# CLINICAL INERTIA IN TYPE 2 DIABETES MELLITUS WITHOUT INSULIN TREATMENT

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## Introduction

Clinical inertia applied to type2 Diabetes Mellitus (T2DM) treatment, is defined as a lack of treatment's intensification of patients who aren't in HbA1c target. Clinical inertia leads to a postponement of new therapeutic introduction, with all complications associated with a poor metabolic control. In Portugal there are only studies that show good or poor metabolic control but don't mention clinician's attitude towards these values. Recently published international studies reveal partial clinical inertia in 52.5% of cases and full clinical inertia in 12.8%.

## Objective

To evaluate clinical inertia of T2DM's treatment in an Endocrinology department

## Methods

Cross-sectional, retrospective study of a random sample of patients with non-insulin treated T2DM, with minimum 12 months follow-up, during 2014-2015. It was established individualized HbA1c target based on patients' characteristics: life expectancy,hypoglycemia, cardiovascular disease or other comorbidities. Total clinical inertia was defined as no treatment's intensification at every visit and partial clinical inertia in at least one visit.

## Results

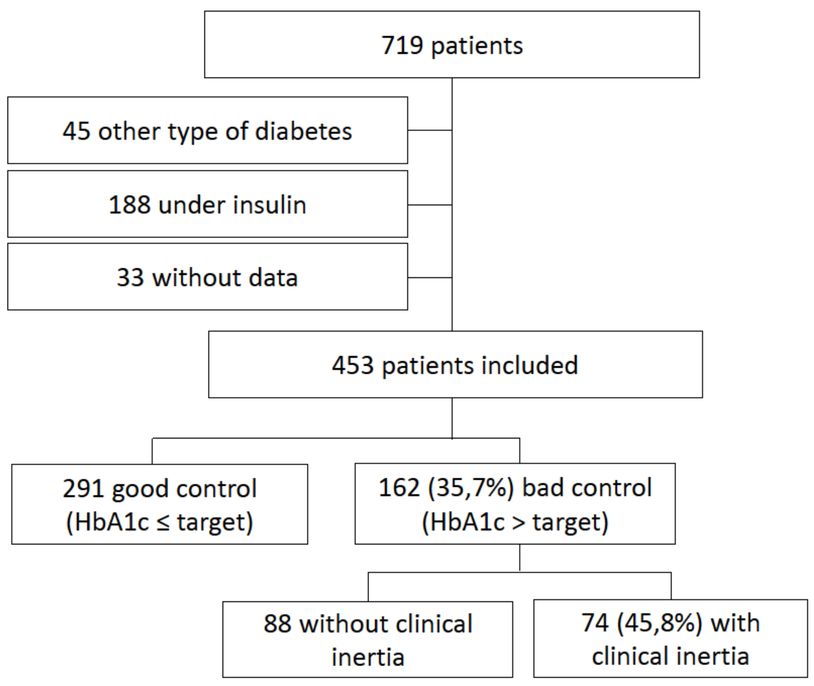


