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Bone microarchitecture assessed by trabecular bone score in liver transplants with New-Onset Diabetes after transplantation

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Background

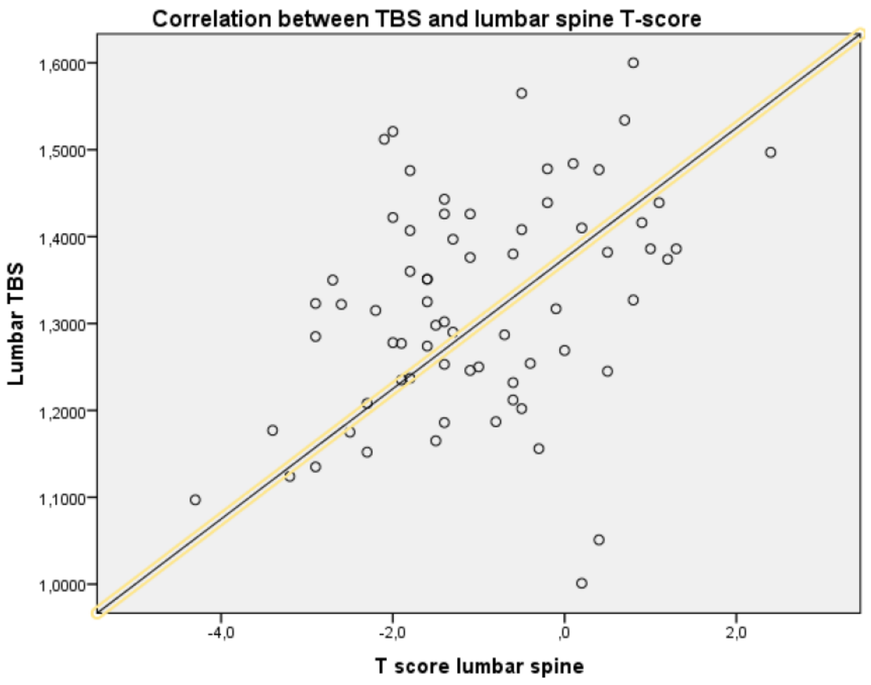
The increased risk for fractures in type 2 diabetes mellitus despite higher bone density is unexplained. Trabecular Bone Score (TBS) is a novel texture index related to bone microarchitecture and it is independent of bone mineral density (BMD). The aim of this study was to investigate the relationship between TBS, BMD and body composition in patients with New-Onset Diabetes after transplantation (NODAT).

