

Twin-Twin Transfusion Syndrome



PLAY PICMONIC

Pathophysiology

Shared Placenta

Shared Placenta-present

The placenta is a fetal organ that facilitates the exchange of important nutrients between the fetal and maternal circulation. Gasses and waste can also be exchanged this way. The placenta is shared in monochorionic twins.

Monochorionic Twins

Monocle-oreo

The term monochorionic refers to identical twins sharing a single placenta. "Mono" refers to one, and "chorion" refers to the placenta. Monochorionic twins occur in about 70% of pregnancies with identical twins.

Unbalanced Arteriovenous Anastomoses

Unbalanced Arteries, Veins, and Anastomosed-anaconda

Twin-twin transfusion syndrome is characterized by an increase in arteriovenous anastomoses within the placenta. This increase leads to unidirectional blood flow. As a result, blood is shunted towards one twin and away from the other. This form of blood flow results in unbalanced arteriovenous anastomoses.

Signs and Symptoms

Donor

Donut

The twin who receives less blood is referred to as the donor. When severe, this twin develops a "stuck twin" appearance due to hypovolemia and oligohydramnios.

Hypovolemia

Hippo-volume-cup

A reduced volume of fluid in the body is referred to as hypovolemia. More specifically, there is a depletion of extracellular fluid, or fluid outside the cell. The donor twin experiences this depletion because they don't receive enough blood from the shared placenta. Lack of blood also impedes their growth and development.

Oligohydramnios

Old-dry-uterus

Hypovolemia sets in and results in renal hypoperfusion in the donor twin. This causes a decrease in urine output (oliguria) and oligohydramnios, a decrease in amniotic fluid.

Recipient

Receipt

In twin-twin transfusion syndrome, the twin receiving a higher net flow of blood from the shared placenta is referred to as the recipient.

Hypervolemia

[Hiker-volume-cup with Blood](#)

Hypervolemia develops in the recipient, the twin who receives more blood. The increase in fluid within the twin is known as hypervolemia.

Polyhydramnios

[Polly-fluid-in-womb](#)

Hypervolemia increases the amount of brain natriuretic peptide (BNP) that the recipient twin releases as a result of receiving more blood. The renin-angiotensin-aldosterone system (RAAS) is inhibited by this rise in BNP, which subsequently causes polyuria and an increase in amniotic fluid (polyhydramnios).