



CAN THE TRABECULAR BONE SCORE (TBS) BE CONSIDERED AS A MAJOR CLINICAL RISK FACTOR (CRF) OF OSTEOPOROTIC FRACTURES? A META-LIKE ANALYSIS

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Introduction:

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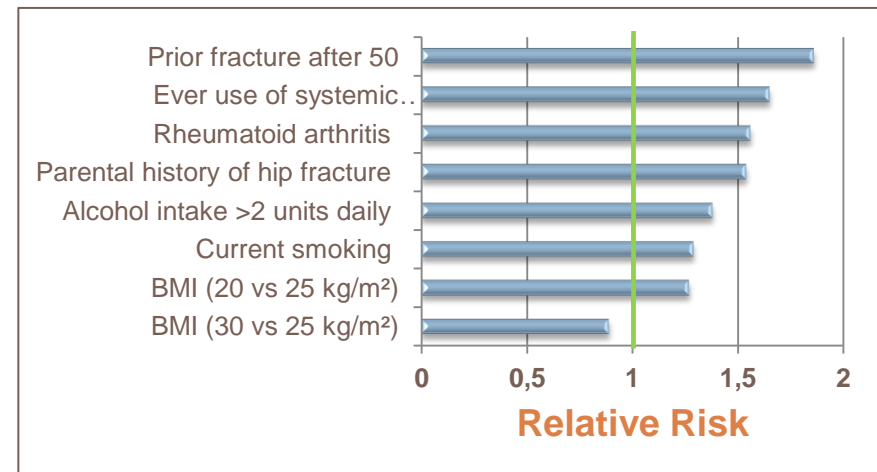
More and more guidelines from medical societies give to CRF an important role to weight on the individual risk and thus on the medical decision.

They can be stratified into one of the following categories:

General risk related (age, gender, prevalent OP fracture,...)

Basic diseases related (Cushing's syndrome, primary hyperparathyroidism, rheumatoid arthritis,...)

Drug related (oral glucocorticoids, aromatase inhibitors,...)



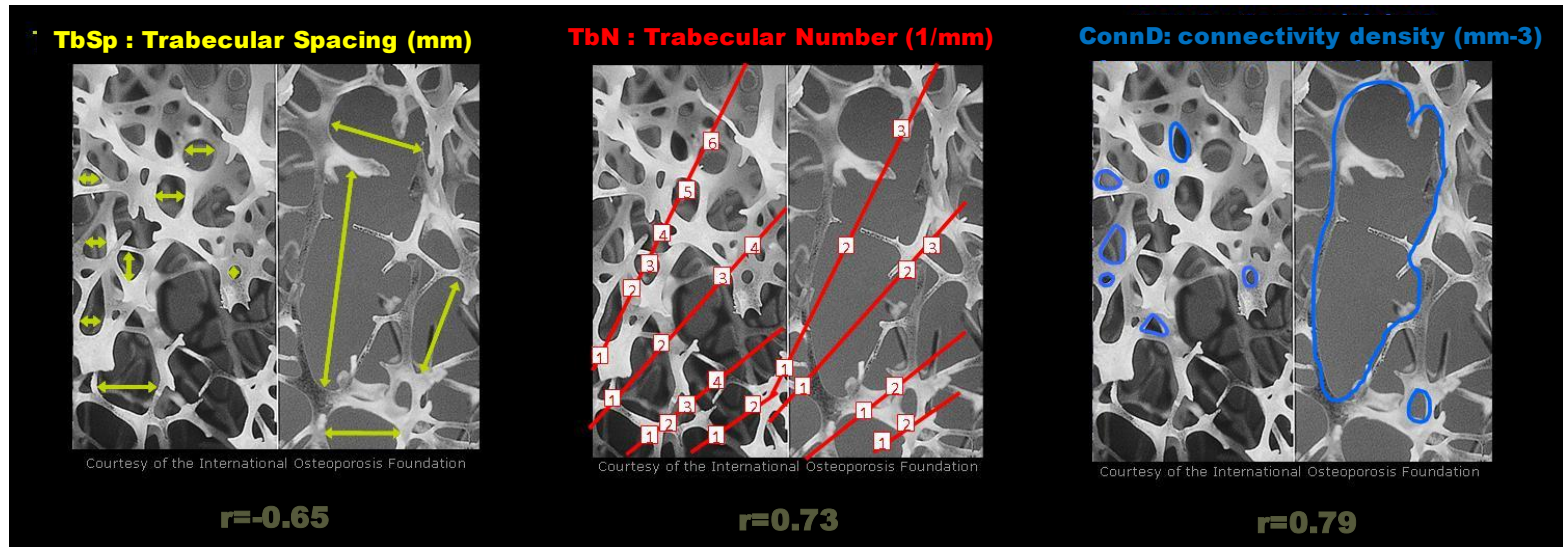
A CRF has to be: **Reversible** (with/without treatment), **Independent of BMD** if we want to see an added value and **Quantifiable** (e.g. the dose of glucocorticoid)

► Many of these corresponding CRF are indirect surrogate marker of bone quality

Introduction:

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TBS is a texture analysis parameter
correlated to the bone micro-architecture parameters: PARFITT



HIGH TBS means: TbSp \searrow TbN \nearrow connD \nearrow
 LOW TBS means: TbSp \nearrow TbN \searrow connD \searrow

Can TBS be considered as a major CRF of osteoporotic fracture ?

