FRI0500

INCIDENCE OF CLINICAL FRACTURES IN ADULTS WITH KIDNEY TRANSPLANT

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Background: Chronic kidney disease is associated with an increased risk of fractures. However, the existing evidence investigating the incidence of fractures after kidney transplant is scarce.

Objectives: To evaluate the incidence of clinical fractures in patients with kidney transplant and analyze the possible factors that may influence its occurrence.

Methods: A retrospective observational study of patients who underwent kidney transplant between 2005 and 2015 in a tertiary hospital was conducted. A minimum follow-up period of 6 months after transplant was required. Sociodemographic and anthropometric data, clinical risk factors for bone fractures, drugs use (steroids, immunosuppressive drugs, vitamin D analogues, calcium and vitamin D supplements and calcimimetics), as well as biochemical and densitometric data to assess bone metabolism were retrieved from medical records. The occurrence of new clinical fractures after the transplant and throughout the follow-up period was recorded. The statistical analysis included univariable analysis using chi-square and Fisher's exact tests for the qualitative variables and T-Student and Mann-Whitney U for the quantitative variables. Subsequently, logistic regression multivariable analysis was carried out to investigate which factors were associated with fractures occurrence.

Results: A total of 163 patients were included, 63 (38%) females, with a mean age of 51 ± 14.6 years. The etiology of kidney disease was polycystic kidney disease (24.2%), glomerulonephritis (23.6%), diabetes mellitus (5.5%), vasculopathy (5.5%), connective tissue disorders (2.4%) and miscellany (38.7%). The daily average dose of steroids one year after transplant was 5.8 ± 4.4 mg. Bone densitometry was performed before transplant in 27 patients (19.6%), ten of whom (37%) presented osteopenia and 7 (26%) osteoporosis. The ten-year probability of bone fracture risk (FRAX) before transplant was 2.6 ± 2.6 . Mean follow-up after transplant was 8.7 ± 3.5 years. During this period, 23 (13.9%) patients suffered a clinical fracture, with an average time of appearance after transplant of 5.5 ± 3.3 years. These were located in hip (6 - 26.1%), vertebrae (2- 8.7%), extremities (9 - 39.1%) and hands and feet (6 - 26%). One year after transplant, 65.6% had vitamin D deficiency (<30 ng/dl serum calcidiol levels) and 12.2% had levels compatible with osteomalacic range (<10 ng/dl). The data of the descriptive study stratified by the fracture occurrence are shown in Table 1. Compared with the subgroup patients without (Fx -), patients with (Fx +) post-transplant fractures showed to be more frequently female (60.9% vs 34.5%, $p=0.01$), older (50.1 ± 14.6 vs 56.3 ± 14.1 $p=0.03$), had more pre-transplant major clinical FRAX (2.4 ± 1.9 vs 4 ± 4.7 , $p=0.03$), and higher levels of PTH (98.2 ± 75.7 vs 140.1 ± 86.9 $p=0.02$) and serum alkaline phosphatase [ALP] (90.2 ± 37 vs 117.8 ± 60.4 , $p=0.02$) after one year of transplant. Also, a trend to present a higher prevalence of pre-transplant clinical fractures was observed in the second group (5.6% vs 17.4%, $p=0.06$). No difference in the use of immunosuppressants were detected. The multivariable analysis showed a significant association between post-transplant fractures and female gender (OR of 3.8, $p=0.03$) and higher levels of ALP (OR of 1.01, $p=0.03$).

Conclusion: In patients with kidney transplant, an incidence of clinical fracture of 13.9% is observed after a mean follow-up of 8.7 year. The female population seems especially susceptible to present fractures. The persistence of a possible pre-transplant autonomous secondary hyperparathyroidism one year after kidney transplant seems to influence the risk of fracture.

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Table 1. Descriptive study and comparison between groups (Fx - and Fx +). The data are shown as N(%) and mean (±SD).

