Drug: BISOPROLOL  
  
# Available Drug Strengths  
BISOPROLOL 2.5MG TAB;  
BISOPROLOL 5MG TAB  
  
# Mechanism of Action & How it Works / Helps  
Bisoprolol belongs to a group of medications known as beta-blockers and can be used in the treatment of different conditions. They include, high blood pressure, irregular heartbeat, reduce chest pain/ discomfort (angina symptoms), heart failure, reduce symptoms such as tremors and fast heart rate in people with hyperthyroidism.  
  
###CHUNK\_DELIMITER###  
  
# Indication Information for Bisoprolol  
  
## Indication 1: Hypertension (HTN)  
  
### Summary Of Disease Condition  
High blood pressure, also called hypertension, is a condition in which the heart has to pump harder for blood to flow through narrowed blood vessels, leading to persistently raised pressure. It usually does not have any noticeable signs, but it can be harmful to your health if not managed. If left unchecked or untreated, it can damage your blood vessels, heart, kidney, eye or other organs over time and cause serious complications.  
  
### Additional Information On Disease  
Blood pressure refers to the force of the body's blood pushing against the inner walls of the blood vessels, especially the arteries. Each time the heart contracts, it pumps blood into the arteries. Your blood pressure doesn't stay constant throughout the day. It is lowest when you're sleeping, and rises when you get up and start moving about. It can also go up when you are excited, nervous or physically active.   
Blood pressure (BP) readings are expressed as a ratio of the systolic pressure (the first number or numerator), over the diastolic pressure (the second number or denominator). A blood pressure of 120/80 mmHg (millimetres of mercury) is expressed verbally as 120 over 80.  
A healthy blood pressure reading should be lower than 120/80 mmHg. Normal blood pressure is less than 120 mmHg systolic and 80 mmHg diastolic, and may vary from 90/60 mmHg to 120/80 mmHg in a healthy young woman. A blood pressure of 140/90 mmHg or higher indicates high blood pressure.  
  
### Disease Aetiology  
The most common type of high blood pressure is essential hypertension, and it develops over time, usually aused by a combination of genetic and lifestyle-related risk factors.   
Age  
As we grow older, our arteries may stiffen and narrow due to the build-up of plaque over the years, causing the heart to beat harder, thus developing high blood pressure.  
Smoking  
Smoking can raise our blood pressure temporarily and its chemicals can damage our artery walls, causing our arteries to narrow and stiffen.  
Unhealthy Diet  
A diet high in fat, sugar, or sodium can increase our risk of developing hypertension.  
Physical Inactivity  
Individuals who lead sedentary lifestyles tend to have a higher heart rate than those who are physically active. This means that the heart needs to work harder.  
Obesity/Overweight  
The heavier we are, the more blood is required to supply oxygen and nutrients around our body, thus increasing the pressure on our blood vessels.  
Alcohol Consumption  
Drinking too much alcohol can raise blood pressure to unhealthy levels. Having more than three drinks in one sitting temporarily increase blood pressure, but repeated binge drinking can lead to long-term increased blood pressure.  
  
### Non Pharmacological Counselling  
Here are some lifestyle tips if you have high blood pressure:  
1. Stick to a Healthy Diet. Avoid foods high in cholesterol and saturated fats such as animal fats, red meat (e.g. beef and lamb), coconut milk, palm oil.  
Instead, choose lean meats, fish, low-fat dairy products.  
Increase your intake of fruits and vegetables.  
Limit salt intake to 2,000 mg of sodium per day, or about 1 teaspoon (about 5g) of salt daily.  
2. Exercise Regularly. Aim for at least 150 minutes light to moderate activity per week, 30 mins per day. Walking, swimming, dancing - anything that gets your heart pumping counts.  
3. Watch Your Weight. It has been proven that maintaining a healthy body weight reduces the risk of high blood pressure.  
4. Quit Smoking. Not only can smoking raise your blood pressure, but it's also a risk factor for coronary artery disease and stroke.  
  
## Indication 2: Atrial Fibrillation (AF)  
  
### Summary Of Disease Condition  
Atrial fibrillation (AF) is an abnormal heart rhythm (arrhythmia) characterised by rapid and irregular beating.  
  
### Additional Information On Disease  
It is the most common heart rhythm problem and can occur in patients of any age though it is more commonly seen in older patients. AF is not immediately life-threatening but may result in heart failure. AF also predisposes a patient to blood clot formation. In an event of clot embolisation from the heart to the brain, a stroke occurs.  
  
### Disease Aetiology  
This is caused by unusual electrical activity in the upper chambers (atria) of the heart which causes the lower chambers (ventricles) to beat quickly and irregularly.  
Risk factors include: existing heart conditions such as coronary artery disease and past heart attacks, high blood pressure, hyperthyroidism, obesity, excessive alcohol or caffeine, and smoking. People with family history of AF are more likely to suffer from the condition.  
  