METHODS

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- ❑ **Meta-like analysis**
 - ❑ **Datasets stem from different studies**
 - ❑ **The Levels of evidence of these studies were different → datasets were weighted differently according to their design**
 - ❑ **3 prospective studies: Manitoba, OFELY and SEMOF**
 - ❑ **12 Cross-sectional studies (OsteoLaus, Osteo-Mobile,...)**
 - ❑ **TBS thresholds intervention obtained using a tertile approach**
 - ❑ **Weighted Relative Risk (RR) per SD + comparison with RR of major CRF included in FRAX®**

Results (1/2)

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Study description:

- ❑ >33000 women included aged 50 and older
- ❑ 2200 osteoporotic fractures

- ❑ Using a tertile approach TBS thresholds obtained:
 - ❑ Lowest tertile = 1.195
 - ❑ Highest tertile = 1.301

- ❑ TBS lowest tertile at 75 years as the BMD WHO cut-off point of -2.5 T-score

Overall TBS RR obtained (adjusted for age) was 1.81 [1.35–2.47]

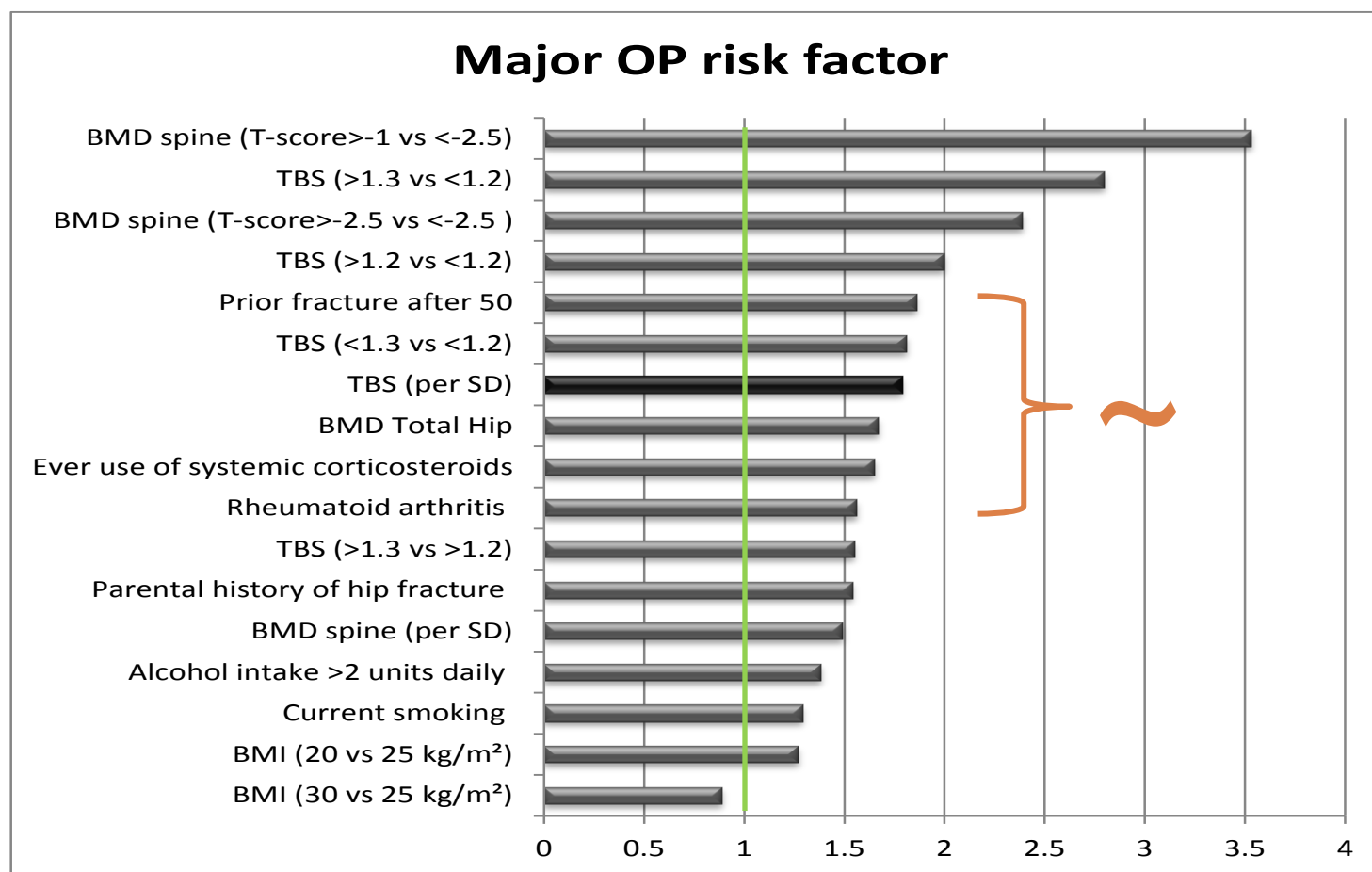
RR for the highest vs. the middle TBS tertile was 1.55 [1.46-1.68]

RR for the lowest vs. the highest TBS tertile was 2.8 [2.70-3.00]

Results (2/2)

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Relative Risk (prospective studies)



CONCLUSION

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TBS is also a proven major clinical risk factor which is:

- ❑ Reversible (with/without treatment)
- ❑ Independent of BMD
- ❑ Quantifiable
- ❑ Display a similar predictive value than the most important accepted CRF
- ❑ Known to be related to trabecular bone status

As such, TBS can be used as the other recognized Clinical risk factor and it may be easily useable in most of the current clinical recommendations

Further studies using sensitivity and specificity are needed to confirm these first findings.

Thank you for listening,

