

The H Risk

The dangers associated with elevated homocysteine levels in the body were first introduced in the early 1980's. It did not receive much attention and other nutritional conditions e.g. fat and fibre intake received more publicity. International nutritional expert, Patrick Holford, published a book on the dangers of Homocysteine and thereafter gave various talks to highlight the condition. Since then it has received more attention from the general public and health community.

During normal protein metabolism, methionine (an amino acid obtained from the food that we eat) is converted into cysteine, another amino acid that is also used in the body.

Yet under certain conditions this normal process does not take place and homocysteine is formed from methionine. It is an unnatural amino acid in the sense that it does not occur in food.

It occurs naturally in the blood, but elevated levels are correlated with a raised risk of certain vascular diseases like coronary heart disease and stroke. **Homocysteine (HC) is probably a more important risk factor than cholesterol.**

The main clinical effects of raised HC levels are :

- It damages the lining of blood vessels, thereby creating a point where cholesterol and other fats can be deposited and blood clots may be formed.
- It increases the tendency to form blood clots.
- It promotes the oxidation of cholesterol. (changing the natural cholesterol in the body into its dangerous form)
- Higher risk of developing osteoporosis.
- Higher risk of a part of a blood clot breaking off (embolus) and then travelling to the heart or lungs with fatal consequences.
- Abnormalities in the eyes, skeletal system, brain and spinal cord.
- Defective formation of structural protein incl. Collagen which is found in the skin, walls of blood vessels and connective tissue.
- It is also an indication that certain processes in the body are functioning at sub-optimum levels e.g. repair of tissues, like nervous and muscle tissue; growth of new cells; removal of toxins like drugs and foreign substances.

The body has developed 2 mechanisms for controlling HC levels : one requires vitamin B6 and the other vitamin B12 and folic acid. It is therefore obvious that deficiencies in any of these vitamins can contribute to raised HC levels. Age, smoking, being a male and consuming a diet high in

animal protein can also contribute to high HC levels. Oestrogen lowers HC levels.

Raised HC levels have also been reported in :

- People with high blood pressure.
- Diabetics.
- Thyroid deficiencies.
- Chronic kidney failure
- Alzheimer's disease

Although HC may not be the only cause of these diseases, it contributes significantly to the conditions.

How to reduce HC levels :

Take good quality multivitamin and mineral supplements that provide vitamin B6, vitamin B12, folic acid, Zn and preferably also biotin.

References :

Health and happiness by A van der Merwe

New Nutrition by W Serfontein

1. Research
Obtain an article from the Internet on Homocysteine and highlight facts that have not been discussed in class.
2. Reflective competence
 - Where can you go to have your Homocysteine levels checked ? How much does it cost ? Is it covered by medical aids?
8. Go back

Go back to the overview on page 1 of this study unit and see where this study session fits into the bigger picture.