### Non Pharmacological Counselling  
Here are some lifestyle tips if you have AF:  
1. Manage high blood pressure (hypertension): Taking medication and making lifestyle changes to manage hypertension reduces the risk of AF.  
2. Exercise regularly: Moderate-intensity exercise lowers blood pressure and reduces the risk of coronary artery disease that could lead to development AF.  
3. Eat a heart healthy diet: Eat more whole grains, vegetables and fruits and cut down on salt and solid fats. This reduces one's risk of medical conditions such as coronary artery disease which are associated with higher risks of experiencing AF.  
4. Maintain a healthy weight: One should aim to maintain a healthy Body Mass Index (BMI) under 27 kg/m2. This will help to reduce the effects or complications associated with AF.  
5. Smoking cessation: Quitting smoking reduces the risks of AF.  
6. Managing stress: This reduces one's risk of experiencing an abnormal heart rhythm like AF.   
7. Reducing alcohol or caffeine consumption: Drinking too much caffeine or alcohol, especially binge drinking, can trigger incidences of AF.  
  
## Indication 3: Ischemic Heart Disease (IHD)  
  
### Summary Of Disease Condition  
Ischaemic heart disease, also known as coronary artery disease (CAD), occurs when the arteries that supply blood to the heart muscle (the coronary arteries) become hardened and narrowed as a result of the build-up of fatty deposits called plaque on their inner walls (atherosclerosis). As a result, it gets harder for the arteries to supply blood to the heart. Eventually, blood flow to the heart muscle is reduced and can cause chest pain (angina). A sudden, complete blockage can lead to a heart attack.  
  
### Additional Information On Disease  
Many people with this disease are not aware they have it, as it develops slowly and silently over decades. It can go virtually unnoticed until it produces a heart attack. Symptoms of IHD may include:  
Chest pain (angina)  
Shortness of breath  
Heaviness in the chest  
Pain in the jaw or down the arms  
Heartburn  
Nausea  
Vomiting  
Heavy sweating  
  
### Disease Aetiology  
The narrowing of coronary arteries is typically caused by atherosclerosis. Other contributory factors include spasms in the coronary vessels, diabetes, high blood cholesterol, high blood pressure, adverse physical reactions to mental stress, and heavy smoking.  
  
### Non Pharmacological Counselling  
You can prevent or slow down coronary artery disease by improving the health of your heart and blood vessels. Here are some heart healthy activities:  
1. Exercise at least 150 minutes a week, with moderate intensity exercise. Make moderate exercise a part of your daily routine. Regular physical activity is a great way to burn fat. It also releases natural chemicals such as endorphins and vasodilators that help to maintain healthy blood vessels.  
2. Get six to eight hours of sleep daily.  
3. Adopt a heart-healthy diet rich in wholegrains and fibre. Take two servings of fruits and three servings of vegetables daily.  
4. Achieve and maintain a healthy BMI (Body Mass Index). The healthy range for Asians is from 18.5 to 22.9 kg/m2.  
Obesity or excess body fat, particularly around the waist, can also be a cause of increased blood pressure and high blood cholesterol. A 2.5 to 5 kg weight loss can significantly reduce your risk of heart disease.  
5. Stop or not start on smokingIf you smoke, create a plan to stop. Smoking decreases the amount of oxygen delivered to the heart, and increases the risk of developing deadly blood clots. There are support groups you can contact to help encourage you, as well as medications to make stopping easier.   
  
## Indication 4: Heart Failure (HF)  
  
### Summary Of Disease Condition  
The heart is a very important organ that pumps blood to all parts of the body. In the more common cases of heart failure, the heart is weak is unable to pump enough blood to meet the body's demands. Due to the abnormal function of the heart, patients with heart failure experience may experience other symptoms too, for example, difficulty breathing, fatigue, water retention, and high blood pressure. When left untreated, heart failure will worsen over time.  
  
### Additional Information On Disease  
There are two main ways by which heart function can become abnormal:  
More commonly, the heart which is weak is unable to pump enough blood to meet the body's demands. Any disease condition or injury to the heart muscles, heart valves or electrical conduction system of the heart can damage and weaken the heart causing heart failure.  
Another way is a stiff heart that is unable to fill properly with blood even though it may still be able to "pump" well. This situation leads to increased pressures within the heart chambers and eventually in the blood vessels of the lungs, causing heart failure.  
Both conditions eventually cause a decrease in cardiac output and inadequate blood supply to the rest of the body. When this occurs, the body will compensate for the lack of blood supply through a number of ways.  
For instance, certain hormones and the nervous system (also known as the neurohormonal systems) become active, making the injured heart contract harder and faster. These systems also cause the kidneys to retain salt and fluid in order to increase blood volume, and also make the blood vessels in the body and limbs become narrower to increase blood pressure. While these processes may initially improve the heart function and cardiac output, in the long run, they damage the body and the heart, particularly if the heart remains injured. Altogether, these processes produce the syndrome of heart failure.  
  