**Figure 1:** Patients with good and bad metabolic control and with or without clinical inertia

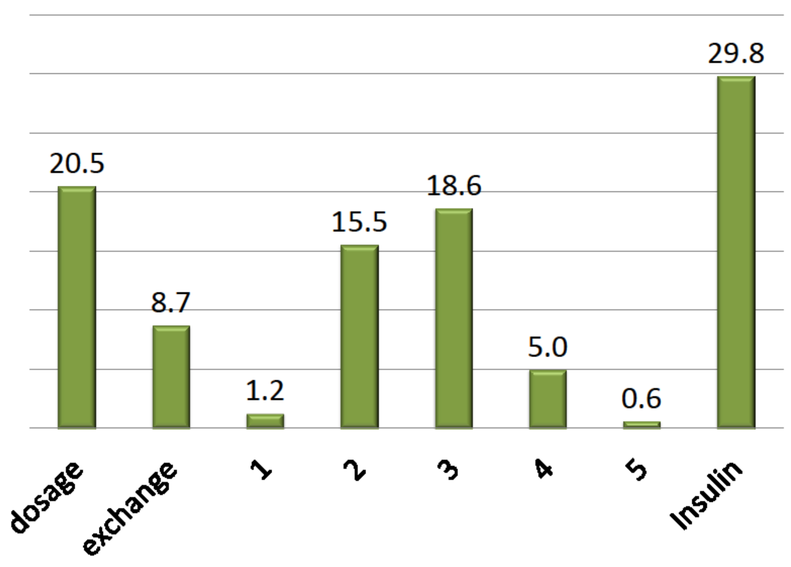


**Figure 2:** Types of treatment intensification

| | Total (n = 453) | Good control (n = 291) | Bad control (n = 162) | Without inertia (n = 88) | With inertia (n = 74) |
|---|---|---|---|---|---|
| Sex: Male. n (%) | 329 (72.6) | 214 (73.3) | 115 (70.6) | 60 (68.2) | 55 (74.3) |
| Age (Years) | 68.6 ± 10.1 | 69.8 ± 10.4 | 66.1 ± 10.5 | 65.1 ± 13.3 | 66.3 ± 9.8 |
| T2DM duration (years) | 12.1 ± 11.2 | 11.5 ± 11.5 | 13.2 ± 10.7 | 12.7 ± 11.6 | 13.7 ± 9.4 |
| HbA1c target (n (%)) | | | | | |
| ≤ 7% | 281 (61.6) | 170 (58.4) | 111 (68.5) | 59 (67.0) | 52 (70.3) |
| 7 – 7,5% | 146 (32.2) | 100 (34.2) | 46 (28.4) | 26 (29.5) | 20 (27) |
| 7,5 – 8% | 26 (5.7) | 21.0 (7.2) | 5 (3.1) | 3 (3.4) | 2 (2.7) |
| Treatment (n (%)) | | | | | |
| 0 | 17 (3.8) | 10 (3.4) | 7 (4.3) | 6 (6.8) | 0 |
| 1 | 149 (32.9) | 118 (40.5) | 36 (22.2) | 28 (31.8) | 5 (8.6) |
| 2 | 178 (39.3) | 109 (37.5) | 65 (40.1) | 32 (36.4) | 35 (47.3) |
| 3 | 97 (21.4) | 50 (17.2) | 45 (27.8) | 18 (20.5) | 28 (37.8) |
| 4 | 12 (2.6) | 2 (0.7) | 9 (5.6) | 4 (4.5) | 6 (8.1) |
| Follow-up (months) | 15.8 ± 6.1 | 15.7 ± 6.0 | 14.9 ± 6.6 | 14.8 ± 6.8 | 16.3 ± 6.3 |

