

## Eficacia terapéutica en prediabetes: opciones de preservación de célula beta Mgr.

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La evolución del islote de Langerhans, y dentro de éste del *pool* celular  $\beta$  desde la normalidad hasta la diabetes mellitus tipo 2 (DM2), pasa por diferentes momentos dentro de los cuales pueden observarse la hiperplasia adaptativa inicial a la insulinorresistencia y su posterior claudicación con una reducción de la masa celular mayor al 50%, aumento de las células  $\alpha$ , fibrosis y aparición de depósitos amiloides<sup>1</sup>. Entre estos dos períodos, se detecta uno intermedio, correspondiente al que clínicamente se manifiesta como prediabetes (PDM2), en el que ya existen alteraciones en la dinámica de secreción normal de la insulina, con pérdida de su primer pico<sup>2</sup>.

Para prevenir la progresión desde la PDM2 a la DM2, se plantean diferentes estrategias terapéuticas:

- Monitorizar anualmente a estas personas ante el posible desarrollo de DM2 (E\*).
- Incorporarlas a programas de cambios en el estilo de vida (CEV) para lograr y mantener una pérdida del peso corporal de al menos el 7% (A).
- Incorporarlas a rutinas de actividad física de al menos 150 minutos semanales decaminata enérgica (A).
- Con planes de alimentación adecuados (B).
- Utilizando programas de asistencia a través de aplicaciones (B).

Dado su costo-efectividad (A), todos estos programas deberían ser costeados por el sistema de salud<sup>3</sup>.

Se encontró que, aún sin pérdida de peso, 150 minutos semanales de actividad física (700 kcal/semana) redujeron la incidencia de DM2 en un 44%; también que, si bien un 7% de la pérdida de peso corporal es suficiente para disminuir la incidencia de DM2, los resultados son mejores reduciendo un 10%. Se estimó necesaria una pérdida de peso de entre 0,5 y 1 Kg/semana, con una restricción calórica de entre 500 y 1000 calorías/día, no habiendo un patrón definido respecto de la composición de la dieta para lograr este objetivo<sup>4</sup>.

Dado que los CEV son difíciles de lograr o mantener, se puede considerar el uso de fármacos. Aquellos que demostraron efectividad en estudios aleatorizados prospectivos son: acarbosa, liraglutida, rosiglitazona, pioglitazona, glargina, orlistat, fentermina más topiramato y metformina.

La metformina es la recomendada por la *American Diabetes Association*<sup>3</sup> y ésta más acarbosa por la *American Association of Clinical Endocrinologist and American College of Endocrinology* agregando, de existir PDM2 con más de un criterio diagnóstico, TZD y/o a-GLP1. Debe tenerse en cuenta que, sumado a los CEV, con el objeto de disminuir el peso, se puede agregar medicación u otras terapias como la cirugía bariátrica<sup>5</sup>. \* *Nivel de evidencia*.

Palabras clave: diabetes mellitus tipo 2; prediabetes; estrategias terapéuticas.

## Bibliografía

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**Therapeutic efficacy in prediabetes: beta cell preservation options** Mgr. Víctor Commendatore.

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Islets of Langerhans' evolution, and within it,  $\beta$  cellular pool from normality to T2D undergoes several stages. Among them, it can be observed initial adaptative hyperplasia to insulin resistance and a later claudication with cellular mass reduction greater than 50%,  $\alpha$  cells increase, fibrosis and amyloid deposits appearance. Between these two stages, one additional stage, corresponding to the one clinically manifested as prediabetes, can be observed. During this stage, alterations in the dynamic of normal insulin secretions, with losses of its first peak, are already present.

In order to prevent progression from prediabetes to T2D, several therapeutic strategies are proposed:

- Annually monitoring people before T2D development (E\*),
- Integrating them to lifestyle behavior change programs to achieve and maintain a minimum weight loss of 7% (A),
- Incorporating them to a minimum of 150 minutes brisk walking physical activity routine per week,
- Establishing proper meal planning (B), • Using support programs through Apps (B).

Given the cost – effectiveness (A), all these programs should be covered by the health system.

It was found out that, even without weight loss, 150 minutes of physical activity per week (700 kcal/week) reduced T2D incidence by 44%; it was also discovered, that even though 7% weight loss is enough to reduce T2D incidence, there are better results by reducing it to a 10%. It was deemed necessary a weight loss of about 0,5 and 1 kg/week with caloric restriction between 500 and 1000 calories/day without being a defined pattern about diet composition to achieve this goal.

Given that lifestyle behavior changes are hard to achieve or maintain, additional pharmacotherapeutic options may be considered. The ones having proven their effectiveness on prospective randomized studies are the following: acarbose, liraglutide, rosiglitazone, pioglitazone, insulin glargine, orlistat, phentermine plus topiramate and metformin.

The use of metformin is recommended by the American Diabetes Association 3. Acarbose and metformin are recommended by the American Association of Clinical Endocrinologist and American College of Endocrinology along with TZD and/or GLP1 in case of diagnosed prediabetes with more than one criterion. Additional pharmacotherapeutic options or other therapies, such as bariatric surgery, can be added to lifestyle modifications to benefit patients attempting to achieve weight loss. *\*Level of evidence.*

Key words: diabetes mellitus type 2; prediabetes; therapeutic strategies.

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