

## Mean Cell Volume & Thalassaemia

**The blood test for mean cell volume (MCV) is a simple and easy test which helps to find out who has a higher chance of carrying the thalassaemia genes. This test is included in the routine blood tests done for pregnant women.**

### What is Thalassaemia?

Thalassaemia is a common hereditary blood disorder which is caused by gene defect, and presents in two forms – thalassaemia major and thalassaemia minor.

About 8% of the population have the genes of thalassaemia. Most have only inherited one abnormal thalassaemia gene – these people have thalassaemia minor and are known as “thalassaemia carriers”. They usually do not have any symptoms and only a small proportion may be mildly anaemic. They do not require any special treatment.

### Thalassaemia major

A person who has inherited more than one of abnormal thalassaemia genes suffers from thalassaemia major, which is a severe form of anaemia. There are two main types – alpha-thalassaemia ( $\alpha$ -thalassaemia) and beta-thalassaemia ( $\beta$ -thalassaemia).

- (i)  $\alpha$ -thalassaemia major can lead to intrauterine or neonatal death.
- (ii)  $\beta$ -thalassaemia major sufferers, if without stem cells transplantation, generally have a shorter lifespan and require lifelong blood transfusion and special treatment.

### Causes of Low Mean Cell Volume

If a pregnant woman is found to have MCV equals to or below 80 fl, she may be normal, suffering from thalassaemia or iron-deficiency anaemia. Therefore, father of pregnancy should receive the same blood test.

If MCV of the father of pregnancy is normal, it is unlikely that he is a thalassaemia carrier, and their foetus is also unlikely having thalassaemia major.

If both the couple have low MCV, they will be referred to the “Antenatal Specialist Clinic” or “Antenatal Diagnostic Clinic” for further blood tests.

If they are proven to be a thalassaemia carrier-couple, their child will have a 25% chance of suffering from thalassaemia major.

The doctor will make a confirmed diagnosis to guide subsequent discussion with the couple and management of the pregnancy.

