LEUKEMIA & LYMPHOMA SOCIETY®
fighting blood cancers

MYELOMA

Expert Information About Diagnosis and Treatment

OUTLOOK on MYELOMA

Supported by grants from Celgene Corporation, Millennium Pharmaceuticals, Inc., and Onyx Pharmaceuticals, Inc.

Celgene

Takeda MILLENNIUM THE TAKEDA ONCOLOGY COMPANY

ONYX PHARMACEUTICALS

LEUKEMIA & LYMPHOMA SOCIETY®
fighting blood cancers

Welcome and Introduction

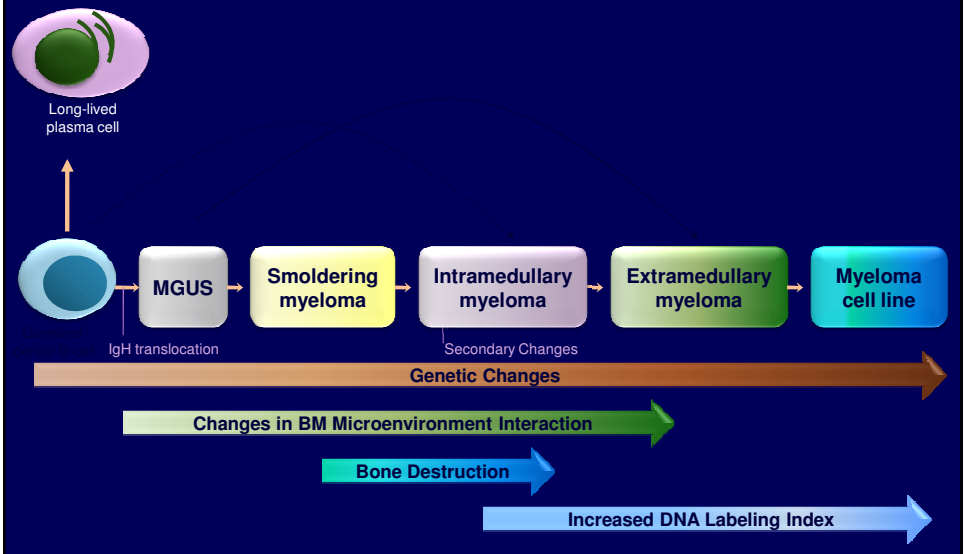
LAUREN BERGER, MPH
Senior Director, Patient Services Programs
The Leukemia & Lymphoma Society

LEUKEMIA & LYMPHOMA SOCIETY®
fighting blood cancers

ASHER A. CHANAN-KHAN, MD
Chair of Hematology and Oncology
Mayo Clinic
Jacksonville, FL

1. Introduction to Multiple Myeloma

Pathogenesis



Adapted from Kuel WM, Bergsagel PL. *Nat Rev Cancer.* 2002;2:175-187

Epidemiology of Multiple Myeloma

- ~ 20,580 new cases and 10,580 deaths from MM are expected in the United States in 2009
- Slightly more common in men than in women
- Incidence in blacks is approximately twice than that in whites
- Mean age at diagnosis is 62 yrs for men and 61 yrs for women
  - 75% of men are older than 70 yrs of age
  - 79% of women are older than 70 yrs of age

Cancer facts and figures 2009. American Cancer Society; 2009. Horner MJ, et al, eds. SEER cancer statistics review, 1975-2006. National Cancer Institute. NCCN Practice Guidelines. V.3.2010.

Major Symptoms at Diagnosis

- Bone pain: 58%
- Fatigue: 32%
- Weight loss: 24%
- Paresthesias: 5%
- 11% are asymptomatic or have only mild symptoms at diagnosis

Kyle RA, et al. Mayo Clin Proc. 2003;78:21-33.

Clinical Manifestations

Hyper**C**alcemia

Renal dysfunction

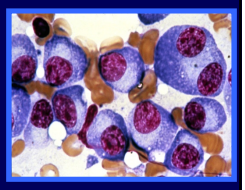
Anemia

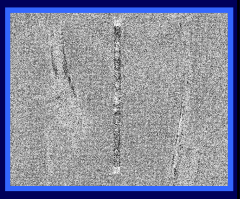
Bone lesions

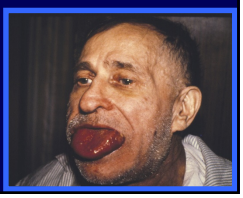
Increased **I**nfections

Clinical Presentation

- Monoclonal (M) serum protein (93%)
- Lytic bone lesions (67%)
- Increased plasma cells in the bone marrow (96%)
- Anemia (normochromic normocytic; 73%)
- Hypercalcemia (corrected calcium ≥ 11) (13%)
- Renal failure, serum creatinine ≥ 2.0 (19%)
- Infection





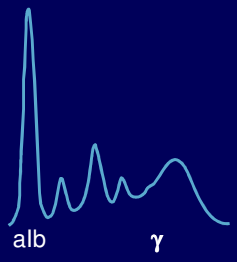


Kyle RA, et al. Mayo Clin Proc. 2003;78:21-33.

2. Diagnosis and Staging Myeloma

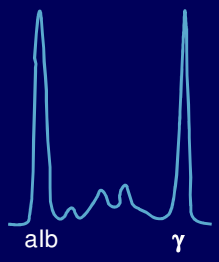
Serum Protein Electrophoresis

Normal



Gamma region: Small broad peak

Monoclonal Protein in Myeloma



Gamma region: Sharp peak

Kyle RA, et al. Cecil textbook of medicine, 22nd edition. Elsevier; 2004. Image courtesy Steven Fruitsmaak. Available at: http://commons.wikimedia.org/wiki/File:Monoclonal_gammopathy_Multiple_Myeloma.png.

Distribution of Monoclonal Proteins in Multiple Myeloma

- M protein found in serum or urine or both at time of diagnosis in 97% of patients (3% are nonsecretory)
  - Serum M spike by protein electrophoresis: 80%
  - Abnormal serum immunofixation: 93%
  - Abnormal urine immunofixation: 75%
  - Abnormal urine or serum immunofixation: 97%
- Of the 3% with nonsecretory myeloma with negative serum and urine immunofixation, 60% will have detectable serum free light chains on the serum free light chain assay

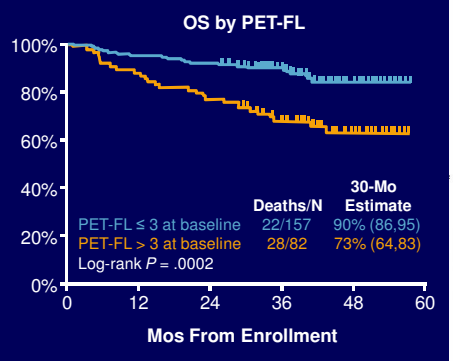
Kyle RA ,et al. Mayo Clin Proc. 2003;78:21-33. IMWG. Br J Haematol. 2003;121:749-757.
Jacobson JI, et al. Br J Haematol. 2003;122:441-450.

