Osteoporosis and bisphosphonates

The administration of bisphosphonates, via an IV or orally, is an important distinction

By David L. Hoexter, DMD, FACD, FICD

If used appropriately, bisphosphonates are a tremendous tool in treating osteoporosis. There is currently a great deal of confusing information over when and how to safely use them.

Clearing up the confusion is important because more than 50 million people in the United States are currently suffering from osteoporosis, and if they are not treated, they are at risk for osteoporotic fractures that seriously jeopardize their lives.

At present, bisphosphonates are the best tool to reduce bone loss and significantly reduce the chance of these fractures. It is estimated that 24 percent of patients with osteoporotic fractures not treated by bisphosphonates will die because of these fractures.

Recently, reports of osteonecrosis of the jaw (ONJ) associated with bisphosphonates have caused fear about using bisphosphonates. The reports by Dr. Marx and later by Dr. Ruggerio related osteonecrosis lesions after oral surgical procedures were done on patients in hospitals under IV bisphosphonate administration.

This article seeks to clarify some of the unknowns, or innuendo, surrounding the fear of using bisphosphonates. As it was once wisely written: “We have nothing to fear but fear itself.”

Identifying the problem

Today we have acquired fear about using certain medication for osteoporosis. Namely, bisphosphonates and their relationship to osteonecrosis. Osteonecrosis is defined as the death of bone tissue due to an impaired blood supply. When the diagnosis of osteonecrosis is made, the cause is listed as definite causes and possible causes.

Definite causes includes: alcohol abuse, atherosclerosis, decompression sickness, corticosteroids, hematologic malignancies, granulocyte colony-stimulating factor, hepatic failure, human immunodeficiency virus, infection, leukaemia, malnutrition, monoclonal gammopathy of undetermined significance, myelodysplastic syndrome, osteomyelitis, radiotherapy, side effects of immunosuppressant drugs, stroke, trauma, tuberculosis, very low body weight, vitamin D deficiency, and use of mesna.

Possible causes include: bisphosphonates, chemotherapy, corticosteroids, oral surgery, radiotherapy, secondary hyperparathyroidism, and spinal cord injury.

Chair of the OHA Gala Committee Genevieve M. Bauer welcomes attendees at the annual Oral Health America Gala on Feb. 23. (Photos/Provided by Dr. David Hoexter)
pression sickness, Guacher’s dis-
ease, high doses of corticosteroids,
radiotherapy, sickle cell disease and
some tumors. Possible causes include:
blood clotting disorders, Cushing’s syn-
drome, diabetes mellitus, fatty liver,
gout, lipid disturbances, pancreatic can-
cer, pancreatitis, smoking, systemic lupus and ery-
thematosus. Brittle bones and fractures are
more prevalent as the population
lives longer. It is estimated that
20 to 30 million people have con-
cerns about their osteoporosis and
are taking medications to cease
or prevent their osteoporosis. The
medications to aid osteoporosis
are in general called bisphospho-
nates. When clinical reports of associ-
ations of bisphosphonates to osteo-
necrosis were distorted, it started
a reaction that caused people to
associate all bisphosphonates and
all levels of strengths and dosages
in one grouping. It is as if one
were to claim all antibiotics are
the same and only one strength
were to be used for all instances.
There is a benefit to being made
aware by Marx and Ruggerio, and
now drug makers are also aware of
the possibility of ONJ and include
this information in their listing of
possible side effects for bisphos-
nonates. However, the result of this infor-
mation has also caused people to
hesitate in their efforts to prevent
or inhibit osteoporosis. Suddenly,
lawyers have come to the fore who
claim to specialize in representing
patients using bisphosphonates
who wish to instigate a lawsuit
and actually advertise to acquire
plaintiffs who have been harmed
by using bisphosphonates.
In addition, some physicians
now hesitate to prescribe bisphos-
nonates for fear of legal conse-
quences, leaving the patient to
deteriorate further.
Oral surgeons at dental meet-
ings are also showing more osteo-
necrotic lesions in their presen-
tations. However, the causes of
these necrotic lesions are not nec-
essarily from bisphosphonates.
Clinical reports of osteonecrosis
associated with bisphosphonates
was brought to dentists’ aware-
ness by oral surgeons (Marx and
Ruggerio) some 30 years after the
use of bisphosphonates were first
released to the public and received
FDA approval.
Oral bisphosphonates were first
approved and released in 1970,
and clinical reports of oral necro-
sis were published after 2003. The
clinical reports independently
provided proof of oral necrotic
bone lesions resulting when treat-
ning patients in hospitals that were
under some regime and hospital-
ized. Only after oral surgical ther-
apy, while in the hospital, these
patients presented necrotic oral
lesions and their sequela.
While I do appreciate the
reporting of such information and
now avoid having patients acquire
further trauma, I found myself
asking: “What were these patients
doing in a hospital environment
to begin with?” As reported, the
patients were all hospitalized for
cancer therapy and undergoing
chemotherapy. Their resistance
factors certainly may, under those
circumstances, be altered.
The method of receiving
bisphosphonates while being
fed in a hospital was not, as
most commonly accepted, orally,
but rather intravenously.
Intravenous bisphosphonates
have been used for Paget’s dis-
ease, hypercalcemia associated
with malignancy and with anti-
neoplastic bone lesions associated
with breast cancer and multiple
myeloma. The strength and dos-
ages of the medication used with
the IV was close to four times the
recommended oral dosage.
There are, of course, protocols
for treating hospitalized patients,
and they were all followed. Yet,
these reports are being interpo-
lated to encompass all modes of
bisphosphonates delivery systems.
However, there are positive
results from using oral bisphos-
nonates when administered at
the proper dosage. Emphasis must
be placed upon differentiating the
reported results from all intrave-
nous delivery of bisphosphonates
as well as the recognition of differ-
ent dosages.
In my practice, I have patients
who are taking oral bisphospho-
nates. I treated them for periodon-
tal disease with surgical interven-
tions independently.

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The millions of patients that have osteoporosis and need assistance are the ones that we are trying to aid, not deter. Let our profession encourage and inform patients of all the facts pertaining to bisphosphonates. Indeed, I have apprehensions of unknown possibilities for those taking various medications.

As such, in the case of oral bisphosphonates, what might be the accumulative effects of taking this medication for five or 10 years?

A recent report from University of Southern California showed a 96 percent success rate of people using oral bisphosphonates with osteoporosis. A new acronym for bisphosphonate-associated osteonecrosis, BON, has become popular in discussions.

It behooves us to share this knowledge with our patients. In particular, we must clearly note the difference in administration of bisphosphonates via an IV or orally when discussing the use and safety of these drugs.

So-called “drug holidays” are not the answer. There is no supporting data that stopping the use of bisphosphonate medication for a set amount of time reduces the risk of developing BON.

Perhaps standardizing a bone turnover marker test and getting a base line of bone metabolism, a DTX information gathering radiograph — definitely as the American Dental Association suggests with osteoporosis — and trying to avoid oral pathology by undergoing regular oral examinations by a dentist and increasing good oral hygienic techniques by using power toothbrushes or hand toothbrushes, and avoiding alcohol rinses would decrease risk.

There are millions of people who need, or will need, treatment for osteoporosis. Let us help ourselves with knowledge, not fear. Let us start by recognizing the different administration methods, oral as opposed to IV, as well as their dosage differences.

Perhaps with knowledge and statistical studies we can help eliminate this fear.