

# hyperbilirubinaemia

Bilirubin is a waste product produced by the liver during the breakdown of old red blood cells. The technical term for abnormally high levels of bilirubin is hyperbilirubinaemia. If levels of bilirubin increase this can cause jaundice.

Bilirubin normally leaves the body in stools. If the liver cannot properly dispose of old red blood cells they build up in the body causing jaundice (the yellowing of the skin, the mucous membranes and the whites of the eyes).

Levels of bilirubin can become elevated and cause jaundice in people taking the protease inhibitors atazanavir (Reyataz) and indinavir (Crixivan). Hyperbilirubinaemia caused by atazanavir or indinavir does not damage the liver and is not dangerous, but it can be distressing.

A slight yellowing of the skin and the whites of the eyes is a recognised side-effect of atazanavir and indinavir. Make sure you mention this to your doctor at your next appointment.

However, if you turn yellow, and also feel sick, vomit, have diarrhoea, pain in the liver area or feel generally unwell you should see a doctor immediately. These are signs of hepatitis, which needs immediate monitoring and treatment.

## When does hyperbilirubinaemia develop in people taking protease inhibitors?

Bilirubin levels increase significantly in many people taking atazanavir during the first few weeks of treatment with the drug, however this does not always lead to the development of jaundice. Hyperbilirubinaemia is a side-effect of long-term use of indinavir.

## How many people taking atazanavir or indinavir will develop hyperbilirubinaemia?

It's thought as many as a third of people taking atazanavir will develop severe hyperbilirubinaemia and it's estimated that about 5 - 15% will develop jaundice.

It's estimated that, in the long-term about 10% of people taking indinavir will develop hyperbilirubinaemia.

## What are the risk factors?

There appear to be some genetic risk factors.

In addition, one study suggests that you might be at increased risk of developing jaundice if you take atazanavir with saquinavir.

Hyperbilirubinaemia only seems to develop in people taking indinavir after they have been taking the drug for at least several months.

## Monitoring

As part of your routine HIV care you should have regular blood tests to monitor your liver function. These can be used to check the level of bilirubin in your blood. If you notice your skin yellowing then bring it to your doctor's attention at your next appointment.

Jaundice can also be a symptom of hepatitis A, B, and C, or liver damage caused by medicines, alcohol, or recreational drugs. If jaundice is caused by liver disease or damage it is likely to be accompanied by other symptoms including pale stools and dark urine, vomiting, diarrhoea, fevers and tiredness.

## Should I be worried if I develop hyperbilirubinaemia?

Hyperbilirubinaemia caused by atazanavir or indinavir is not dangerous and does not damage the liver. However, it is wise to contact your doctor if you do develop jaundice so you can have tests to rule out other, potentially dangerous causes.

## How is hyperbilirubinaemia treated?

If you only have elevated levels of bilirubin in the blood without jaundice then one option is to do nothing. You will not become ill because of hyperbilirubinaemia and developing it does not mean that your anti-HIV drugs aren't working.

However, jaundice affects your appearance and can be distressing and because of this you may well want to do something about it.

Some studies have found that bilirubin levels decrease and jaundice goes away if the dose of atazanavir is reduced. However, there are concerns that this approach could lead to the development of resistance to atazanavir and some other protease inhibitors.

Because of these concerns, it's thought that the safest way to treat jaundice caused by hyperbilirubinaemia if you are taking either atazanavir or indinavir is to switch your treatment to another protease inhibitor or non-nucleoside (provided that you have treatment options available to you).

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