleeding <del>occurs</del></li> </ul>
Selective Prostacyclin IP Receptor Agonist <ul style="list-style-type: none"> <li>• Selexipag (Uptravi®)</li> </ul> <p>(Refer to “How are the Medications Taken?” section below)</p>	<ul style="list-style-type: none"> <li>• Flushing</li> <li>• Dizziness</li> <li>• Headache</li> <li>• Diarrhoea</li> <li>• Nausea, vomiting</li> <li>• Loss of appetite</li> <li>• Muscle and/or joint pain</li> <li>• Jaw pain</li> </ul> <p>Rare:</p> <ul style="list-style-type: none"> <li>• Excessive sweating</li> <li>• Intolerance to heat</li> <li>• Tremors</li> <li>• Fast heartbeat, anxiety</li> <li>• Weight loss over time</li> </ul>	<ul style="list-style-type: none"> <li>• Get up slowly from a sitting or lying position to minimise dizziness</li> <li>• Take after food to reduce nausea and vomiting</li> <li>• Flushing, skin rash and headaches may go away with time</li> <li>• Take anti-diarrhoea medications to relieve diarrhoea</li> <li>• Take painkillers (such as paracetamol) if you experience headache or body ache. If jaw pain occurs before eating, take painkillers one hour before eating</li> <li>• Inform your doctor if you experience any rare side effects</li> </ul>

Medications and how they work	Side effects	Management
Calcium Channel Blocker <ul style="list-style-type: none"> <li>• Amlodipine</li> <li>• Nifedipine LA</li> <li>• Diltiazem</li> </ul>	<ul style="list-style-type: none"> <li>• Flushing</li> <li>• Dizziness</li> <li>• Headache</li> <li>• Lower leg swelling</li> <li>• Constipation</li> </ul>	<ul style="list-style-type: none"> <li>• Get up slowly from a sitting or lying position to minimise dizziness</li> <li>• Elevate your legs to help reduce leg swelling</li> <li>• Include more fiber-rich food (e.g. fruits, vegetables, whole grains) into your diet to prevent constipation</li> </ul>
Prostacyclin analogues <ul style="list-style-type: none"> <li>• Intravenous Epoprostenol (Veletri®)</li> </ul>	<ul style="list-style-type: none"> <li>• Flushing</li> <li>• Dizziness</li> <li>• Headache</li> <li>• Muscle and/or joint pain</li> <li>• Jaw pain</li> <li>• Nausea, vomiting</li> <li>• Diarrhoea</li> <li>• Blocked nose</li> <li>• Catheter site infection: skin redness, pus oozing or swelling around the catheter site</li> <li>• Unexplained bleeding or bruising</li> </ul> <p>Rare:</p> <ul style="list-style-type: none"> <li>• Fast heartbeat</li> <li>• Chest pain</li> </ul>	<ul style="list-style-type: none"> <li>• Get up slowly from a sitting or lying position to minimise dizziness</li> <li>• Take anti-diarrhoea or anti-vomiting medications when required</li> <li>• Take painkillers (such as paracetamol) if you experience headache or body ache. If jaw pain occurs before eating, take pain killers one hour before eating</li> <li>• Inform your doctor if you experience catheter site infection, unexplained bleeding or bruising or any rare side effects</li> </ul>

### Your Doctor may Also Prescribe:

Medication	Indication Effect
Diuretics ("water pills") <ul style="list-style-type: none"> <li>• Frusemide, Bumetanide</li> <li>• Spironolactone</li> <li>• Metolazone</li> </ul>	Reduce fluid build-up in the body
Blood thinners <ul style="list-style-type: none"> <li>• Warfarin</li> </ul>	Prevent blood clots or reduce further clot formation
Supplemental Oxygen	Reduce breathlessness
Iron Supplements	Improve symptoms and exercise capacity

If you develop rashes, facial swelling, or shortness of breath after taking the medication, you could be allergic to the medication. Please seek medical attention immediately.

### What Else can I do to Help my Condition?

- Limit your fluid intake as advised (usually one litre daily)
  - This includes all beverages, fruits, soup, porridge
- Limit your salt intake
  - Avoid processed and canned food, do not add gravy or sauce to food
- Measure your weight every morning after passing urine, before breakfast
- Inform your medical professional if there is any sign of fluid overload
  - Increase in weight (more than two kg from baseline weight)
  - Increasingly breathless, new onset breathlessness
  - Worsening or new onset leg swelling, bloatedness
- Stop smoking

## How are the Medications Taken?

- The medications are taken by mouth, except intravenous Epoprostenol (Veletri®).
- If you miss a dose, take the missed dose as soon as you remember. If it is almost time for your next dose, take only the usual dose. Do not double the dosage.
- Riociguat
  - Space Riociguat from antacids at least one hour apart, or take them at a different time of the day.
- Selexipag:
  - The dose will be increased gradually to the maximally tolerated dose.
  - Take it with food. Do not crush or cut the tablets.
  - If you missed a dose, take it as soon as you remember.
  - If your next dose is due within six hours, skip the missed dose. Take the next dose at your regular time.
  - If you miss more than three consecutive days, contact your doctor or pharmacist immediately.

## Can the Medications be Taken With Other Medications?

- Please inform your doctor or pharmacist if you are taking other medications, including supplements, traditional or herbal remedies.

## Do I Need Regular Monitoring When Taking These Medicines?

- Your doctor will be monitoring your blood tests to ensure that there are no side effects.
- Your doctor may perform the 6-Minute Walk Test periodically to follow up on your exercise tolerance.

## Are There any Special Precautions That I Need to Take?

- It is recommended for females of child-bearing age to use at least two types of contraception to avoid pregnancy.
- Inform your doctor immediately if you are pregnant

## How do I Store These Medications?

- Store your medication in a cool, dry place away from heat, moisture and direct sunlight.
- IV Epoprostenol (Veletri®): store in an opaque container, in a refrigerator between 2 – 8°C. Do not freeze.
- Please keep all medications out of reach of children.

If you have any problem with your treatment, please contact your doctor or pharmacist.

