Key step in developing a drug that tricks the brain into being less hungry

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Lap-band surgery is maintaining support in Australia's health system with calls for the procedure to be made available to overweight teens and those who suffer diabetes.

A recent study found that the surgery does provide an effective long-term method of reducing weight for the obese but the procedure is not free of complications, with about half the patients in the study requiring follow-up surgery.

Monash researchers are studying how the restriction of the stomach size – through the banding procedure – triggers the brain to reduce the feeling of hunger.

According to Professor Brian Oldfield, from Monash University's School of Biomedical Sciences, the loss of appetite associated with the surgery cannot be completely attributed to a reduction in stomach size.

"There is a misconception that the band which is placed around the upper part of the stomach in the human patient acts solely to limit the amount of food allowed into the stomach, this is not true," Professor Oldfield said.

"The best evidence to date is that there is either a hormonal or neural signal activated by the tightening of the band which alerts the brain to reduce hunger. We are studying the nature of this signal or the changes in the brain that it mediates to reduce hunger."

Following gastric banding surgery, the researchers have found that stretch receptors in the stomach are sending signals back to the brain via the vagus nerve telling it that the stomach is full.

The scientists are now testing drugs such as capsiate (derived from red chillies) which eliminate part of the nervous connection between the stomach and brain to determine the contribution from nerves or hormones to the feeling of "fullness" that is associated with band inflation.

The aim is to find a drug target that will provide a better alternative to surgery, which is currently expensive and can only be carried out in a small proportion of patients.

Professor Oldfield says that understanding how gastric banding works holds the key to counteracting obesity.

"Put simply – if we know how the band works then we won't need the band anymore," Professor Oldfield said.

Provided by Monash University