Endocrinología, Diabetes y Nutrición

CO-049 - AUTOMATIC INSULIN DELIVERY IS ASSOCIATED WITH REDUCED RETINOPATHY INCIDENCE COMPARED WITH MULTIPLE DAILY INSULIN INJECTIONS IN TYPE 1 DIABETES: A PROSPECTIVE COHORT STUDY

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Resumen

Introduction and objectives: The commercialization of Automatic Insulin Delivery (AID) systems in Spain began in 2018. This prospective cohort study aimed to compare the incidence and prevalence of diabetic retinopathy (DR) in adults with type 1 diabetes (T1D) using AID systems versus those on multiple daily insulin injections (MDI).

Methods: We conducted a prospective cohort study of 379 adults with T1D followed for a mean of 5,6 years (2018-2024). The presence of diabetes complications was assessed through a comprehensive review of the patients' medical history, physical examination (including foot examination), and relevant complementary tests. Microalbuminuria was evaluated using a first-morning spot urine sample. Additionally, the most recent ophthalmological examination was reviewed to confirm or rule out the presence of Among the participants, 113 initiated AID between 2018 to 2024, and 266 continued MDI therapy. Incidence was analysed using Cox regression and Generalized Estimating Equations (GEE).

Results: At baseline, AID users were younger (38 ± 13 vs. 42 ± 13 years, p = 0.002) and had lower HbA_{1c} levels (7.1 ± 0.9 vs. 7.4 ± 1.1%, p 0.001). The reduction in HbA_{1c} levels during follow-up was greater in the AID group (-0.20 vs. -0.01%, p = 0.023) compared with MDI group. The overall prevalence of at baseline was 13.98% (95% CI: 10.49-17.48%), with no significant difference between groups (15% in AID vs. 13.5% in MDI, p = 0.698). Over the follow-up period, the cumulative incidence of was 13.8% (45 new cases of DR). The incidence of was significantly lower in the AID group [6.3%, (95%CI: 1.41 to 11.09%)] compared to the MDI group [17.0%, (95%CI: 12.11 to 21.81%; p = 0.011)]. Cox regression analysis identified significant determinants for incidence, including age [OR = 1.043, (95%CI: 1.012-1.075, p = 0.005)] and HbA_{1c} levels [OR = 1.433, 95% (CI: 1.004-2.045, p = 0.048)]. Conversely, a greater reduction in HbA_{1c} during 5.6 years-follow-up was associated with a lower risk of [OR = 0.637, (95%CI: 0.429-0.947, p = 0.026)].

Conclusions: AID systems were associated with a significantly lower incidence of diabetic retinopathy compared with continued MDI therapy in adults with T1D over a mean follow-up of 5.6 years.