**Table 1:** Patients characteristics

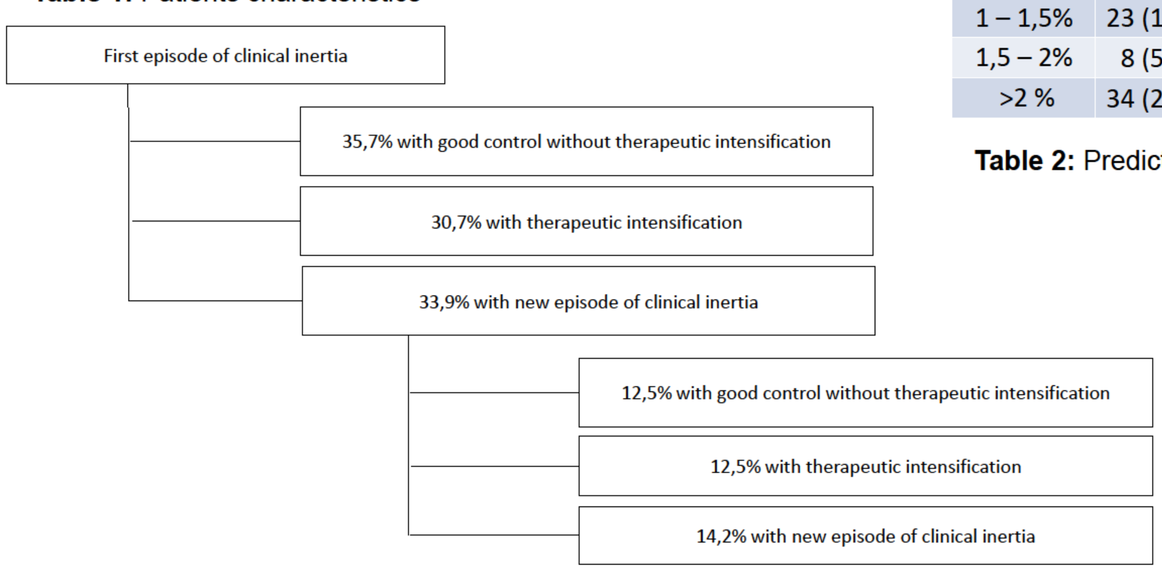


**Figure 3:** Follow up: second and third visit after a first episode of clinical inertia

| | Visits without inércia (n=161) | Visits with inércia (n=109) | p |
|---|---|---|---|
| Sex (M) | 117 (72,7%) | 79 (72.5%) | 0.322 |
| Age (years) | 65.5 ± 11.1 | 66.1 ± 10.3 | 0.585 |
| T2DM (years) | 12.5 ± 10.5 | 13.4 ± 8.9 | 0.350 |
| HbA1c Target (n (%)) | | | 0.200 |
| ≤ 7% | 110 (68,3%) | 70 (64.2%) | |
| 7 – 7,5% | 47 (29.2%) | 33.0 (30.3%) | |
| 7,5 – 8% | 4 (2,5%) | 3.0 (2,8%) | |
| Treatment | | | 0.024 |
| Without therapeutic | 6 (3.7%) | 1 (0.9%) | |
| 1 | 38 (23.6%) | 11 (10.1%) | |
| 2 | 60 (37.3%) | 50.0 (45.9%) | |
| 3 | 44 (27.3%) | 39.0 (35.8%) | |
| 4 | 13 (8.1%) | 8.0 (7.3%) | |
| Value above HbA1c | 1,17 ± 1,10 | 0.54 ± 0.53 | <0,001 |
| 0 - 0.5 % | 61 (37.9%) | 70 (64.2%) | |
| 0.5 – 1% | 35 (21.7%) | 26 (13.9%) | |
| 1 – 1,5% | 23 (14.3%) | 6 (5.5%) | |
| 1,5 – 2% | 8 (5.0%) | 4 (3.7%) | |
| >2 % | 34 (21.1%) | 3 (2.8%) | |

**Table 2:** Predictor factors for clinical inertia

## Discussion/Conclusion

In our study, during 2 years 45,8% of the patients suffered at least one episode of clinical inertia. This is lower than Lin described in 2016 (70,4%) or Gonzalez-Clemente in 2013 (52,5%). The predictor factors of clinical inertia that we found out were the complexity of treatment and when patients were closer to their target HbA1c. Mata-Cases in 2013 also described that values close to target contribute to clinical inertia and Lin 2016 found that complexity of treatment was a predictor factor. We didn't found any association with age, gender or duration of T2DM. Gonzalez-clemente found that female and a short period of T2DM were predictors of clinical inertia and Lin associated with older patients. After follow-up in our series only 8,4% were still under clinical inertia, while the others authors described it between 12-50%.

There is still time to improvement and knowing which factors contribute to clinical inertia is one way to fight it.

ECE 2016 556--EP

Diabetes therapy

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Poster presented at: ECE2016 28 – 31 May 2016 MUNICH, GERMANY 18th EUROPEAN CONGRESS OF ENDOCRINOLOGY

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