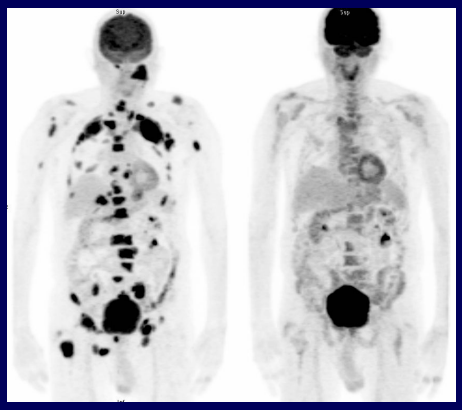
Initial Diagnostic Evaluation

- History and physical examination
- Blood workup
  - CBC with differential and platelet counts
  - BUN, creatinine
  - Electrolytes, calcium, albumin, LDH
  - Serum quantitative immunoglobulins
  - Serum protein electrophoresis and immunofixation
  - β_2-microglobulin
  - Serum free light chain assay
- Urine
  - 24-hr protein
  - Protein electrophoresis
  - Immunofixation electrophoresis
- Other
  - Skeletal survey
  - Unilateral bone marrow aspirate and biopsy evaluation with immunohistochemistry or flow cytometry, cytogenetics, and FISH
  - MRI as indicated

NCCN. Practice guidelines: myeloma. V.3.2010. Available at: http://www.nccn.org.

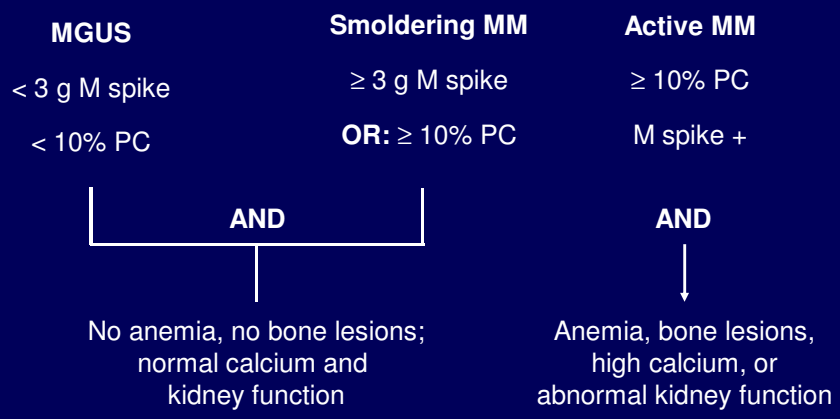
OS According to the Presence of PET-Identified Focal Lesions at Baseline





Bartel TB, et al. Blood. 2009;114:2068-2076.

Criteria for Diagnosis of Myeloma



Kyle RA, et al. N Engl J Med. 2002;346:564-569.

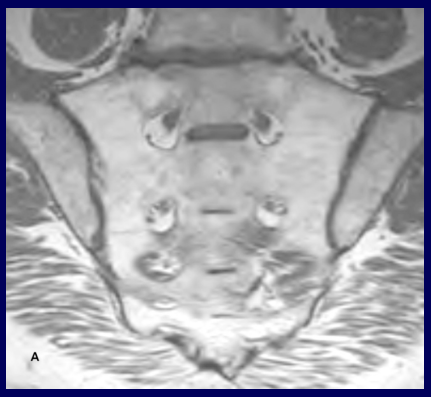
International Staging System for *Symptomatic* Myeloma

Stage	Criteria
Stage 1	β_2-M < 3.5 and ALB ≥ 3.5
Stage 2	Not stage 1 or 3
Stage 3	β_2-M ≥ 5.5

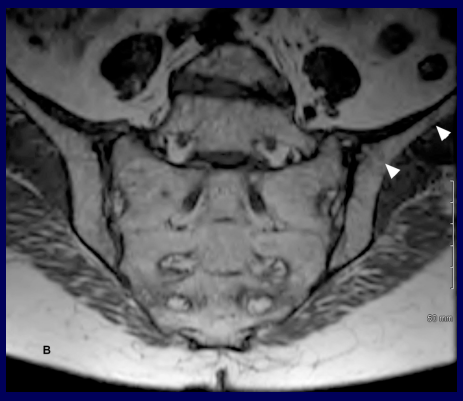
Greipp PR, et al. J Clin Oncol. 2005;23:3412-3420.

Magnetic Resonance Imaging of MM

Bone marrow-MRI stage A with no evidence of bone marrow infiltration



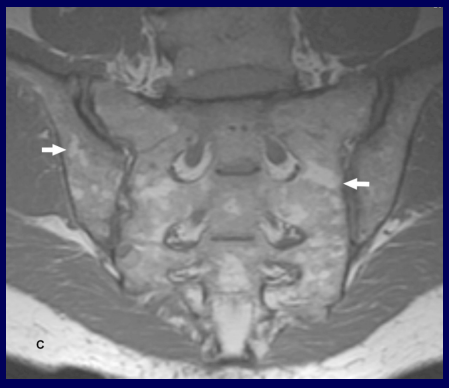
Bone marrow-MRI stage B with some (< 10%) marrow infiltration



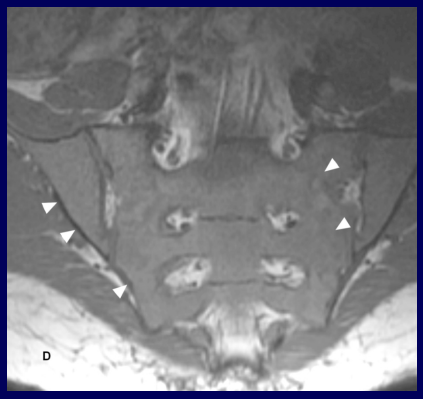
Ailawadhi S, et al. Cancer. 2010;116:84-92.

Magnetic Resonance Imaging of MM

Bone marrow-MRI stage C with moderate 10% to 50% marrow infiltration



Bone marrow-MRI stage D with extensive (> 50%) marrow infiltration



Ailawadhi S, et al. Cancer. 2010;116:84-92.

