3.5.2 Genetic profiling to inform therapeutic decisions in primary care – a systematic review of relevant drugs

Lay summary

Genetics is the science of understanding how we inherit characteristics through our genes. It has a growing place in modern medicine, both in the diagnosis and treatment of disease. The genetic make-up of an individual can indicate if it is safe to give them certain drugs or these drugs will work in this individual. In this way it is possible to help doctors improve their prescribing. This area of genetics is called pharmacogenomics. This is beginning to happen in certain specialist areas, such as cancer care. However, many important long-term health conditions are managed in general practice rather than specialist settings, and the use of genetics is unfamiliar to most GPs.

The purpose of this review is to find out for which drugs there is scientific evidence that using genetics might help improve safe and effective prescribing. We will be looking at the five most commonly prescribed types of medicines in British general practice: 1) drugs for high blood pressure and heart failure; 2) drugs for high cholesterol; 3) painkillers; 4) medicines for depression; and 5) drugs used to reduce stomach acid (used to treat problems like stomach ulcers and indigestion). We will look for clinical trials which have compared using genetics against not using genetics, for helping doctors make decisions about how and what to prescribe. We will look to see if there is a difference in terms of the safety or effectiveness of the medicines being prescribed. This will be important for helping us to understand whether there are particular medicines commonly used by GPs, where genetics might help to improve drug safety and effectiveness.