

Terbutaline (Brethine)

Terbutaline is a beta 2 adrenergic receptor agonist that is administered for short term control of asthma, as well as a tocolytic to suppress preterm labor.

Terbutaline can result in the development of many side effects if used in high doses. These side effects include tremors, tachycardia, hypotension, pulmonary edema, and hyperglycemia.



PLAY PICMONIC

Mechanism of Action

Beta-2 Agonists

Beta-fish (2) Tutu Dragonist

As a beta 2 agonist, terbutaline functions by increasing bronchodilation and reducing the resistance of the airway in asthmatics. In addition, beta 2 stimulation aids in relaxing the smooth muscle of the uterus and delaying the onset of labor.

Indications

Asthma

Asthma-inhaler

Terbutaline is indicated for the treatment of episodes of bronchospasm in asthmatic patients. Terbutaline decreases the resistance within the airway by producing bronchodilation.

Tocolytic

Taco-lights

As a beta 2 agonist, terbutaline delays preterm labor by relaxing the smooth muscle of the uterus and stopping contractions. Not advised to be used for prolonged tocolysis beyond 48 to 72 hours due to reports of severe adverse reactions in pregnant patients.

Side Effects

Hypotension

Hippo-BP

Changes in blood pressure can occur with the use of terbutaline. Blood pressure can both increase or decrease with the use of this medication. When higher doses of terbutaline are used and beta 1 receptors are stimulated, the heart rate may increase rapidly causing a simultaneous decrease in blood pressure. As fluid volumes shift compartments, changes in electrolytes can occur resulting in hypokalemia in some cases.

Tremor

Trimmer

One major side effect of terbutaline is the development of a tremor. This can occur with the overstimulation of beta 2 and possibly beta 1, if a higher dose is used. This can be uncomfortable for the patient and the doctor should be notified when this occurs.

Tachycardia

Tac-heart-card

In high doses, terbutaline can stimulate beta 1 receptors, which are responsible for stimulating the heart. This can result in overstimulation of the cardiac muscle, thus increasing heart rate and producing angina, palpitations, and cardiac ischemia. The patient may present with chest pain, nervousness, somnolence, and flushing. It is important to place the patient on a cardiac monitor to monitor any changes in the cardiac rhythm.

Pulmonary Edema

Lungs Edamame

Pulmonary edema has been noted as a side effect in pregnant women receiving intravenous terbutaline. Although this side effect is rare, if the pregnant woman has predisposing factors to pulmonary edema, they may experience this side effect. The stimulation of beta 1 could possibly increase the leaking of fluid from capillaries thus promoting the development of pulmonary edema. Not advised to be used for prolonged tocolysis beyond 48 to 72 hours.

Hyperglycemia

Hiker-glue-bottle

Hyperglycemia may occur in diabetic patients due to overactivation of beta 2 receptors. Diabetic patients should monitor their blood sugar more frequently and may require increased doses of insulin while on this medication. Important to note, that hypoglycemia may occur in neonates exposed via mothers administered this medication preterm or during labor.