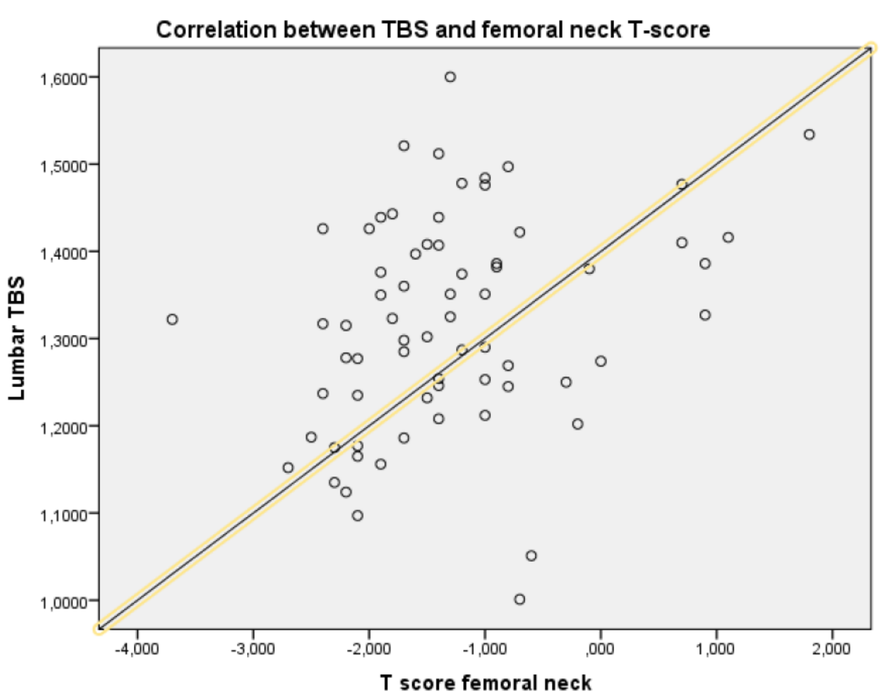
Methods

n a cross-sectional study, TBS was examined in 28 patients with NODAT (mean age 58.5±9.6), and 43 non diabetic liver transplant (LT) patients (mean age 55.4±11.5), classified according ADA criteria. Lumbar, femoral BMD and body composition were measured with DXA densitometer (QDR 4500, Hologic, USA). Body composition parameters included total body mineral content (BMC), total fat mass (FM), total fat free mass (FFM) and percentage of fat mass (%FM). Bone biomarkers included: Osteocalcin (OC, electrochemiluminiscence assay, Roche Diagnostics) and b-CrossLaps.

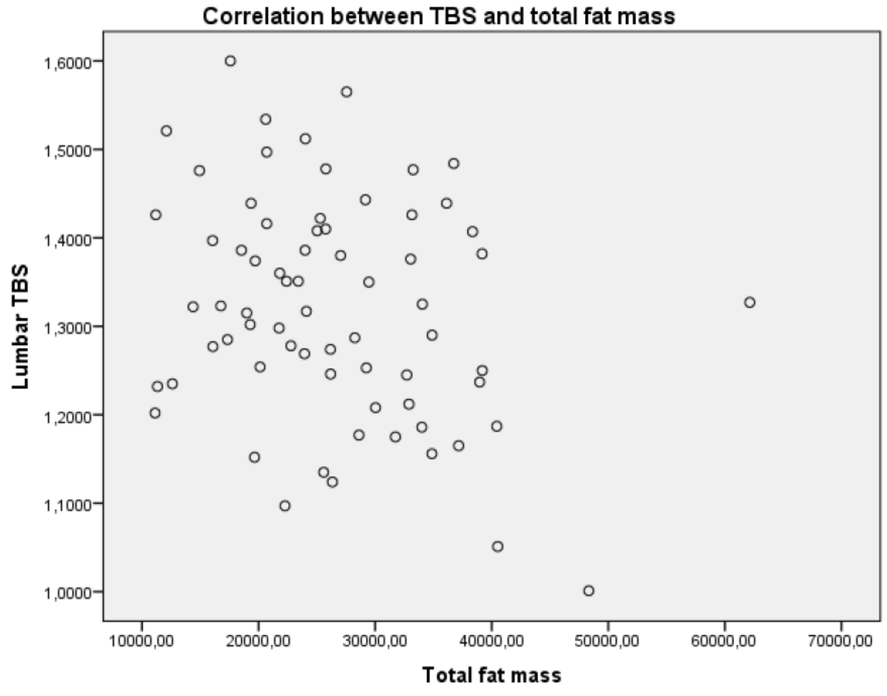
Results

TBS showed positive correlations with lumbar BMD (r=0.2637, p<0.05), femoral neck BMD (r=0.26, p=0.03) and total BMC (r=0.26, p<0.05). An inverse correlation was found between TBS and FM (r=-0.34, p<0.05) and %FM (r=-0.27, p<0.05). No correlations were found between TBS and OC and b-CrossLaps. No differences were found between non-diabetic and NODAT patients in terms of TBS and lumbar or femoral BMD.





	Non diabetic patients	NODAT
Number of patients	43	28
TBS	1.350 ±0.135	1.318 ±0.110
Lumbar BMD	0.955±0.141	0.974 ±0.160
FM	27954.54 ±10910.62	21976.56 ±7390.40
%FM	36.37 ±8.63	30.39 ±7.21
BMC	2374.47 ±514.24	2506.23 ±620.45
b-CrossLaps	0.489 ±0.250	0.401 ±0.213
Osteocalcin	26.96 ±13.29	29.49 ±21.10



Conclusion

In LT patients, TBS is related to fat mass parameters and lumbar and femoral neck BMD. We have not found deterioration of bone microarchitecture in patients with NODAT, assessed by TBS.

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