



# Treatment and prevention of medication-related osteonecrosis of the jaw (MRONJ) in cancer patients

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## INTRODUCTION

Antiresorptive agents (ARAs) are often used for bone metastases of solid tumors and multiple myeloma. Medication-related osteonecrosis of the jaw (MRONJ) occasionally develops, but its treatment and prevention have not been determined.

## PATIENTS AND METHODS

Of 192 MRONJ patients (205 jaws) from 2011 to 2022, we examined the treatment method and outcome of 126 jaws with malignant tumors. Next, of 189 non-MRONJ patients with malignant tumors (361 jaws except edentulous jaws) who received high-dose ARA therapy from 2011 to 2019, the relationship between oral findings and development of MRONJ was analyzed. In addition, after the background factors between tooth extraction and non-extraction groups were adjusted using the propensity score matching method, the effect of tooth extraction during administration of ARA on the onset of MRONJ was analyzed.

## RESULTS

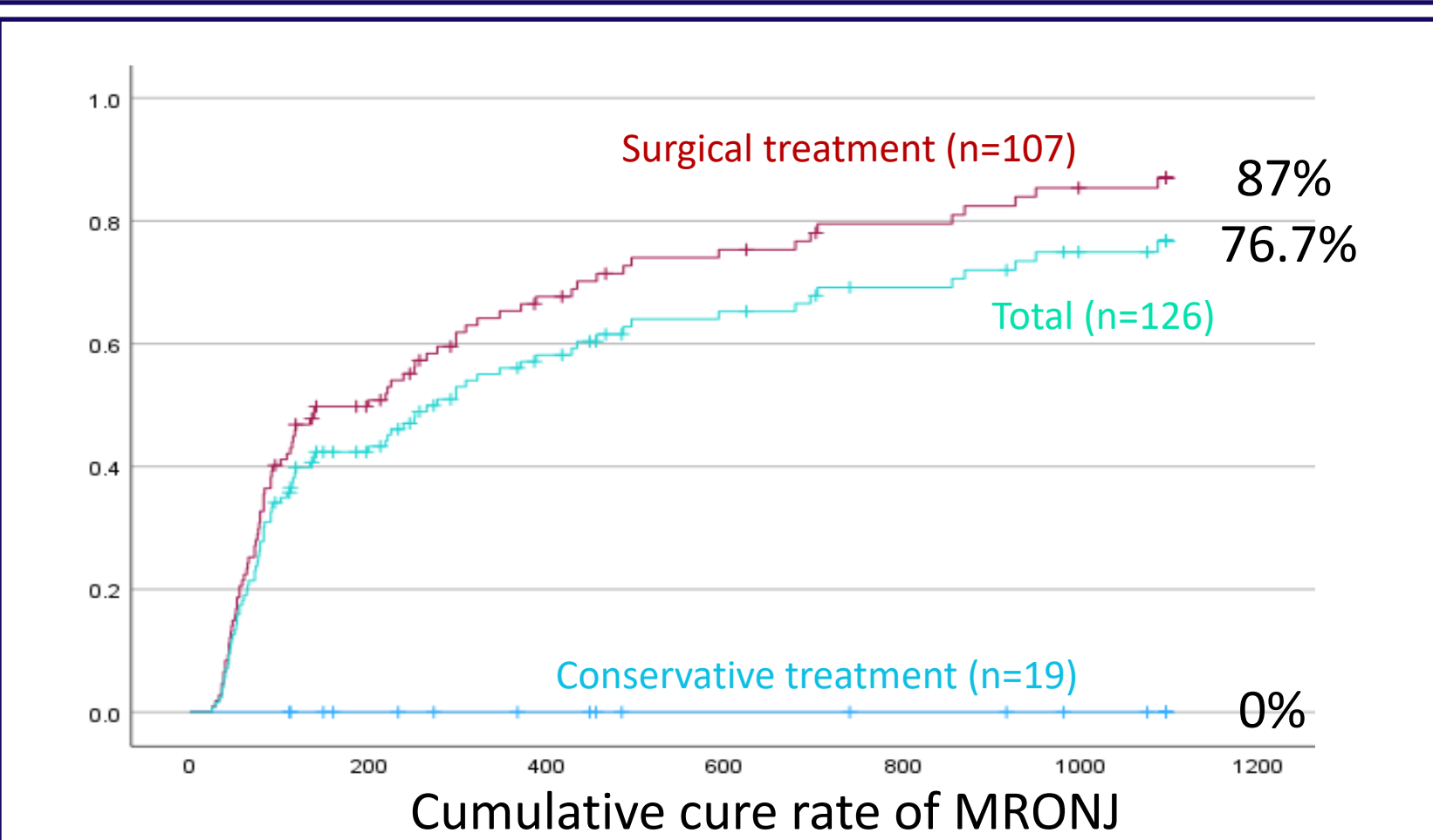
The 3-year cure rate for cancer patients was 76.7%, which was significantly lower than that of 91.6% for osteoporosis patients. Surgical treatment showed significantly better prognosis than conservative treatment. There was no difference in outcomes between drug types of zoledronic acid and denosumab. In surgical cases, withdrawal of ARA before surgery did not affect treatment outcomes. The 3-year MRONJ incidence in 361 high-dose ARA patients without MRONJ was 18.2%. A longer duration of ARA administration, fewer number of teeth, presence of symptoms of local infection, and teeth with periapical lesion or severe periodontal disease were independent risk factors of MRONJ. However, tooth extraction during ARA therapy did not increase the risk. Propensity score matching analysis showed that tooth extraction significantly lowered the risk of MRONJ development.

## CONCLUSIONS

In cancer patients who develop MRONJ, surgical treatment without drug holidays is preferred. To prevent the onset of MRONJ, it is recommended that teeth with periapical lesions or severe periodontitis should be extracted early even after ARA administration.

## Disclosure Statement of COI

The authors have no conflicts of interest to declare about concerning this presentation.



## Relationship between each variable and development of MRONJ (per jaw)

Variable	univariate analysis			multivariate analysis				
	p value	HR	95% CI	p value	HR	95% CI		
Age (years)	0.071	1.029	0.998-1.062	0.250	1.021	0.985-1.058		
Sex		female vs. male	0.807	1.095	0.530-2.263			
Primary site		upper vs. lower jaw	0.246	1.588	0.750-3.032			
Smoking		(-) vs. (+)	0.241	0.492	0.150-1.612			
Diabetes		(-) vs. (+)	0.802	0.926	0.507^1.690			
Corticosteroid		(-) vs. (+)	0.655	0.762	0.232-2.508			
Leukocytes (/μL)			0.809	1.000	1.000-1.000			
Albumin (g/dL)			0.381	0.811	0.508-1.295			
Sort of ARA		bisphosphonate vs. denosumab	0.316	1.354	0.749-2.447			
Duration of administration (days)			0.130	1.000	1.000-1.001	0.006	1.001	1.000-1.001
Number of teeth			0.110	0.930	0.851-1.017	0.033	0.897	0.812-0.992
Symptom of local infection		(-) vs. (+)	<0.001	9.138	4.531-18.430	<0.001	8.309	3.820-18.073
Teeth that can be a source of infection (-) vs. (+)			0.006	2.936	1.362-6.328	0.049	2.382	1.003-5.655
Tooth extraction during ARA therapy (-) vs. (+)			0.267	1.723	0.659-4.501	0.973	0.983	0.359-2.691