### Disease Aetiology  
One or a combination of these various conditions can cause the heart to function inefficiently:  
- Heart muscle damage due to heart attack or when the heart arteries become severely narrowed  
- Poorly controlled long-term high blood pressure  
- Faulty heart valves  
- Cardiomyopathy (disease of the heart muscle due to genetic causes, or damage to the heart muscle by external causes like a virus or alcohol)  
- Congenital heart disease (heart defects present since birth)  
- Infection of the heart and/or heart valves  
- Arrhythmia (heart rhythm disorder)  
- Certain toxins (alcohol, cocaine, certain chemotherapy drugs)  
- Other medical conditions (e.g. thyroid disease, autoimmune conditions, tumours affecting the heart, etc)  
  
### Non Pharmacological Counselling  
Here are some lifestyle tips if you have heart failure:  
1. Eat less salt, cholesterol-rich food and saturated fat. Avoid egg yolks, organ meats, seafood (e.g. squid) as they contain high amounts of dietary cholesterol. Choose the healthier types of fat (unsaturated fats such as olive oil, corn oil and sunflower oil instead of saturated such as coconut oil).   
2. Eat more fibre as a high fibre diet (particularly soluble fibre) will improve your blood cholesterol level. Good sources of fibre are vegetables, fruits and whole grain  
3. You may need to limit your fluid intake if instructed by your doctor.  
4. Quit smoking if possible and limit alcohol beverages if possible.  
5. Many people can continue to carry out their daily activities and lead a relatively normal lifestyle, despite having a heart condition. If you had a recent heart failure event, it is important that you return to your previous home, leisure and work activities gradually to help your heart to heal. Some energy conservation techniques you can try are:  
Approach your day calmly.  
Allow enough time for each task so that you do not have to rush.  
Plan realistically and prioritise the things you need to do for the day.  
Take short breaks and rest between tasks, even when not feeling tired  
   
6. Remain active as much as possible and continue to do the activities you enjoy. Heart failure can cause symptoms of breathlessness on exertion and muscle tiredness, thus do consult your doctor or therapist for the kind of exercise(s) that you can do safely and avoid overexertion. You may also find out more about cardiac rehabilitation, supervised exercise training and educational programmes.  
7. Monitor your weight daily as rapid weight gain may be a sign that you are retaining fluid or that your heart failure condition is getting worse. Try to weigh yourself in the morning (at the same time each day), after emptying your bladder and before breakfast. Wear the same amount of clothes each time you weigh yourself and record it daily in your diary or chart. Use the same weighing scale. Watch for sudden weight gain and contact your doctor if you suddenly gain more than 1 kg of weight a day for three days.  
  
###CHUNK\_DELIMITER###  
  
# Administration Instructions  
- You may take this medication before food or after food.   
- Dosage form: tablet  
- Can it be crushed: Yes  
None  
  
# Medication Storage  
Store your medication in a cool, dry place away from heat, moisture and direct sunlight, such as in a cupboard  
  
###CHUNK\_DELIMITER###  
  
# Pregnancy & Breastfeeding Considerations  
- Pregnancy: Please inform your healthcare professional if you are pregnant, planning to become pregnant or breastfeeding  
- Breastfeeding: Please inform your healthcare professional if you are pregnant, planning to become pregnant or breastfeeding  
  
###CHUNK\_DELIMITER###  
  
# Side Effects of Bisoprolol  
  
## Side Effect 1: Low Blood Pressure (Hypotension)  
  
### Likelihood of side effect  
Common  
  
### Side effect symptoms  
Giddiness or light-headedness, especially when you get up from a lying or sitting position  
  
### Management of side effects  
This is more likely to happen in the morning or when you first get out of bed. Getting up slowly may help.  
  
## Side Effect 2: Slowed Heart Rate (Bradycardia)  
  
### Side effect class specificity  
Beta Blocker  
  
### Likelihood of side effect  
Common  
  
### Cause of side effect  
Slowed heart rate can cause the brain and other organs to become oxygen-deprived  
  
### Side effect symptoms  
Coldness, numbness, tingling sensation of your fingers or toes, fatigue, feeling faint, shortness of breath  
  
### Management of side effects  
Inform your doctor to discuss about possible alternatives  
  
## Side Effect 3: Allergy Reaction  
  
### Likelihood of side effect  
Rare but severe  
  
### Side effect symptoms  
Swelling of eyes and/or lips; rashes throughout the body; difficulty breathing; faintness  
  
### Management of side effects  
Seek immediate medical attention or visit the emergency department if symptoms are severe  
  
###CHUNK\_DELIMITER###  
  
# Drug Interactions of Bisoprolol  
  
## Interaction 1: Charcoal, Kaolin and Smecta  
  
### Impact of interaction  
These anti-diarrhoeal medication may reduce the absorption of other medication  
  
### Management of interaction  
Take these medication at least 2 hours apart from other medications/.  
  
## Interaction 2: Traditional Medicines  
  
### Impact of interaction  
Traditional medicines, such as traditional chinese medication, may lead to certain, unexpected interactions that could be harmful.   
  
### Management of interaction  
In general, it is always check with your doctor or pharmacist if it is ok to take particular traditional medicine.