Most patients were woman (83.5%) with a mean age of 70.7 (SD=11.2) years-old at the time of their wrist fracture. A previous FF was seen in 22.9% of patients and 13.3% had a new FF during the follow-up period.

We found an association between the occurrence of a new FF and the number of comorbidities ($p=0.012$), number of visits to the ED due to falls ($p<0.001$), previous diagnosis of chronic pulmonary disease ($p=0.029$) and hematologic pathologies ($p=0.047$), and the need for hospitalization at time of the wrist FF ($p=0.018$). No associations were found between the age at the wrist fracture time, number of drugs taken daily nor its type (anxiolytics, antiepileptics, corticoids), previous fractures (and localization), overweight/obesity and other cardiovascular risk factors, endocrinopathies, psychiatric or neurologic disease or other comorbidities. After adjustment for age, gender, anti-osteoporotic treatment and comorbidities, the main predictors of a new FF were visits to the ED for falls ($p=0.005$), chronic pulmonary disease ($p=0.040$), hematologic pathologies ($p=0.004$) and need for hospitalization ($p=0.040$) (table 1).

Table 1. Multivariate analyses: linear multiple regression for predictive factors of new fragility fracture.

Determinants	Unstandardized Coefficients B	Standardized Coefficients Beta	95.0% CI	p-value
Age	-0.025	0.975	0.924 – 1.030	NS
Gender	2.065	7.889	0.757 – 82.165	NS
Number of comorbidities	0.186	1.204	0.846 – 1.713	NS
Visits to the emergency service for falls	-2.136	0.118	0.026 – 0.529	0.005
Chronic pulmonary disease	-1.326	0.266	0.075 – 0.940	0.040
Hematologic pathologies	-4.296	0.014	0.001 – 0.255	0.004
Need for hospitalization	-2.764	0.063	0.004 – 0.887	0.040
Anti-osteoporotic treatment	0.157	1.170	0.227 – 6.017	NS

CI: Confidence Interval; NS: non-significant;

Conclusion: Certain comorbidities seem to be associated with new FF. Patients with visits to the emergency service after falls and those who needed hospitalization due to the wrist fracture were more prone to have a new FF. There might be a substantial missed opportunity for intervention in these patients.

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POS0163

INCIDENT FRACTURE RISK PREDICTION USING THE FRAGILITY SCORE CALCULATED BY LUMBAR SPINE RADIOFREQUENCY ECHOGRAPHIC MULTI SPECTROMETRY (REMS) SCANS

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Background: The main consequence of osteoporosis is the occurrence of fractures due to bone fragility, with important sequelae in terms of disability and mortality. It has been already demonstrated that the information about bone mass density (BMD) alone is not sufficient to predict the risk of fragility fractures, since several fractures occur in patients with normal BMD [1].

The Fragility Score is a parameter that allows to estimate skeletal fragility thanks to a trans-abdominal ultrasound scan performed with Radiofrequency Echographic Multi Spectrometry (REMS) technology. It is calculated by comparing the results of the spectral analysis of the patient's raw ultrasound signals with reference models representative of fragile and non-fragile bones [2]. It is a dimensionless parameter, which can vary from 0 to 100, in proportion to the degree of fragility, independently from BMD.

Objectives: This study aims to evaluate the effectiveness of Fragility Score, measured during a bone densitometry exam performed with REMS technology at lumbar spine, in identifying patients at risk of incident osteoporotic fractures at a follow-up period of 5 years.

Methods: Caucasian women with age between 30 and 90 were scanned with spinal REMS and DXA. The incidence of osteoporotic fractures was assessed during a follow-up period of 5 years. The ability of the Fragility Score to discriminate between patients with and without incident fragility fractures was

subsequently evaluated and compared with the discriminatory ability of the T-score calculated with DXA and with REMS.

Results: Overall, 533 women (median age: 60 years; interquartile range [IQR]: 54-66 years) completed the follow-up (median 42 months; IQR: 35-56 months), during which 73 patients had sustained an incident fracture.

Both median REMS and DXA measured T-score values were significantly lower in fractured patients than for non-fractured ones, conversely, REMS Fragility Score was significantly higher (Table 1).

Table 1. Analysis of T-score values calculated with REMS and DXA and Fragility Score calculated with REMS. Median values and interquartile ranges (IQR) are reported. The p-value is derived from the Mann-Whitney test.

	Patients without incident fragility fracture	Patients with incident fragility fracture	p-value
T-score DXA [median (IQR)]	-1.9 (-2.7 to -1.0)	-2.6 (-3.3 to -1.7)	0.0001
T-score REMS [median (IQR)]	-2.0 (-2.8 to -1.1)	-2.7 (-3.5 to -1.9)	<0.0001
Fragility Score [median (IQR)]	29.9 (25.7 to 36.2)	53.0 (34.2 to 62.5)	<0.0001

By evaluating the capability to discriminate patients with/without fragility fractures, the Fragility Score obtained a value of the ROC area under the curve (AUC) of 0.80, higher than the AUC of the REMS T-score (0.66) and of the T-score DXA (0.64), and the difference was statistically significant (Figure 1).

Figure 1. ROC curve comparison of Fragility Score, REMS and DXA T-score values in the classification of patients with incident fragility fractures.

Furthermore, the correlation between the Fragility Score and the T-score values was low, with Pearson correlation coefficient $r=-0.19$ between Fragility Score and DXA T-score and -0.18 between the Fragility Score and the REMS T-score.

Conclusion: The Fragility Score was found to be an effective tool for the prediction of fracture risk in a population of Caucasian women, with performances superior to those of the T-score values. Therefore, this tool presents a high potential as an effective diagnostic tool for the early identification and subsequent early treatment of bone fragility.

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POS0164

THE NEED FOR ANTI-OSTEOPOROTIC INTERVENTION IN POSTMENOPAUSAL WOMEN WITH RHEUMATOID ARTHRITIS BASED ON THE FRACTURE RISK ASSESSMENT

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Background: Rheumatoid arthritis (RA) is a chronic disabling disease that is associated with bone loss. Previous studies estimated that approximately