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Summary of work:

Cannabis-like molecules (cannabinoids) are involved in a range of processes within the body and have a role in the perception of pain. However, cannabinoids also produce effects on the heart and blood pressure. Cannabinoid receptors are currently classified as CB1, CB2 and GRP55 and the pharmaceutical industry is interested in producing drugs which act at these receptors. The presence of these receptors in the human heart is controversial. The research that we carried out specifically looked at whether there was genetic message for these receptors and also for an enzyme responsible for the breakdown of the body's 'natural cannabis'.

Genetic code for cannabinoid receptors was measured using a technique known as polymerase chain reaction. We studied one of the chambers of the heart, the right atrium, in patients with varying degrees of heart failure. Tissue was obtained at the time of routine coronary artery bypass surgery.

The primary finding was that the genetic message for CB1, CB2, GPR55 and the breakdown enzyme were found in human right atrial tissue. This is the first time that GPR55 has been measured in the heart. There was more enzyme and CB1 than CB2 and GPR55, but no relationship between receptor or enzyme and degree of heart failure.

Publications/presentations arising from this work:

Anaesthetic Research Society meeting, Royal College of Anaesthetists, London 2009

Expression of cannabinoid receptor mRNA in human heart.

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