	Total	Fx -	Fx +	P
Total (n)	163	142	23	
Mean age (years)	51 ± 14.6	50.1 ± 14.6	56.3 ± 14.1	0.03
Gender (female)	63 (38%)	49 (34.5%)	14 (60.9%)	0.01
BMI	25.5 ± 4.1	25.5 ± 4	25.6 ± 4.7	0.8
Smoking habit	23 (13.9%)	20 (14.1%)	3 (13%)	0.8
Diabetes mellitus	19 (11.5%)	15 (10.6%)	4 (17.4%)	0.2
Presence of fracture before transplant	12 (7.3%)	8 (5.6%)	4 (17.4%)	0.06
Major clinical FRAX at transplant	2.6 ± 2.6	2.4 ± 1.9	4 ± 4.7	0.03
Major densitometric FRAX at transplant	5.6 ± 4.6	4.9 ± 3.7	7.6 ± 6.4	0.2
Average steroid dose 1y after transplantation (mg/d)	5.8 ± 4.4	5.9 ± 3.5	5.9 ± 2.6	0.8
Use of Calcitriol 1y after transplantation	53 (32.1%)	44 (31.3%)	9 (39.1%)	0.2
Use of Cinacalcet 1y after transplantation	19 (11.5%)	16 (11.3%)	3 (13%)	0.8
Use of Calcidiol 1y after transplantation	48 (29.1%)	42 (29.6%)	6 (26.1%)	0.4
Serum calcium 1y after transplantation	9.6 ± 2.1	9.7 ± 2.3	9.6 ± 0.4	0.1
Serum phosphate 1y after transplantation	3.2 ± 0.9	3.2 ± 0.9	3.1 ± 0.6	0.9
iPTH 1y after transplantation (pg/ml)	104.3 ± 78.5	98.2 ± 75.7	140.1 ± 86.9	0.02
Serum calcidiol 1y after transplantation (ng/ml)	26.5 ± 22.8	27.6 ± 23.9	20.4 ± 13.5	0.15
Stratified serum calcidiol (>30-20-10-10<10)	31 (34.4%) 19 (21.1%) 29 (32.2%) 11 (12.2%)	28 (36.4%) 17 (22.1%) 24 (31.2%) 8 (10.4%)	3 (23.1%) 2 (15.4%) 5 (38.5%) 3 (23.1%)	0.3
Serum alkaline phosphatase (U/L)	94 ± 42	90.2 ± 37	117.8 ± 60.4	0.02
T-Score Spine Pretransplant	-1.3 ± 1.4	-1.4 ± 1.3	-1.3 ± 1.7	1
BMD Spine Pretransplant (g/cm ²)	0.793 ± 0.084	0.932 ± 0.163	0.904 ± 0.181	0.6
T-Score Neck before transplantation	-1.9 ± 1.1	-1.8 ± 1.2	-2.3 ± 1.1	0.4
BMD Neck before transplantation (g/cm ²)	0.697 ± 0.116	0.709 ± 0.121	0.659 ± 0.098	0.3
Stratified DXA (normal/osteopenia/osteoporosis)	10 (37%) 10 (37%) 7 (25.9%)	7 (35%) 8 (40%) 5 (25%)	3 (42.9%) 2 (28.6%) 2 (28.6%)	0.5

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EVALUATION OF BONE QUALITY BY TRABECULAR BONE SCORE (TBS) IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS

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Background: Systemic lupus erythematosus (SLE) patients shown an increased risk of low bone mass as a result of multifactorial events: physical inactivity, persistent inflammation, low vitamin D levels (photosensitivity) and glucocorticoid treatment. Trabecular Bone Score (TBS), is an index extracted from the dual-energy X-ray absorptiometry (DXA) that provides an indirect measurement of bone axial microarchitecture and allows to get information about bone quality in several rheumatic diseases (1-4).

Objectives: The aims of this study were to examine the prevalence and risk factors for low bone mineral density (BMD) (osteoporosis or osteopenia) in female patients affected by SLE and to compare with matched healthy subjects (CNT).

Methods: 40 female patients (mean age 47 ± 14 years) affected by SLE and 40 age-matched CNT (mean age 49 ± 8 years) were enrolled. Bone Mineral Density (BMD, g/cm²) of the lumbar spine (L1-L4) was analyzed using a DXA scan (GE, Lunar Prodigy). Lumbar spine TBS was derived for each spine DXA examination using the TBS index (TBS iNsight Medimaps).

Results: The mean BMD $\pm$ SD was 0.85 ± 0.22 g/cm² at the lumbar spine and 0.64 ± 0.32 g/cm² at the hip in SLE patients. The prevalence of osteopenia was 39.0% and 16.4% of osteoporosis in SLE patients. Most of SLE patients (70%) presented a bone loss that was significantly lower when compared with control group ($p<0.001$). Likewise, lumbar spine TBS