# Managing Multimorbidty Conditions

## 1 TIA/Duodenal ulcer/Osteoporosis (Peleg, Tu)

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For patients with history of TIA, secondary stroke prevention is indicated. The recommended medications include aspirin or aspirin+dipyridamole (Class I; Level of Evidence B), or Clopidogrel (Class IIa; Level of Evidence B)[[1]](#footnote-0).

A known side effect of aspirin and other NSAIDs is gastrointestinal bleeding. For long-term prevention of recurrent bleeding ulcers2, the recommendation for patients with low-dose aspirin-associated bleeding ulcers given for secondary prevention of CVD is that “aspirin should be resumed as soon as possible after bleeding ceases in most patients: ideally within 1 – 3 days and certainly within 7 days. Long-term daily PPI therapy [proton-pump inhibitor, e.g., omeprazole]\* should also be provided.[[2]](#footnote-1) {Note that PPI has a physiological effect of inhibition gastric acid secretion}.

Post-menopausal patients should be evaluated for osteoporosis.[[3]](#footnote-2) This is done using Fracture Risk Assessment Tool (FRAX) and bone mineral density assessment via axial dual-energy X-ray absorptiometry. When osteoporosis is established, the patient should be evaluated for causes of secondary osteoporosis3. Laboratory evaluation should include a complete blood count (CBC); comprehensive metabolic panel; Serum 25-hydroxyvitamin D, intact parathyroid hormone (PTH); phosphate; and a 24-hour urine collection for calcium, sodium, and creatinine. If the patient is receiving thyroid hormone or there is a suspicion for hyperthyroidism, thyroid-stimulating hormone should also be measured. If there is clinical or biochemical evidence of malabsorption, celiac antibodies should be obtained. Serum and urine protein electrophoresis could be obtained if there is a suspicion for multiple myeloma (e.g., non-PTH mediated hypercalcemia).

If the patient is taking a drug (e.g., PPI) known to be a contributing factor to osteoporosis, consider stopping that drug.

Patients with high risk for future fractures (>=20%) should be given medications to reduce the risk: alendronate, risedronate, zoledronic acid, or denosumab3.

**Patient case:** Mrs. Williams is a 76 year old female, height 172cm, weight 70kg, BMI: 23.7

Current problems: TIA, DU

**Current medications**: Aspirin, Nexium (PPI) The patient is on aspirin for secondary prevention of stroke (due to her TIA 13 years ago) and on PPI to protect the duodenum and prevent ulcer bleeding, because she had duodenal ulcer 4 years ago, due to aspirin.

**New problem**: Osteoporosis

**Management scenario**: The patient presented recently with back pain. Earlier lumbosacral X-ray showed no vertebral fracture and the physician decided to follow primary care recommendations to evaluate risk for osteoporosis fractures, and thus ordered a DXA bone mineral density scan. Osteoporosis was confirmed (DXA shows bone marrow density of -2.6. FRAX assessed and risk of second fracture is >20%). The recommended blood tests were ordered to rule out additional reasons for secondary osteoporosis.

Osteoporosis was diagnosed and all blood tests were normal (including electrolytes, vitamin D, thyroid function, protein electrophoresis, CBC, and metabolic panel). In addition, the patient does not have conditions that may be a secondary cause such as Diabetes or Celiac or a family history of them. A possible secondary cause of osteoporosis is Nexium (PPI).

**Adverse interactions and revisions:** Based on the three guidelines, there are 3 options:

Option 1: (all goals met).

* switching aspirin to clopidogrel (antiplatelet that is not an NSAID - for secondary prevention of stroke),
* stopping PPI (to decrease osteoporosis), PPI no longer needed to prevent DU because aspirin was stopped
* adding alendronate, risedronate, zoledronic acid, or denosumab to reduce the risk of fracture.

Option 2: (Secondary Osteoporosis prevention goal unmet. Only Osteoporosis treatment is met).

* keeping aspirin (antiplatelet for secondary prevention of stroke)
* adding PPI long-term (secondary prevention of DU),
* adding alendronate, risedronate, zoledronic acid, or denosumab to reduce the risk of fracture.

Option 3: (DU protection goal unmet)

* keeping aspirin (antiplatelet for secondary prevention of stroke),
* stopping PPI (to prevent worsening of osteoporosis),
* adding alendronate, risedronate, zoledronic acid, or denosumab to reduce the risk of fracture.

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1. Guidelines for the Prevention of Stroke in Patients with Stroke and Transient Ischemic Attack, 2014, Stroke, p. 2198 [↑](#footnote-ref-0)
2. Management of Patients with Ulcer Bleeding, 2012, American Journal of Gastroenterology, p. 3. [↑](#footnote-ref-1)
3. American Association of Clinical Endocrinologists and American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis. 2016, Endocrine Practice. pp. 3,6,14,15 [↑](#footnote-ref-2)