

Osteoporosis Update 11/3/18

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Objectives:

1. Review Atypical fractures and risks with anti-resorptive medications
2. Review osteoporosis (OP) medication success versus failure outcomes
3. Brief mention and summary regarding OP drug holidays
4. Compare and contrast OP medications and brief review of dual or chaser therapies

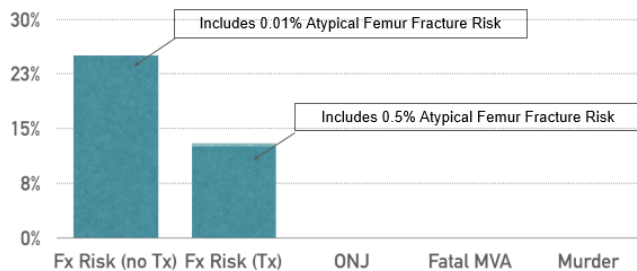
What is an atypical fracture?

- Preceding thigh and groin pain for weeks or months preceding fracture
- Low energy/atraumatic fracture
- Subtrochanteric (not femoral neck) location
- Reported with both bisphosphonate and denosumab use
 - Anti-resorptives may slow remodeling process needed to repair microcracks in the high-stress femur area

Risk of Atypical Fractures? Low (3-50/100,000) contrasting to high usual femoral fractures in untreated OP (>800/100,000)
-correlated with 1) bisphosphonate use 2) duration dependent risk 3) continued use of bisphosphonates

PUTTING RISK IN PERSPECTIVE: 10-YEAR PROBABILITIES

Example: 80 year-old woman with FN T-score = -3.3




-Fracture risk typical of patient with osteoporosis (25%), MVA (0.1%) and murder (0.06%) data from CDC at http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_10.pdf

-ONJ estimate (0.01%) for the ADA at JADA. 2006;137:1144-1150.

-AFF estimate untreated is ~0.01/10,000 and treated is ~5/10,000 patient-years from Schilcher J et al. *N Engl J Med* 2011;364:1728-1737.

“It is important to remember that these fractures are extremely rare in people taking drug treatments for osteoporosis and in the majority of people the benefits of taking the treatment will far outweigh this very rare risk.” ~National Osteoporosis Society (UK)

	Bisphosphonates	Denosumab	Teriparatide/abaloparatide
Bone Remodeling (and BTM)	Decreased	Decreased	Increased
BMD	Inc at spine and hip	Inc at spine and hip	Inc at spine and hip
Fracture Reduction	Dec risk at spine, hip and other regions	Dec risk at spine, hip and other regions	Dec risk at spine and other regions; NO proven effect at hip
Unique effects	Persistent effect on bone resorption after discontinuation	Effect of bone resorption is reversible	

What is a drug holiday?

- Particular to bisphosphonates (which accumulates in bone constantly and continue to work for months/years later)
- Time “off” from medication to give continuous benefit from medication and decrease risk of rare adverse effects
- Controversial
- Probably worth it in low risk patients, later in high risk patients
- Monitor DEXA and bone-turnover-markers in patients while on holiday

Effective Dual/Chaser OP therapy:

- Teriperatide with Raloxifene
- Teriperatide followed by alendronate
- Teriperitide and denosumab

Suggested *high yield* reading:

- a. Reid I. “Short-term and long-term effects of osteoporosis therapies”. Nat Rev Endocrinology. 11;2015:418-28.
- b. Bonnick SL. “Going on a Drug Holiday?” Journ Clin Densitometry 14;2011:377-83.