

Management of Multiple Myeloma and Fragility Fracture Risk

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INTRODUCTION:

Multiple myeloma, a cancer of B-cells, causes many deleterious effects on the body, including bone damage. The use of pharmacotherapy and other interventions have been shown to improve survival in patients with multiple myeloma, but their impact on reducing fragility fractures is not well studied. The purpose of this study is to determine if either DEXA scans, pharmacotherapy, or a combination of a DEXA scan and pharmacotherapy influences fragility fracture rates in patients with multiple myeloma when compared to patients with multiple myeloma that receive no intervention.

METHODS:

A retrospective review was conducted to 1) quantify the incidence of DEXA scans and pharmacological treatments for patients with multiple myeloma and 2) quantify the incidence of fragility fractures in patients with multiple myeloma with and without management. Of the 139,020 patients with multiple myeloma included in this study, 11,194 patients received a DEXA scan within 2 years of diagnosis of multiple myeloma, 681 patients received pharmacotherapy within 2 years of diagnosis, and 422 patients received both a DEXA scan and pharmacotherapy within 2 years of diagnosis of multiple myeloma.

RESULTS:

Those who received neither pharmacotherapy nor a DEXA scan had statistically higher risk of experiencing a fragility fracture within 2 years of the diagnosis of multiple myeloma than those who received only a DEXA scan after the diagnosis (OR: 2.64; 95% CI: 2.09-3.38). Those who received neither pharmacotherapy nor a DEXA scan had statistically higher risk of experiencing a fragility fracture within 2 years of the diagnosis of multiple myeloma than those who received only pharmacotherapy after the diagnosis (OR: 3.49; 95% CI: 1.40-11.67). Those who received neither pharmacotherapy nor a DEXA scan had statistically higher risk of experiencing a fragility fracture within 2 years of the diagnosis than those who received both pharmacotherapy and DEXA within 2 years of the diagnosis of multiple myeloma (OR: 5.89; 95% CI: 1.78-36.44).

DISCUSSION AND CONCLUSION:

This study suggests that patients with multiple myeloma who receive a DEXA scan, pharmacotherapy, or both after diagnosis of multiple myeloma may have a decreased risk of fragility fractures compared to patients with multiple myeloma that receive neither DEXA scan nor pharmacotherapy. As such, it may be beneficial to include a DEXA scan and earlier pharmacological interventions to reduce risk of fragility fractures in patients with multiple myeloma.

Table 1. Rates of fragility fractures after receiving only a DEXA scan, only pharmacotherapy, or a combination versus patients with MM who receive neither

Intervention Type	TREATMENT GROUP		CONTROL (No DEXA or Meds)		Statistical Analysis
	(n)	%	(n)	%	Odds ratio (95% CI)
DEXA ONLY	76	0.74%	644	2.10%	2.64 (2.09-3.38)
PHARMACOTHERAPY ONLY	4	0.60%	43	2.14%	3.49 (1.40-11.67)
DEXA + PHARMACOTHERAPY	2	0.48%	41	3.28%	5.89 (1.78-36.44)