Cirugía bariátrica y célula beta

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Múltiples estudios realizados en pacientes con obesidad que se sometieron a cirugía bariátrica (CB) -tanto con la técnica de *by pass* gástrico, derivación biliopancreática con *switch* duodenal o gastrectomía vertical (manga gástrica)- demostraron remisión de diabetes (DM). Las explicaciones para justificar dichas modificaciones beneficiosas incluyen el incremento de GLP-1 y GIP postintervención, el descenso de peso con disminución de tejido adiposo con modificaciones de citoquinas proinflamatorias, la reducción de ghrelina, el aumento de la insulinosensibilidad y el impacto de los ácidos biliares.

Teniendo en cuenta el rol protagónico de la célula beta para mantener la normoglucemia, se realizó un estudio randomizado exponiendo suero de pacientes con obesidad y DM que fueron sometidos a CB (gastrectomía vertical) en un cultivo de células beta comparándolo con suero de pacientes con tratamiento convencional.

En las células beta expuestas a suero de pacientes con CB se observó aumento en la viabilidad y proliferación celular, disminución de las especies reactivas del oxígeno y del p53, aumento de la expresión de proteínas relacionadas con autofagia, SIRT1 y p62/SQSTM1, reducción significativa de marcadores de estrés del retículo endotelial e incremento de la expresión de insulina. A los seis meses de la cirugía los pacientes lograron buen control de la DM, mientras no lo lograron aquellos bajo tratamiento convencional. Esto implica que factores circulantes en pacientes con mejor control metabólico pos-CB ejercen un efecto favorable en la función y sobrevida de la célula beta.

Palabras clave: diabetes; cirugía bariátrica.

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Bariatric surgery and beta cell

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Multiple studies carried out on patients with obesity who underwent bariatric surgery, either with gastric bypass, biliopancreatic diversion with duodenal switch or vertical gastrectomy (gastric sleeve) have proven diabetes remission. The reasons to justify said beneficial changes include postoperative GLP1 and GIP increase, weight decrease with reduction of adipose tissue with proinflammatory cytokines, ghrelin reduction, increased insulin sensitivity and bile acid impact.

Considering the main role of beta cells to maintain normoglycemia, a randomized study was carried out exposing serum samples from obesity and diabetes patients undergoing bariatric surgery (vertical gastrectomy) into beta cells culture and comparing it with sera of conventionally treated patients.

Cells exposed to sera from LSG-treated participants exhibited increased viability and proliferation, diminished levels of ROS and p53, enhanced protein expression of autophagy-related SIRT1 and p62/SQSTM1, significantly decreased transcript levels of ER stress markers, and augmented insulin expression. At 6-month follow-up, patients undergoing surgery achieved adequate glycemic control, whereas conventionally treated patients did not. This implies that circulating factors in patients with improved diabetes after bariatric surgery exerted favorable effects on beta cell function and survival.

Key words: diabetes; bariatric surgery.

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