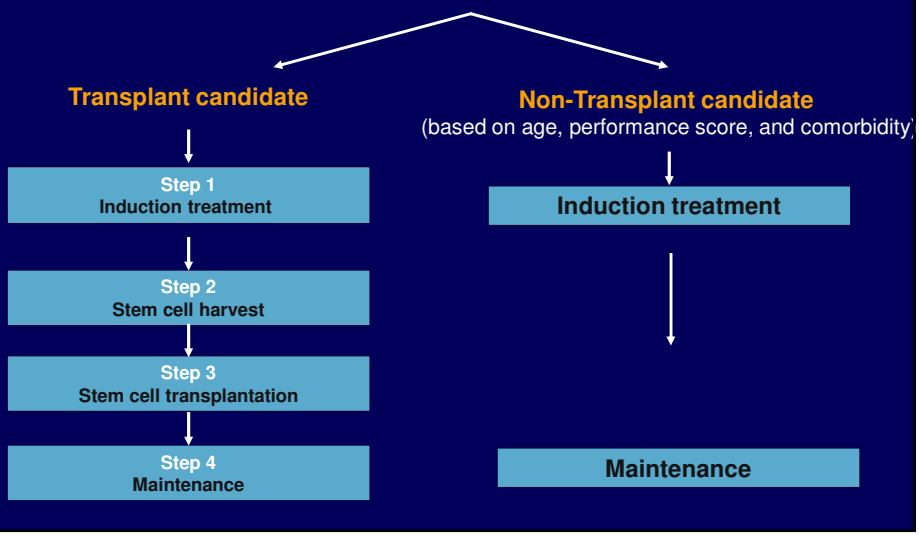
3. Not all Myeloma are the same ! (Prognostic factors)

Major Adverse Prognostic Factors

- Karyotypic deletion 13 or hypodiploidy
- High plasma cell labeling index
- Molecular genetics: t(4;14), t(14;16), or 17p-
- High LDH, β_2-M, or CRP
- Increased circulating plasma cells
- Plasmablastic morphology
- Low albumin

4. Treatment approaches

Initial Approach to Treatment of MM



Step 1
Induction treatment

"Tools" to Treat Myeloma

- Steroids
- Melphalan (Transplant)
- Cyclophosphamide
- Bortezomib
- Thalidomide
- Lenalidomide
- Pegylated doxorubicin
- Zoledronic acid
- Pamidronate

Combination Regimens

Vdex
Vdox
RD
TD
MP

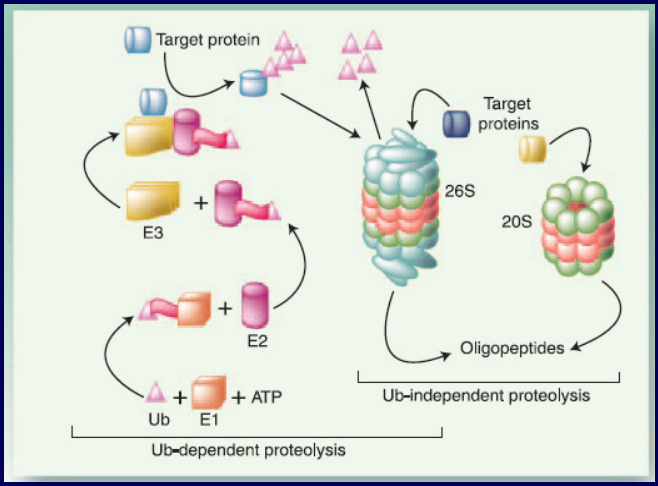
VCD
VRD
VdoxT
VTD
VMP
MPT
MPR

CLINICAL TRIALS

Know your tools

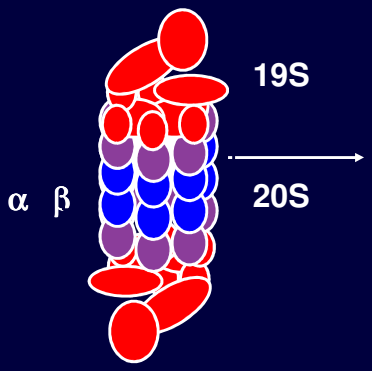
Proteasome Inhibitor–Directed Therapies in Transplantation-Eligible Patients

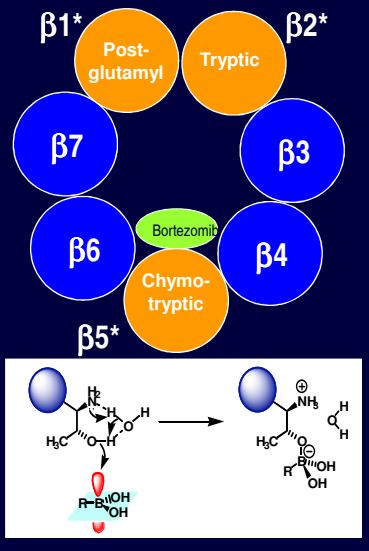
Targeting the Proteasome



Orlowski RZ and Kuhn DJ; Clin Cancer Res. 2008;14(6):1649

Bortezomib and Proteasome Inhibition

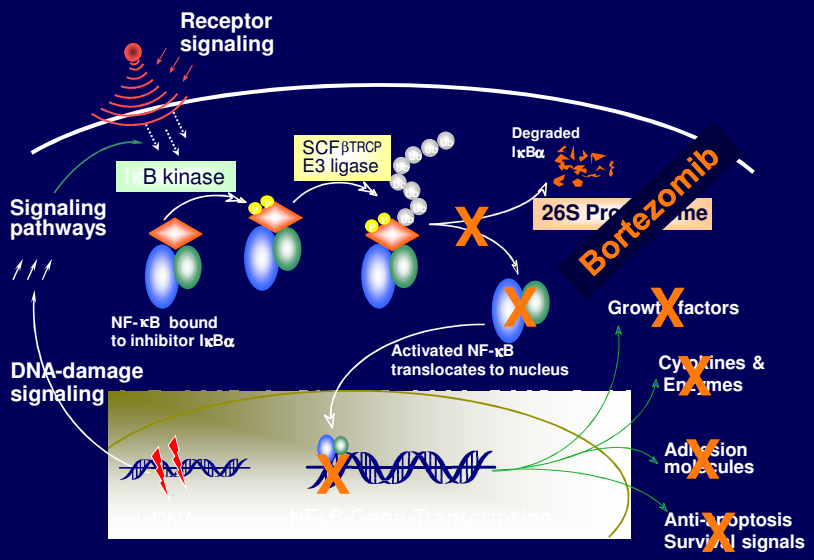




Inhibitor of chymotripsin like activity of the proteasome

Julian Adams -Nature reviews/ Cancer (4, 349-360, 2004)

