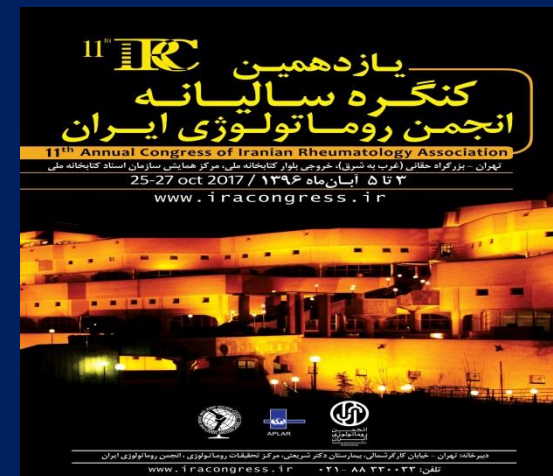


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Beneficial effect of serum ferritin on postmenopausal bone mass

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Background

Serum ferritin (SF) is a marker of iron stores as well as a measure of inflammation.

Several medical conditions including obesity ,diabetes and metabolic syndrome (MetS) which are prevalent in the elderly people are associated with high level of SF.

Osteoporosis is prevalent in postmenopausal women it is an important cause of bone fracture and morbidity.

Aging is associated with decreased bone mineral density (BMD) but increased level of SF.

The relationship between SF and BMD has been addressed in studies with conflicting results .

Purpose

The present case- control study was performed to determine the association between SF and BMD in postmenopausal women.

Methods

The population of this study were recruited among the participants of the Amirkola Health and Ageing Project (AHAP).

All female participants of the Amirkola cohort entered the study.

BMD in the FN and LS was determined by dual energy x-ray absorptiometry (DXA) method using Lexus's densitometer, and the results were expressed as BMD g/cm², BMD T-score and BMD Z-score.

T Score $\leq$ -2.5 SD was considered as osteoporosis.

Serum ferritin SF was measured by ELISA method .

Characteristics of the study population

Variables	No
No of patient	537
Age, year	69.7 $\pm$ 6.7
Menopausal duration	15.8 $\pm$ 5.1
Serum ferritin,ng/dl	102 $\pm$ 118
Serum ferritin $\geq$ 100 ng/dl,	318(59.2%)
Osteoporosis	308(57.4%)

covariates

demographic,
clinical and biochemical characteristics
parity
level of physical activity
education
sunlight exposure

smoking,
marital status,
muscle strength
BMI
coexistent medical conditions like,
obesity
Diabetes
MetS, history of fracture
hemoglobin
SF, serum iron,
total iron binding capacity
Calcium
Phosphate
vitamin D
TSH.

Statistical analysis

In statistical analysis the patients were classified according to SF levels a $SF \geq 100$ ng/dl
 $SF < 100$ ng/dl

.Frequency of osteoporosis was compared between the two groups

The association of SF with osteoporosis was determined by using chi square test with calculation of odds ratio(OR) and 95% confidence interval (95%CI).

Independent association between SF and osteoporosis was determined using Multiple analysis logistic regression.

After adjustment for all covariates, compared with normal levels of SF

in subjects with SF $\geq$ 100 ng/dl the risk of osteoporosis was significantly

lower at FN by OR= 0.61(95%CI, 0.29-0.97)

as well as at LS by OR=0.49(95% CI, 0.32-0.76).

Results

537 women with mean age of 67.9 ± 6.7 years, mean menopausal duration (MD) of 15.8 ± 5.1 years were studied.

Mean SF was 102 ± 118 ng/dl, and 318 (59.2%) patients had SF > 100 ng/dl.

Osteoporosis at either FN or LS was observed in 308(57.4%) patients.

Association between serum ferritin and osteoporosis

at lumbar spine Serum ferritin ≥ 100 ng/dl versus < 100 ng/dl
OR(95% confidence interval)= 0.61(0.38-0.97) $p = 0.038$

Femoral neck osteoporosis Serum ferritin ≥ 100 versus < 100 ng /dl
OR (95%confidence interval) = 0.49(0.29-0.72) $p=0.001$

Discussion

The findings of this study indicate that high SF in the postmenopausal women is associated with lower risk of osteoporosis at both femoral neck and lumbar spine.

These findings are consistent with:

Mousal et al., found a positive association between SF and BMD at both FN and LS .

These findings are inconsistent with:

Kim et al., found an inverse association of SF with BMD at all measurement sites only in women > 45 years .

Conclusion

These findings indicate a negative association between osteoporosis and $SF \geq 100$ ng/dl in postmenopausal women.

However, this context requires further investigations

Thank's for Your Attention

