Non-traditional Evidence

In addition to pharmacologic options, patients should also be aware of other proven benefits. Limiting caffeine, alcohol, and sodium intake have been associated with decreased risk for low BMD. Weight bearing exercise for 30 minutes per day most of the week has been shown to strengthen bones, but should only be recommended to medically fit patients. Advocacy for calcium/vitamin D supplementation is also warranted for patients with low BMD, of advanced age, or on AI therapy. As directed in the latest National Osteoporosis Foundation guidelines, the appropriate daily recommended amount is 1200 mg/800 IU. This should be divided into two doses to maximize absorption.

Uniquely, the salt form of the calcium is of importance. Calcium carbonate displays acid dependent absorption, must be taken with food, and can interact with proton pump inhibitors and histamine receptor antagonists. Conversely, the marginally more expensive calcium citrate, most notably Citracal®, can be taken without regard to meals and lacks the likelihood of interacting with gastric secretion inhibitors. For these reasons, calcium citrate is the best option, especially in geriatric patients, making it also most advantageous in the majority of the breast cancer patient population.

Undoubtedly, proper bone health is essential. Adequate calcium/vitamin D intake serves as a foundation for all patients to achieve this goal. SERMs or the combination of an AI with appropriate BP combination are viable therapies. With this knowledge, the decision for therapy can be less dependent on BMD and more intrinsically related to other pertinent parameters. This information should be utilized to provide patients with the most beneficial therapy in attaining the best healthcare outcomes.

Bisphosphonates in Bone Health

INDICATIONS
Osteoporosis
Paget’s Disease
Malignant Hypertumors
Multiple Myeloma
Bone Metastases of Solid Tumors

MECHANISM OF ACTION
Adhere to sites of bone resorption to inhibit osteoclast activity which increases bone formation. In Paget’s disease, ensures newly formed bone has a more normal architecture.

ADVERSE EFFECTS
Incidence varies with each agent and generally is greater when used for non-osteoporotic indications. Also, proportionally related to potency (see Table 1). Adenocarcinoma associated with the fewest adverse effects.

Common adverse effects:
Gastrointestinal irritation, Headache, Myalgias/Arthralgias, and Fatigue.

Rare but serious adverse effects:
Flu-like syndrome, Osteonecrosis of the Jaw

When appraising hormonal therapy in breast cancer, a patient’s bone mineral density (BMD) status serves as a significant determinant. Adverse effects of medications and innate aging repercussions make preserving bone health a challenge in these patients.

Conventionally, selective estrogen receptor modulators (SERMs) are preferred over aromatase inhibitors (AIs) in patients with poor bone health since AIs are notorious for causing estrogen deprivation associated with increased risk of bone loss and fragility fractures. This destructive effect appears to be analogous for all AIs. Despite these facts, the combination of a bisphosphonate (BP) with the AI presents itself as a competitive option (see Table 1).

Recent clinical data have elucidated the need for pharmacologic intervention with a BP for those receiving AIs and the utility of BPs in general. BPs can be considered as supportive therapy to treat or prevent low BMD, including AI-induced conditions. Evidence strongly recommends BP use in patients with osteoporosis and moderate to severe osteopenia; although, patients with mild osteopenia or normal BMD at advanced age can be adequately managed through preventative measures and persistent monitoring. Additionally, there is a robust collection of research that indicates BPs, particularly zolendronate, exert antinumoral effects.

Particularly noteworthy, some providers and even more patients have concerns for BP side effects. However, adverse events related to BP therapy are generally mild and infrequent and therefore, the benefits almost always outweigh the risks. The main complaint is with oral BPs’ gastric irritation. This can almost be completely avoided if taken upon waking each morning with a full glass of water 30 minutes prior to any food or medications while remaining upright for at least 30 minutes after ingestion.