Bortezomib Inhibition of NF-κB Activation and Signaling



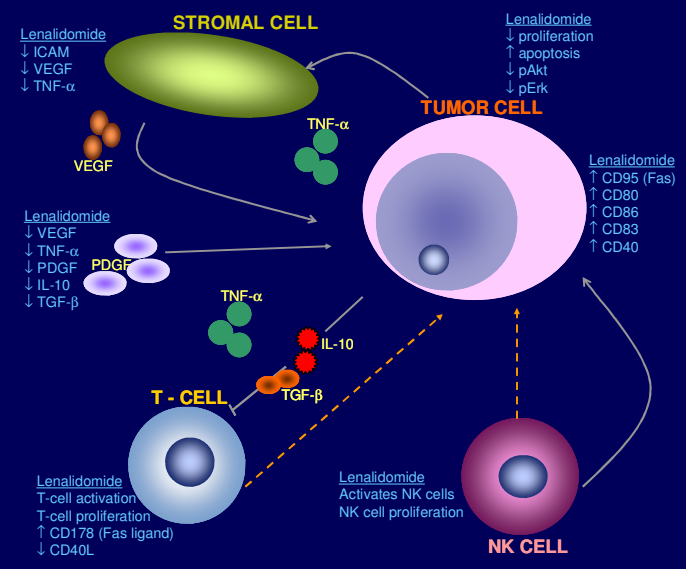
Adams *et al.* Invest New Drugs 2000; 18:109-121

Proteasome Inhibitor–Based Therapies in Transplantation-Eligible Patients With MM

Regimen	Phase	N	ORR, %	CR, %
Bortezomib monotherapy[1]	II	64	63	3
Bort/Dex[2-4]	II III	48 441	90 82	8 6
Bort/PLD[5]	II	29	79	28 (CR + nCR)
VDD[6]	II	40	92.5	40 (CR + nCR)
VDT[7]	II	40	78	23
RVD[8,9]	I/II	66	100	29
VTD[10]	III	460	94	32 (CR + nCR)

1. Richardson P, et al. J Clin Oncol. 2009;27:3518-3525. 2. Jagannath S, et al. Br J Haematology. 2009;146:619-626. 3. Harousseau JL, et al. ASH 2009. Abstract 353. 4. Harousseau JL, et al. ASH 2008. Abstract. 5. Orlowski RZ, et al. Blood 2006;108:239a. 6. Jakubowiak A, et al. J Clin Oncol 2009;27:5015-5022. 7. Sher T, et al. ASH 2009. Abstract 618. 8. Anderson KC, et al. ASCO 2010. Abstract 8016. 9. Richardson PG, et al. Blood 2010;116:679-686. 10. Cavo M, et al. ASH 2008. Abstract 158.

Know your tools
IMiD-Directed Therapies in Transplantation-Eligible Patients



Chanan-Khan and Cheson JCO 2008

IMiD-Directed Therapies in Transplantation-Eligible Patients With MM

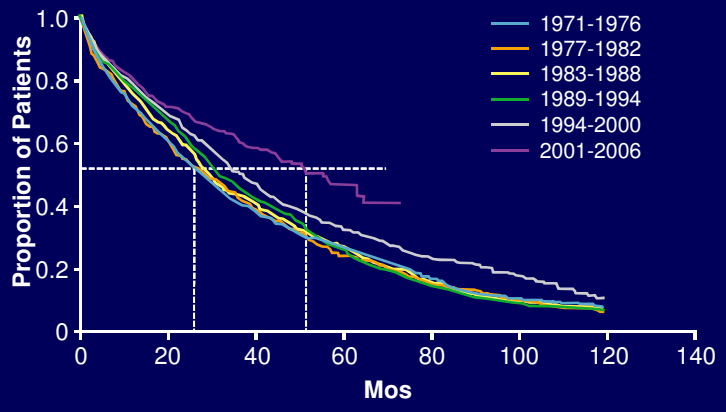
Regimen	Phase	N	ORR, %	CR, %
Thal/dex[1] (Rajkumar)	III	204	63	4
Len/dex[2,3] (E4A03)	III	445	81	13
Len/dex[4] (S0232)	III	198	75	15
BiRD[5]	II	65	90	39

1. Rajkumar SV, et al. J Clin Oncol. 2006;24:431-436. 2. Rajkumar SV, et al. ASCO 2008. Abstract 8504.
3. Rajkumar SV, et al. Lancet Oncol. 2010;11:29-37. 4. Zonder JA, et al. ASCO 2008. Abstract 8521.
5. Niesvizky R, et al. Blood. 2008;111:1101-1109.

Controversial Decisions

- Choice of treatment
  - Optimal therapy for high-risk patients
- Goal of therapy (CR or not)
- Combined versus sequential therapy
- Duration of therapy
- Stem cell transplant
  - Timing
  - Single vs tandem autologous SCT
  - Role of allogeneic SCT
- Role of maintenance therapy

New Treatment Options Have Improved OS in MM



Kumar SK, et al. Blood. 2008;111:2516-2520.

Step 2
Stem cell harvest

- Relatively easy procedure
- Enough stem cell often collected for several transplants
- Can be stored for extended period of time (years)
- Select regimens (tools) that should “not hurt” stem cells

Step 3
Stem cell transplant

Autologous Stem Cell Transplantation

Autologous Stem Cell Transplantation

- Mel 200/m^2 standard conditioning regimen
- Sufficient performance score and adequate liver, pulmonary, cardiac function needed
- Higher PR and CR rates than conventional chemotherapy
- Higher OS and EFS than conventional Rx
- Advanced age and impaired renal function are, by themselves, not contraindications

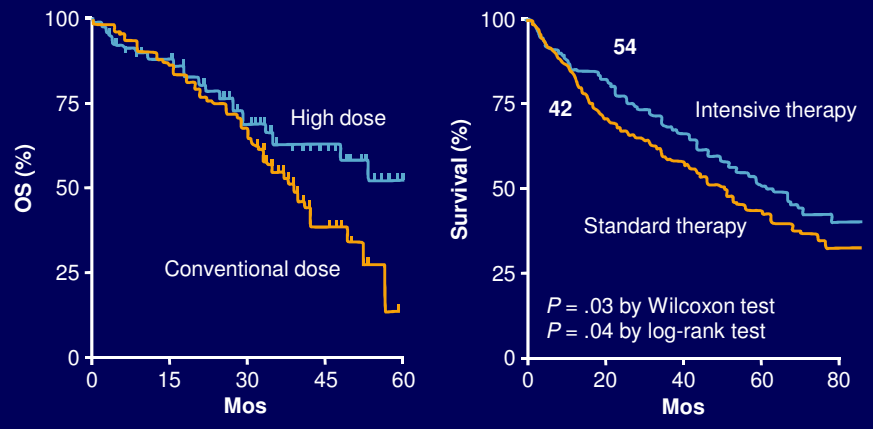
Attal M, et al. N Engl J Med. 1996;335:91-97. NCCN. Practice guidelines: myeloma. V.3.2010. Available at: http://www.nccn.org.

