

Bisphosphonate related osteonecrosis of the jaw – clinical features, prevention, treatment



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The use of bisphosphonates

(alendronat, olpadronat, risedronat, neridronat, incadronat, pamidronat, ibadronat, zoledronat, etc.)

- Since 1970. (oral/iv.)
- 2008.: 190 million prescriptions
- 2003.: First article about osteonecrosis



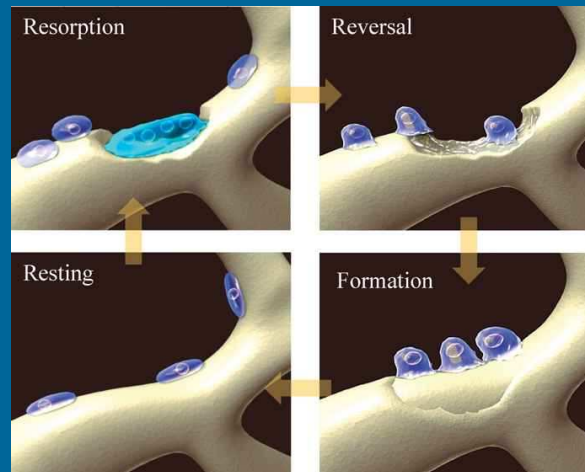
1. Malignant osteolytic bone events (i.v.)
 - Myeloma multiplex
 - Metastatic neoplasmas
 - Lymphomas
2. Osteoporosis (oral/i.v.)
3. Paget disease
4. Other metabolic bone diseases



Bisphosphonates affect through the apoptosis of osteoclasts

Benefits

1. Decrease of bone resorption
2. Inhibiting the development of bone metastasis
3. Decrease of bone pain



Risks

1. Inhibiting the remodelling of the bone
2. Decrease the ability of bone healing
3. **OSTEONECROSIS OF THE JAW (BIONJ/BRONJ)!**

Definition of bisphosphonate related/ induced osteonecrosis of the jaw (BRONJ/ BIONJ)

Frequency: Oral use: 1:296-1130, Iv. use: 1:10-15

1. Exposed bone for more than 8 weeks
2. Bisphosphonate therapy in the past
3. There is no radiotherapy in the past

Bisphosphonate related/ induced osteonecrosis of the jaw (BRONJ/ BIONJ) Clinical stages and treatment

Stage 0

Swelling, pain, mucosa hyperaemia

Therapy: regular control, increased oral hygiene

Stage 1

The bone is exposed, no pain,
the mucosa is not inflamed

Therapy: regular control, increased oral hygiene

+ antiseptic rinses



Stage 2

The bone is exposed, pain, inflammed mucosa

Therapy: regular controll, increased oral hygiene, antiseptic rinses

+ Antibiosis (Penicillin, Clyndamycin, Doxycylin, Fluorokinolon, Metronidazol), **Antianalgetic**

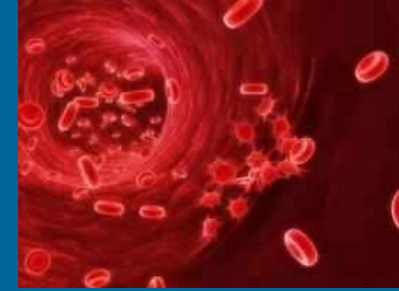
Stage 3

The bone is exposed, pain, non healig mucosa
inflammatio, pathologic fracture, fistulas

Therapy: regular controll, increased oral hygiene, antiseptic rinses, Antibiosis,
Antianalgetic **+ Surgery (bone resection, debridement)**



Prevention!



Serum Beta Cross Laps/ CTX Test

Osteoclast collagenase enzyme → Octapeptid →
detect from the serum



Remodelling capacity?

Bone healing?

Risk of osteonecrosis

Beta Cross Laps – Risk of osteonecrosis

Less than 100 pg/ml - High risk

100-150 pg/ml - Medium risk

200-300 pg/ml - Low risk

Above 300 pg/ml - No risk

Drug holiday - 25pg/ml increase/ month

Materials and methods

- Datas of the last one year
- Age
- The kind of bisphosphonate
- The length of bisphosphonate therapy
- β -Cross Laps

Results - Osteoporosis

<i>Patient</i>	<i>Bisphosphonate</i>	<i>Length of the therapy (years)</i>	<i>β-Cross Laps</i>
75 years old woman	Boniva	2	34
60 y.o. woman	Boniva	6	180
58 y.o. woman	Calcisedron	4	-
75 y.o. man	Calcisedron	3	185
80 y.o. woman	Bonviva	-	843
62 y.o. man	Calisedron	0,5	474
69 y.o. woman	Actonel	4,4	655
68 y.o. woman	Actonel	3	270
55 y.o. woman	Bonviva	5	30
67 y.o.	Calcisedron	2	64
55 y.o. woman	Bonviva	5	30

Results - Malignant osteolytic bone events

<i>Patient</i>	<i>Bone disease</i>	<i>Bisphosphonate</i>	<i>Length of therapy (years)</i>	<i>β-Cross Laps</i>
59 y.o. man	Prostate cancer	Zometa	3,5	Less than 10
75 y.o. man	Prostate cancer	Zometa	3,5	129
69 y.o. woman	Breast cancer	Zometa	5	Less than 40
57 y.o. man	Prostate cancer	Zometa, Bonefos	6	87
62 y.o. woman	Breast cancer	Zometa	1	171
67 y.o. man	Prostate cancer	Zometa	3	112

Conclusions

- Above 300pg/ml – absence of BIONJ
- Severity of BIONJ correlates to the β -CL
- Above 300pg/ml the chance of healing is increased
- In most of the cases BIONJ develops after tooth extraction
- Drug overdose?
- Our results correlate to the international datas

Thank you for your kind attention!