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Continuous Glucose Monitoring (CGM) in Nursing Homes

Diabetes mellitus (DM) is one of the most prevalent chronic diseases in the elderly population, with an estimated prevalence of 25% in people older than 65 years of age and 30–40% of those living in nursing homes (1). Metabolic control is crucial in this type of population, as individuals with diabetes have a higher risk of hypoglycemia, polypharmacy, cognitive impairment, and cardiovascular complications (2).

In this setting, **continuous glucose monitoring** (CGM) is a key tool for improving glycemic control in this population group, providing real-time data and allowing for decision-making that reduces the risk of hypoglycemic and hyperglycemic episodes and improving the quality of life of people with diabetes (3). Several studies have shown that CGM allows a significant reduction in time spent in hypoglycemia, a decrease in glycemic variability, and an improvement in glycated hemoglobin (A1C), which translates into a lower rate of hospitalization and metabolic complications (4).

1. IMPORTANCE OF CONTINUOUS GLUCOSE MONITORING IN PEOPLE WITH DIABETES IN NURSING HOMES

Glycemic control presents difficulties due to changes derived from the aging process itself, such as decreased insulin sensitivity, altered glucagon secretion, and reduced renal function. In addition, the presence of neurodegenerative diseases, sarcopenia, and frailty hinders adherence to conventional treatment based on intermittent capillary measurements (5).

Older adults with diabetes in nursing homes face unique challenges in managing their disease. Limitations in mobility, dependence on caregivers for insulin administration, and the higher prevalence of cognitive impairment complicate adequate glucose control.

Hypoglycemia is one of the most dangerous complications in this population, as it is associated with an increased risk of falls, accelerated cognitive decline, cardiac arrhythmias, and sudden death (6). Forty percent of older adults with diabetes experience asymptomatic hypoglycemia, making its detection and prevention fundamental (7).

The use of **CGM allows for the early detection** of these episodes, facilitating corrective actions through alerts for hypoglycemic and hyperglycemic episodes, thus reducing adverse effects and improving the safety of the person with diabetes. In addition, CGM contributes to the **reduction of glycemic variability**, as this has been linked to a higher cardiovascular risk and microvascular complications (8).

2. BENEFITS OF CONTINUOUS GLUCOSE MONITORING IN OLDER ADULTS IN NURSING HOMES

2.1. Early detection and prevention of hypoglycemia

- The Wireless Innovation in Seniors with Diabetes Mellitus (WISDM) study demonstrated that CGM reduces time spent in hypoglycemia by 50% in older adults with type 1 and type 2 diabetes mellitus (9). Furthermore, having **real-time alerts** for hypoglycemic situations allows caregivers to intervene immediately and avoid adverse events.

2.2. Improvement of glycemic control

- CGM has proven effective in reducing glycemic variability and lowering A1C, allowing for better metabolic control without increasing the risk of hypoglycemia (10). A study in people with diabetes in nursing homes showed that the use of CGM reduced A1C values by an average of 0.4% without increasing hypoglycemic episodes (11).

2.3. Reduction of hospitalizations and adverse events

- The implementation of CGM in nursing homes has been shown to reduce hospitalizations for diabetes-related complications by 30% (12). Another study demonstrated a lower incidence of admissions for severe hypoglycemia in people with diabetes in nursing homes who use CGM compared to those who depend on conventional capillary monitoring (13).

2.4. Facilitation of self-care and empowerment of the older person with diabetes

- People with diabetes in nursing homes without cognitive impairment can benefit from access to their real-time glucose data, promoting their active participation in disease management, while the healthcare staff in charge also benefit, as CGM reduces the workload associated with frequent capillary measurements.



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THE IMPLEMENTATION OF CGM IN NURSING HOMES HAS BEEN SHOWN TO REDUCE HOSPITALIZATIONS FOR DIABETES-RELATED COMPLICATIONS BY 30%

» 3. CHALLENGES IN THE IMPLEMENTATION OF CGM IN NURSING HOMES

Despite its multiple benefits, the implementation of CGM in nursing homes presents significant challenges:

Evaluar a las personas candidatas en función de su perfil clínico	Debemos individualizar dependiendo de su nivel de autonomía y capacidad de comprensión, la presencia de hipoglucemias inadvertidas o alta variabilidad glucémica, el tratamiento farmacológico o la situación de fragilidad.
Capacitación de los profesionales sanitarios	La interpretación adecuada de los datos de MCG requiere capacitación continua de los profesionales sanitarios y cuidadores para evitar errores en la toma de decisiones.
Aceptación por parte de las personas con diabetes	Algunos ancianos pueden ser reacios al uso de tecnología por desconocimiento, desconfianza en los dispositivos o miedo a la falta de destreza en su uso, lo que requiere estrategias de educación y acompañamiento específicos.
Integrar los datos de la MCG en la planificación del tratamiento personalizado	Incorporar la revisión de los datos del MCG en la práctica clínica diaria de los profesionales sanitarios, utilizar alertas y tendencias para ajustar el tratamiento de manera proactiva y favorecer la comunicación con los distintos niveles asistenciales.
Registro de efectos adversos	Se deben considerar posibles efectos secundarios como irritación en la piel o dificultades en la calibración de algunos sensores en ciertas personas con diabetes en residencias.

4. DECALOGUE FOR THE OPTIMAL USE OF CGM IN ELDERLY PEOPLE IN NURSING HOMES CONCLUSION

Seleccionar a las personas con diabetes en residencias que más se benefician de la MCG.
Garantizar la capacitación del personal sanitario de las residencias en el uso y la interpretación de los datos.
Establecer protocolos de respuesta rápida ante alertas de hipoglucemia e hiperglucemia.
Asegurar el mantenimiento correcto e individualizado de los dispositivos.
Integrar y optimizar la MCG mediante el uso de los datos en los planes de tratamiento individualizados.
Fomentar la participación de los cuidadores y familiares en el manejo de la diabetes.
Evaluar periódicamente la efectividad del uso de la MCG en la residencia.
Implementar estrategias de accesibilidad y circuitos de comunicación efectiva entre los distintos niveles asistenciales en el uso de la MCG en residencias.
Promover la aceptación de la tecnología mediante educación y demostraciones prácticas.
Registrar y reportar efectos adversos relacionados con la MCG.



CONCLUSIONS

Continuous glucose monitoring represents a fundamental tool to improve the quality of life and diabetes control in older adults in nursing homes, allowing more precise glycemic control, a reduction in the risk of hypoglycemia and a lower rate of hospitalization. However, its implementation requires strategies to improve accessibility, staff training, and adaptation to the individual needs of people with diabetes in nursing homes. ▮

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