Stem Cell Transplantation

Key issues

- Efficacy compared with conventional chemotherapy
- Timing: early vs delayed
- Single vs tandem
- Role of allogeneic and miniallogeneic transplantations

Transplantation vs Conventional Chemotherapy



Attal M, et al. N Engl J Med. 1996;335:91-97. Child JA, et al. N Engl J Med. 2003;348:1875-1883.

The Importance of CR in Treatment of Multiple Myeloma

Meta-Analysis: Max Response to HDT and OS in Patients With Newly Diagnosed MM

Prospective Study	Comparison	*P* Value
IFM90	CR/VGPR vs PR vs other	< .00001
MRC VII	CR vs PR vs MR	.00002
TT1	CR vs PR	.2496
TT2	CR vs PR/NR	< .05
IFM94-02	Maximal response	< .001
IFM99C	CR/VGPR vs PR	< .0001
NMSG 5/94	CR vs PR/NR	0.38
Bologna	≥VGPR vs other	.002
GMA	CR/MRD vs other	.22
Combined	**Maximal response**	**< .00001**

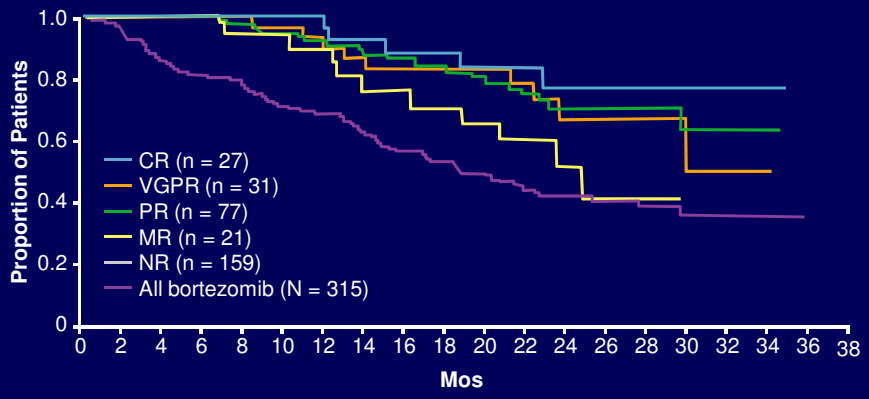
Van de Velde HJK, et al. Haematologica. 2007;92:1399-1406.

Novel Agents in MM: Response Rates and Long-term Outcomes

- Achieving and maintaining CR are important goals for first-line MM treatment
- Novel agents currently under evaluation in phase II and phase III studies as induction therapy before HDT-ASCT
  - Potential PFS and OS advantages with higher rates of CR
  - Durability of CR may improve long-term outcomes
  - Prolonged follow-up needed to confirm long-term impact of improved responses

Chanan-Khan AA, et al. J Clin Oncol. 2010;28:2612-2624.

Phase III APEX Trial: OS According to Quality of Response to Bortezomib



Niesvizky R, et al. Br J Haematol. 2008;143:46-53.

Step 4
Maintenance

Role of Maintenance Therapy

Again Know your Tools !!

- Is this is a new concept?
- What should be the goal of maintenance?
  - Improving response with prolong treatment?
  - Improving duration of response achieved with step 1 or 3?
  - Quality of life ?
  - Is cost ever an issue to patients?
- Ideal agent for “prolong treatment”
  1. Low toxicity
  2. Low cost
  3. Least monitoring
  4. Prolong efficacy
  5. Improve survival

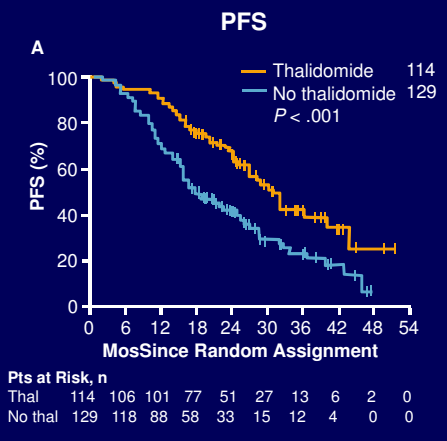
Post-ASCT Maintenance

	N	Thal Dose	CR Rate, %	PFS, %	OS, %
Barlogie	668	400 mg until prog or AE	62 vs 43	5 yr: 56 vs 44	5 yr: 65 in both groups
Attal	597	400 mg until prog or AE	67 vs 55 (CR + VPGR)	3 yr: 52 vs 36	4 yr: 87 vs 77
Spencer	243	200 mg 12 mos	1-yr maint 63 vs 40	3 yr: 63 vs 36	3 yr: 90 vs 81

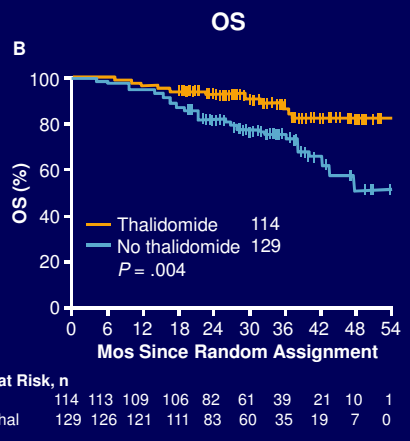
Maintenance therapy with immunomodulators improves PFS and OS

Barlogie B, et al. N Engl J Med. 2006;354:1021-1030. Attal M, et al. Blood. 2006;108:3289-3294. Spencer A, et al. Blood. 2009;[Epub ahead of print].

