Nota de prensa
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This study has been published in the International Journal of Obesity and has been highlighted for the medical community on MDLinx

A new treatment option for fighting obesity has been identified

- ***Specialists at the Hospital del Mar have shown that speeding up the gastric emptying of food with medication helps to reduce calorie intake due to the onset of the feeling of fullness***

A study in Barcelona led by Dr. Silvia Delgado of the Hospital del Mar Digestion Service and IMIM researcher at the Hospital del Mar Research Institute, shows that speeding up the arrival of nutrients into the intestine with a drug manages to reduce the amount of food consumed in one meal. These results have been published in the *International Journal of Obesity* and involve a change of paradigm with regard to the established knowledge on the mechanisms which control satiety and ingestion in humans.

It was observed that by using a known drug which is used for other purposes –an antibiotic to be specific– and which accelerates the passing of the gastric content into the intestine, it is possible to bring forward the moment when people feel full and stop eating. This discovery is very good news as it opens the door to developing safe and effective drugs for treating obesity. Most drugs developed until now have ended up being rejected because of serious side effects and those which have remained have very limited effectiveness.

Researchers from the Hospital de la Vall d'Hebron Institut de Recerca (VHIR), from the Department of Nuclear Medicine and from the Department of Pharmacy at the Hospital Universitari de la Vall d'Hebron, from the Laboratorio de Referencia de Catalunya, from the Universitat Autònoma de Barcelona and from the Department of Biochemistry and Genetics at the Hospital Clínic de Barcelona IDIBAPS have participated in this study.

A change of paradigm which could revolutionise obesity treatment

There are many factors involved in obesity and the solution lies with prevention: improving lifestyles, eating better and doing exercise. However, when it comes to tackling the problem once it has been established, i.e., in the case of a patient with a Body Mass Index of 45 and weighing 200kg, the usual measures are not entirely effective. Limiting calorie intake requires a lot of self-control and a pharmacological aid would be very welcome. For some time now attempts have been made at developing molecules or drugs for decreasing hunger or inducing the feeling of satiety in order to get the individual eating more moderately. The problem is that these molecules for reducing satiety have repercussions on the nervous system and are often accompanied by side effects. In addition, the system controlling hunger and satiety is very redundant, there are many pathways involved, some of which remain unknown, and when one of these is blocked, another pathway replaces it, leading to a failure of the treatment. "***We have changed the paradigm in our laboratory***, states Dr. Silvia Delgado, head of the study and coordinator of the IMIM-Hospital del Mar Neuro-Enteric Translational Science (NETS) group. ***We do not know which molecule is the most important for creating the feeling of fullness which makes people stop eating. What we propose is bringing forward the moment at which this happens in a physiological way, without complicated or risky operations."***

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Margarida Mas (626 523 034).

Dr. Delgado acknowledges that her proposal is ***"daring"***, as it ***"goes against the general tendency"***: ***"It was said, and is still said, that a full stomach, which is not emptied properly of its food gives you a feeling of "fullness", which is true. The problem is that this happens once we have stopped eating, usually about 30 minutes after finishing eating. The attempts at getting people to eat less by slowing down gastric emptying do not work because the stimulus arrives too late, when people have already overeaten. We suggest that if from the initial moment when food arrives in the stomach we make it leave again quickly and enter the small intestine, where there are cells which tell the brain that "you're full", the onset of this feeling will be quicker and will paralyse ingestion, thus reducing the amount of calories ingested. This is what we have demonstrated."***

The key points of the study: speeding up the arrival of nutrients into the small intestine can reduce the amount of calories ingested by obese people

Participants in the clinical trial included obese and overweight people as well as healthy people, ranging in ages from 18 to 65 years. The researchers asked them to ingest a liquid nutrient at a controlled rate until they were full. This nutrient was labelled with a radiotracer which makes it possible to know, using a gamma camera, if the nutrient is inside the stomach or if it has entered the small intestine. On day two, the patients were asked to repeat the test under the same conditions, except this time half the participants received a drug which made the stomach empty at a quicker rate (group 1) and the other half received a placebo or inactive drug (group 2). On this second day of the experiment, the subjects of group 1 who presented an acceleration of the emptying of nutrients out of the stomach and into the small intestine, reduced the amount of calories they ingested and also felt fuller once they had finished the meal, in comparison to the group which had received the placebo.

In search of drugs

Once the proposal that speeding up gastric emptying induces the feeling of satiety quicker and manages to reduce the amount of food (calories) taken in with meals was verified, it became clear that there is a need to find drugs which act in this way. ***"Even though we achieved this by using erythromycin, this option is not translatable to clinical practice"***, says Dr. Delgado. "***Firstly, because erythromycin is an antibiotic drug which entails problems in relation to natural defences and to taking antibiotics for prolonged periods of time. Furthermore, the effect erythromycin has on gastric emptying only happens if it is administered intravenously, but this is lost with repeated administration."*** She specifies that: "***We have to develop drugs which have this same effect and do not lose it when they are administered orally and repeatedly, and which are safe."***

Highlighted article

The outcomes of the study are so important that they have been highlighted in one of the most important indexes in the world for current medical news that the editors deem of greatest interest to doctors – MDLinx. In addition, the article has made the news in *Nature Reviews Gastroenterology & Hepatology Research Highlight* and in *Reuters Health Professional News Wire*.

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