metabolism were excluded. Statistical analysis included a descriptive study of the variables to assess the association between the incidence of fractures and various risk factors, as well as univariate and multivariate Cox regression analysis.

Results: 128 patients with osteoporosis were studied, of which 19 (14.7%) suffered an osteoporotic fracture during the follow-up. Bivariate analysis showed in the group of patients with fractures a higher proportion of smoking patients ($p = 0.004$), osteoporosis treatment ($p = 0.005$) and a femoral neck T-score lower at the beginning of the drug holidays period -2.07 (0.68) vs -1.58 (0.63), $p = 0.008$.

In addition, there was a higher proportion of patients with fracture with moderate risk before the start of the drug holidays period ($p = 0.007$). The fracture survival curves were lower in patients older than 75 years ($p = 0.04$). When applying the same treatment, for each year increase, the risk of fracture was increased by 6% ($p = 0.04$), while, for the same age, this risk was increased 4.33 times in patients who were treated with Risedronate versus those with Alendronate ($p = 0.05$).

The multiple regression analysis showed that vertebral fracture was independently associated with Tabaco (HR 4.28 $p=0.047$).

Conclusion: Based on our results, it would be useful to follow closely those patients during drug holidays period who are smokers, older than 75 years, with osteoporosis treatment, who present a low femoral neck T-score and/or have been previously treated with Risedronate.

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AB0819 HANDGRIP STRENGTH PREDICTS HIGH FRACTURE RISK IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Background: Accumulating evidence has revealed that the risk of osteoporosis related fractures is significantly increased in type 2 diabetes mellitus (T2DM) patients in comparison with healthy controls. Dual X-ray Absorptiometry (DXA) derived bone mineral density (BMD) is not completely useful to discriminate at risk patients.

Objectives: To find a valuable clinical tool that is helpful to identify T2DM subjects with poor bone health, finally preventing fragility fractures.

Methods: In a setting of Caucasian subjects with T2DM, anthropometric data and information about metabolic control and diabetic complications were recorded. Handgrip strength by dynamometer, FRAX derived 10-years probability of major osteoporotic fractures and hip fractures were also assessed. Bone evaluation was performed by a dual-energy X-ray absorptiometry (DXA) densitometer at the lumbar spine (L1-L4) and at the femoral neck; based on specific software, the trabecular bone score (TBS) was calculated. Lateral scan of thoracic and lumbar spine was assessed to investigate morphometric vertebral fractures (Vfx).

Results: 29 patients (female 65%) [median age 67 (60 to 70)] with T2DM were considered. Morphometric vertebral fractures were detected by DXA in 17% of patients without any gender differences (males vs. females, $p=0.6$). The median ten years probability of fractures was 8.1% and 2.3% as for major osteoporotic or hip fracture respectively. Median femoral neck T-score value $[-1.1$ SD $(-1.8$ to $-0.5)$] was indicative of a slight osteopenia while lumbar spine T-score was even in the normal range $[-0.8$ SD $(-1.5$ to $-0.1)$]. The median TBS value was 1.28 (1.2 to 1.31) and TBS was positively associated with BMD at lumbar spine and femoral neck. Median handgrip strength value was 22.3 kg (18.9 to 31.3). At multiple regression analysis, handgrip strength predicted both lumbar ($\beta = 0.009$, SE 0.0034, $p=0.01$) and femoral neck BMD values ($\beta = 0.006$, SE 0.002, $p=0.01$). Age ($\beta = -0.008$, SE 0.002, $p=0.007$) and handgrip strength ($\beta = 0.01$, SE 0.002, $p=0.0001$) were also independently

associated with TBS score, after correcting for mean HbA1c values and time since T2DM diagnosis.

Conclusion: Handgrip strength may be a reliable tool to screen for bone fragility in T2DM.

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AB0820 COGNITIVE IMPULSIVITY CORRELATES WITH BONE MINERAL DENSITY

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Background: Cognitive impairment is known to be associated with low bone mineral density (BMD) and low levels of BMD have been associated with increased rates of progression from mild cognitive impairment to Alzheimer's disease and with the onset of episodic verbal learning deficit.

Objectives: The potential involvement of executive functions impairment on BMD is still unclear. The aim of this study was to investigate the correlations between cognitive impulsivity, BMD and fall risk.

Methods: Cognitive impulsivity was measured by Stroop Color and Word Test (SCWT) administration in a setting of 40 consecutively recruited postmenopausal women referring to a outpatients clinic for the evaluation of fracture risk. SCWT is a neuropsychological test able to assess the ability to inhibit cognitive interference: during the administration, women were required to quickly read three different tables of which two represented the "congruous condition" in which participants were invited to read names of colors printed in black ink and name different color patches. In the third table, named "incongruous condition", color-words were printed in inconsistent color ink (e.g. the word "red" is printed in green ink) and participants were required to name the color of the ink instead of reading the word. Women with Mini Mental State Examination (MMSE) score < 24 , known neurologic or psychiatric disorders, history of significant hearing or visual impairment, or significant physical disability, history of uncontrolled diabetes and abnormal thyroid function, cancer, heart, respiratory, kidney or liver failure were excluded. BMD was measured at lumbar spine and femoral site by a DXA densitometer (Hologic Discovery). History of falls in the previous 12 months was recorded

Results: Cognitive impulsivity, as highlighted by making errors at the SCWT, was significantly associated with lumbar spine and femoral neck T-score ($r = -0.39$, $p = 0.01$ and $r = -0.43$, $p = 0.008$; respectively). MMSE score was not associated with T-score values, neither at lumbar spine ($r = 0.09$, $p = 0.5$) nor at femoral neck ($r = 0.2$, $p = 0.21$); differently MMSE score was significantly associated both with Stroop test error ($r = -0.34$, $p = 0.02$) and time interferences ($r = -0.39$, $p = 0.01$). Furthermore, time interference was positively associated with the self-reported history of falls ($r = 0.342$; $p = 0.031$).

Conclusion: Cognitive impulsivity was significantly associated with BMD values and higher prevalence of falls in postmenopausal women. It could be considered as a possible clinical risk factor for osteoporotic fractures.

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