Proton Pump Inhibitors (PPIs)

These are some of the most widely prescribed drugs and include omeprazole (Losec), lansoprazole (Zoton), pantoprazole (Protium), esomeprazole (Nexium) and rabeprozole (Pariet). Eight million prescriptions are given out each year.

When drugs which blocked stomach first came into use in the 1970s (cimetidine, ranitidine) they revolutionised the treatment of peptic ulcers. Previously many of these patients would have needed operations. These older drugs have been largely replaced by proton pump inhibitors (PPIs) which are far stronger and block stomach acid by over 80%. They can rapidly reduce symptoms. They are given for stomach ulcers, oesophagitis and also to block the effects of anti-inflammatory drugs (such as ibuprofen, and naproxen) on the stomach. However these are powerful drugs and can produce serious problems.

Stomach Acid

There is a price to pay for blocking stomach acid. Basically we need stomach acid for our bodies to function properly. Firstly **stomach acid is essential for absorbing nutrients** including 12 essential minerals (including calcium and magnesium), 8 amino acids, vitamin B12 and folic acid. Magnesium is absorbed in the duodenum and stomach acid is essential for magnesium absorption. The FDA highlighted 50 cases of severe magnesium deficiency with these drugs, usually after taking them for one year but sometimes it occurred as early as three months after taking them. Sometimes this cannot be corrected by oral magnesium. Magnesium is necessary for bone and heart health.

Long term users of PPIs have **higher rates of osteoporosis and fractures** (44% greater risk of fractures in one study). Another study found a 35% greater risk of hip fractures of those using PPIs for over 2 years.

In addition reduced absorption of essential nutrients probably accelerates the aging process. A recent study from the British Medical Journal in 2017 reported a 25% increase in mortality in PPI users. Another study found an 82% increase in mortality in those in care homes taking these drugs.

A study of 74,000 people over 75 found a 44% increase in dementia on patients on PPIs.

Stomach acid production typically goes down with age. So the older you are the more vulnerable to nutrient deficiency and hence to acid-blocking drugs. Low stomach acid has been associated with a wide range of illnesses including arthritis, diabetes, eczema, asthma, gallstones, macular degeneration, ulcerative colitis, rosacea and osteoporosis.

These studies combined show multiple dangers from these drugs.

Infections

Secondly stomach acid protects us against infections. Long-term users of PPIs have higher rates of gut infections (including serious infection such as clostridia) and a **67% higher rate of community-acquired pneumonia**.

Rebound Acidity

A major problem with PPIs is rebound acidity. 50% of healthy volunteers given PPIs for one month developed rebound acidity on *stopping* these drugs. Many patients find there acidity comes back rapidly once they stop taking these drugs. The fact that symptoms return rapidly on stopping these drugs makes them difficult for patients to come off them. I would recommend a gradual reduction after first using the lowest possible dose of the drug (10mg for omeprazole, 15mg for lansoprazole) and then taking them alternate days with an aim to use the drugs on an "as and when" basis. Adding a drug like Gaviscon whilst PPIs are being reduced often makes the process easier.

These drugs have an important place but should normally only be used for a **maximum of 2 months** but because of rebound symptoms this is often difficult to achieve. I believe these drugs need to be used with considerable caution, for the reasons above, especially in patients with heart disease.

Beware: Heart Patients

Patients who have had a myocardial infarction are commonly put on a blood thinner such as aspirin or clopidogrel. These drugs are thought to reduce the risk of having a further heart attack by about 8%. However it is common practice to also give a PPI with these drugs (to protect against the risk of bleeding from the stomach).

However this is a bad idea because PPIs increase the risk of heart attacks.

There is now accumulating evidence that the danger from PPIs far outweigh the benefits of blood thinners. One meta-analysis in 2013 which pooled 23 studies found people at high risk of a heart attack were 28% more likely to get a further heart attack or major heart event if they were taking a PPI. In simple language, this combination of drugs is killing people.

Combining these drugs puts patients at greater not lesser risk of having a heart attack. To me this is crazy medicine.

But it gets worse. If a person should have a heart attack whilst on a PPI, one study found that the risk of dying is doubled. This is probably because PPIs block nitric oxide. Nitric oxide helps open up blood vessels and PPIs block this protective response.

Research papers below bear this out.

- *Patients given aspirin combined with PPIs had a 61% higher incidence of a cardiovascular event in one study.*
- *Patients given clopidogrel combined with a PPI had a 35% increased risk of heart attacks in another study.*