Maintenance After Transplantation



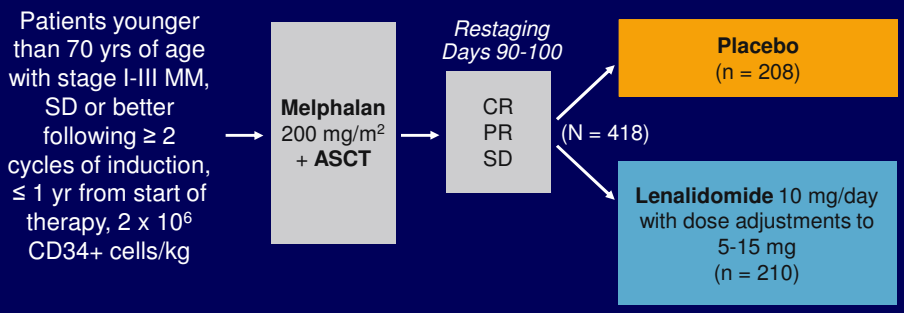
PFS 63% vs 36%; *P* < .001



OS 90% vs 81%; *P* < .004

Spencer A, et al. Blood. 2009;[Epub ahead of print].

CALGB 100104: Lenalidomide vs Placebo Maintenance Following ASCT for MM



- Stratified based on diagnostic β_2M and thalidomide and lenalidomide use during induction

McCarthy PL, et al. ASCO 2010. Abstract 8017.

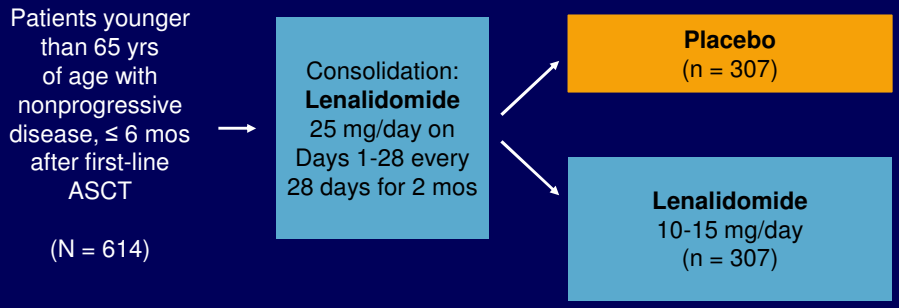
CALGB 100104: Efficacy Analysis

- Lenalidomide maintenance therapy following ASCT associated with 58% reduction in progression or death vs placebo
  - Estimated HR: 0.42
- Median OS not reached for either arm

Outcome	Lenalidomide (n =210)	Placebo (n = 208)	*P* Value
Progression or death, n (%)	29 (14)	58 (28)	< .0001
▪ Deaths	11 (5)	17 (8)	< .2
Median TTP, mos	Not reached	25.5	--

McCarthy PL, et al. ASCO 2010. Abstract 8017.

IFM 2005-02: Lenalidomide vs Placebo Maintenance after ASCT for MM

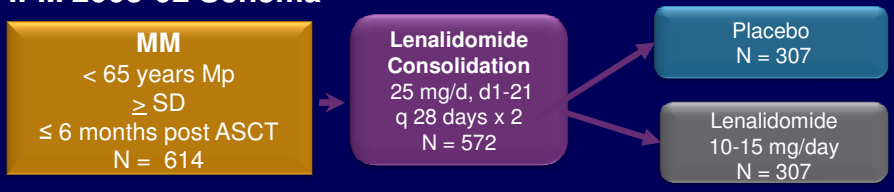


- Stratified based on diagnostic β_2M, del13, VGPR

Attal M, et al. ASCO 2010. Abstract 8018.

Lenalidomide Maintenance vs Placebo

IFM 2005-02 Schema



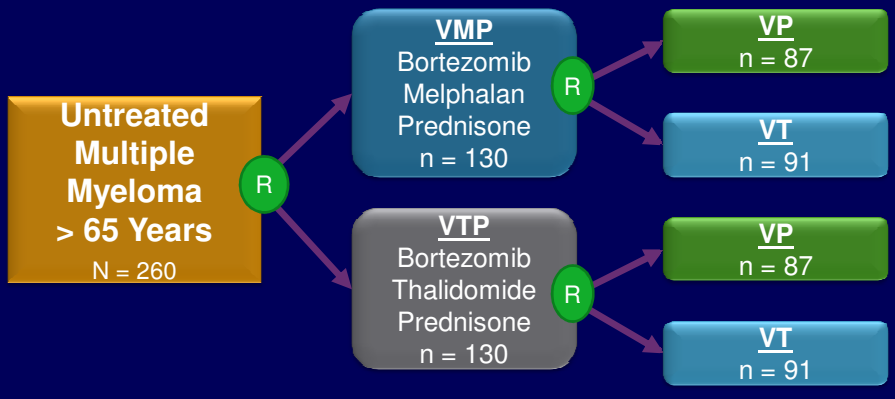
	Placebo N = 307	Lenalidomide N = 307	*P*
CR	23%	25%	0.495
≥ VGPR	71%	76%	0.13
Median PFS	24 months	42 months	10^{-8}, HR = 0.5
5-year OS	81%	81%	NS

Attal M, et al. *Blood*. 2010;116(21):310.
Attal M, et al. *J Clin Oncol*. 2010;(15S). Abstract 8018.

Maintenance Therapy: Summary

- Maintenance post transplantation with immunomodulatory agent can prolong PFS and perhaps OS
- Awaiting reports on bortezomib maintenance
- Toxicity associated with prolong treatment remains a concern

VMP vs VTP, Followed by VP or VT



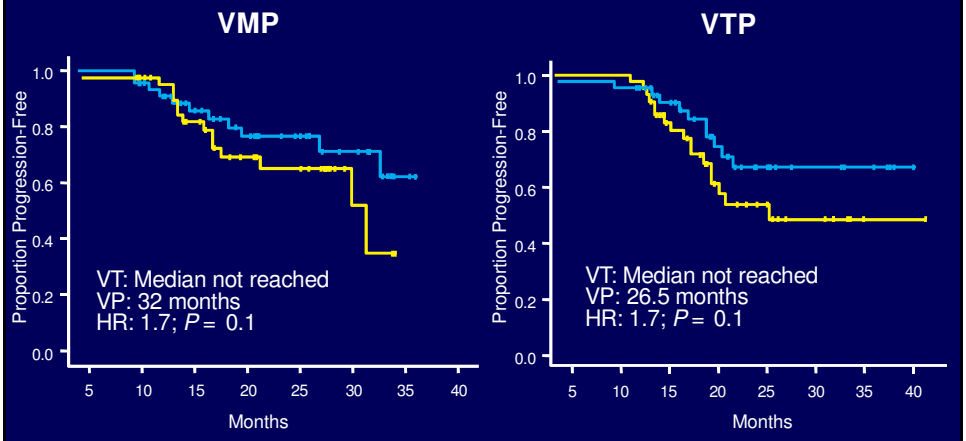
Induction
Melphalan: 9 mg/m^2, d1-4, cycles 1-6
Prednisone: 60 mg/m^2, d1-4, cycles 1-6
Bortezomib: 1.3 mg/m^2, twice weekly, cycle 1
1.3 mg/m^2, weekly, cycles 2-6

Maintenance (up to 3 years):
Prednisone: 50 mg/m^2 every 48 hrs
Bortezomib: 1.3 mg/m^2, d1, 4, 8, 11, every 3 months
Thalidomide: 50 mg daily

Mateos M-V, et al. *Blood.* 2009;114(22). Abstract 3.

Mateos M-V, et al. *Blood.* 2008;112(11). Abstract 651.

VMP vs VTP, Followed by VP or VT



- CR (IF-) increased from 23% after induction to 42% in maintenance
- Both maintenance regimens increased the CR rate

Mateos M-V, et al. *Blood.* 2009;114(22). Abstract 3.

5. Supportive Care

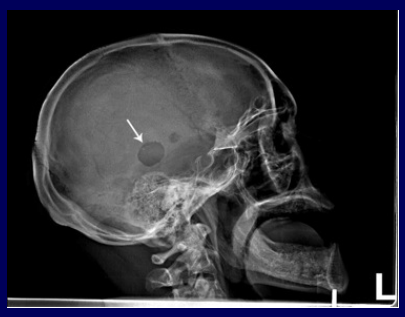
Supportive Therapies in Myeloma

- Bone disease
  - Radiotherapy for palliation of bone pain
  - Vertebroplasty or kyphoplasty for persistent pain
  - Bisphosphonates
- Anemia: transfusions and/or RBC growth factors
  - Consider EPO in patients with symptomatic anemia
- Hypercalcemia: rehydration, bisphosphonates
- Renal dysfunction or hyperviscosity
  - Rehydration, treat infection, plasmapheresis
- Infections: antibiotics, influenza vaccination

Smith A, et al. Br J Haematol. 2005;132:410-451.

Impact of Bone Disease

- Pain
- Hypercalcemia
- Compromised QOL
- Pathological Fracture
  - Pain
  - Increased morbidity
  - Delay in anti-MM therapy
  - Increased health care cost
- Survival



Most Common Sites for Pathological Fracture in Myeloma

- Skeletal related events in MM
  - Pathological Fracture (37%)
  - Radiation to bone lesion (34%)
  - Surgical intervention (4%)
  - Spinal cord compression (2%)

- Most common sites of pathologic fractures in Myeloma
  - Vertebrae 69%
  - Ribs 14%
  - Femur 5%

1. Berenson JR et al. *N Engl J Med.* 1996;334(8):488-493.
2. Berenson JR et al. *J Clin Oncol.* 1998;16(2):593-602.

Vertebral Body Fracture

Kyphoplasty for Vertebral Compression Fracture

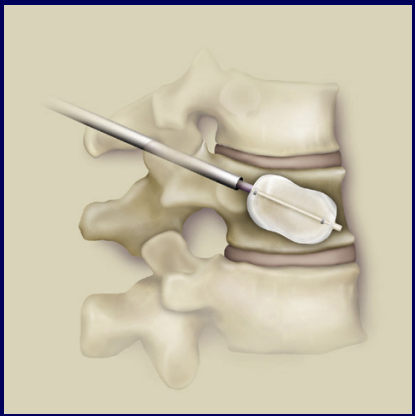


Image accessed February 3, 2005 at www.kyphon.com.

Advantages:

- Relieves pain[1,2]
- Restores 34% to 53% of vertebral height[1-3]
- Cement leakage occurs in ~4%[2]

1. Fourney DR et al. *J Neurosurg Spine*. 2003;98:21-30. **2.** Dudeney S et al. *J Clin Oncol*. 2002;20: 2382-2387. **3.** Lane JM et al. *Clin Orthop*. 2004;426:49-53.

Bisphosphonates

- Reduced incidence of SREs and need for RT[1]
- Zoledronic acid 4 mg 15-min infusion at least as effective as pamidronate 90 mg 2-hr infusion in reducing risk of skeletal-related events in patients with multiple myeloma[2]
- Long-term treatment associated with osteonecrosis of the jaw[3]
  - Risk higher with zoledronic acid
- Dose- and infusion rate–related renal toxicity[4]
  - Modified dosing regimens under investigation[5]

1. Berenson JR, et al. Cancer. 2001;91:1191-1200; 2. Rosen LS, et al. Cancer J. 2001;7:377-387.
3. Dimopoulos MA, et al. Haematologica. 2005;91:968-971. 4. Berenson JR. Oncologist. 2005;10:52-62.
5. Berenson JR, et al. ASH 2005. Abstract 5152.

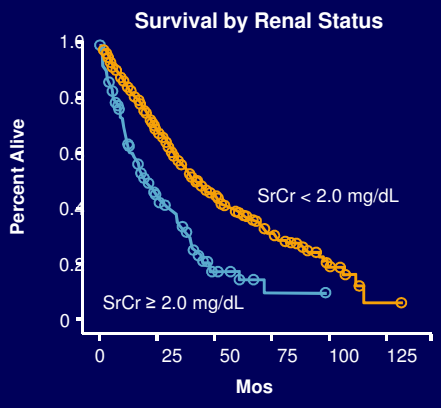
Renal Impairment in MM

- Renal dysfunction at time of diagnosis common in patients with symptomatic MM
  - Abnormal renal function (SrCr ≥1.5 mg/dL) in 31%
  - Renal failure (SrCr ≥2.0 mg/dL) in 21% of patients at diagnosis
- Multiple factors contributing to renal dysfunction in MM
  - Cast nephropathy
  - Hypercalcemia
  - Hyperuricemia
  - Dehydration
  - Hyperviscosity
  - Medications such as NSAIDs
  - Coexistent amyloidosis or light chain deposition disease

Eleutherakis-Papaiakovou V, et al. Leuk Lymphoma. 2007;48:337-341.

Renal Failure Adversely Affects Survival in Patients With MM

- Renal failure at diagnosis associated with increased mortality
- Median OS
  - 40.3 mos in patients with baseline SrCr ≥ 2.0 mg/dL
  - 19.5 mos in patients with SrCr < 2.0 mg/dL



Eleutherakis-Papaiakovou V, et al. Leuk Lymphoma. 2007;48:337-341.

Bortezomib Use in MM Patients With Advanced Renal Failure

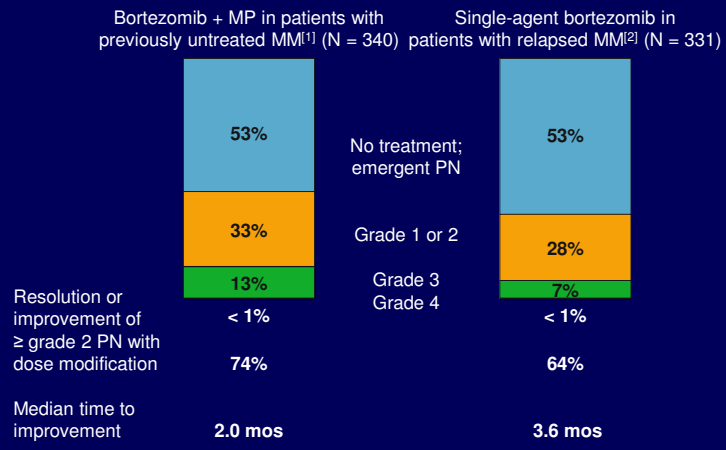
- Retrospective analysis of bortezomib-based therapy in 24 patients with MM requiring dialysis for advanced renal failure

	n (%)
ORR	15 (75)
CR/nCR	6 (30)
PR	9 (45)
Most Common AEs	
Peripheral neuropathy	2 (11)
Infections	2 (11)
Thrombocytopenia	7 (39)
Discontinuations due to adverse events	
Progressive disease	6 (33)
Neuropathic pain	1 (6)
Peripheral neuropathy	1 (6)

Chanan-Khan AA, et al. Blood. 2007;109:2604-2606.

Toxicities Related to Treatment of Myeloma

1. Peripheral Neuropathy Observed in Clinical Trials With Bortezomib



1. San Miguel JF, et al. N Engl J Med. 2008;359:906-917.
2. Richardson et al. Br J Haematol 2009;144:895-903.

2. Herpes Zoster or Shingles with Bortezomib

Rationale for HZV Prophylaxis With Bortezomib Treatment

- Rationale supported by 2 analyses
- Phase III APEX trial of bortezomib vs dexamethasone[1]
  - Routine prophylaxis: 25% vs 46%
  - HZV infections: 13% vs 5% (*P* = .002)
  - Total infections: 24% vs 21% (*P* = .443)
- Retrospective analysis of 125 patients with MM treated with bortezomib (median: 16 wks) and HZV prophylaxis[2]
  - Acyclovir 400 mg QD in > 80% of patients; alternatives: acyclovir 200 mg, valacyclovir 250/500 mg, or famciclovir 500 mg QD
  - Self-reported adherence: 100%
  - No episodes of HZV infection

1. Chanan-Khan AA, et al. J Clin Oncol. 2008;26:4784-4790. 2. Vickrey E, et al. Cancer. 2009; 115:229-232.

3. Marrow suppression

Risk of Grade 3/4 Myelosuppression With Novel Agents for Myeloma

Drug	Patient Population	N	Neutropenia, %	Thrombocytopenia, %
Thalidomide*	Newly diagnosed	102	13	4
Lenalidomide*	≥ 1 previous therapy	346	21	10
Bortezomib	1-3 previous therapies	331	15	29

Miceli T, et al. Clin J Oncol Nurs. 2008;12(suppl 3):13-20.

4. Low Platelet counts

Management of Thrombocytopenia in Patients on Lenalidomide or Bortezomib

Adverse Effect	Recommendation
Lenalidomide	
▪ When platelets fall to < 30,000 cells/mm^3	Interrupt lenalidomide treatment and follow CBC wkly
– Return to ≥ 30,000 cells/mm^3	Restart lenalidomide at 15 mg/day
▪ For each subsequent drop < 30,000 cells/mm^3	Interrupt lenalidomide treatment
– Return to ≥ 30,000 cells/mm^3	Resume lenalidomide at 5 mg less than the previous dose*
Bortezomib	
▪ When platelets fall to onset on grade 4 toxicity (< 25,000 cells/mm^3)	Hold therapy; transfusion is recommended at the discretion of the physician, particularly with any signs of bleeding
– Once toxicity has resolved	Treatment may be restarted at a 25% reduced dose

Miceli T, et al. Clin J Oncol Nurs. 2008;12(suppl 3):13-20.

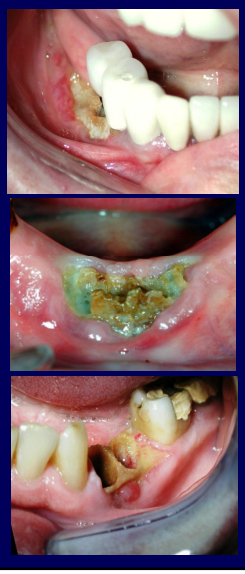
*Do not dose below 5 mg/day.

5. Deep Vein Thrombosis (DVT) "Blood clots"

- Common side effect with thalidomide or lenalidomide treatment (approx 10-15%).
- Can be prevented.
- All patients with IMiDs based therapy should be on a either one of the prophylaxis - based on regimen used and preexisting risk factors.
  - Aspirin
  - Heparin
  - Warfarin

6. Osteonecrosis of the Jaw - ONJ

- 60% of the cases follow a dental procedure
- 50% occur in the mandible
- 70% occur posterior to the cuspids



Badros, et al. J Clin Oncol. 2006; 24(6):945-52.

Risk Factors of ONJ

Confirmed in large series:

- Dental extraction
- Pamidronate --- Zoledronic acid use
- Older age
- Longer time from diagnosis

- Cases reports suggested higher risks with… Thalidomide, bevacizumab, sunitinib

J Clin Oncol. 2008; 26: 4037-4038; Ann of Oncol. 2008; 19:2091-2092; Bone. 2009;44:173-5.

Management of ONJ

Medical	STOP BP
	Mouth wash & analgesics
Surgery	Antibiotics & antifungals Debridment
	Resection (+/- Flap primary closure ? Infections ? None healing
Tried	Ozone
	Hyperbaric O2
	PTH
	Laser
	Platelet rich plasma

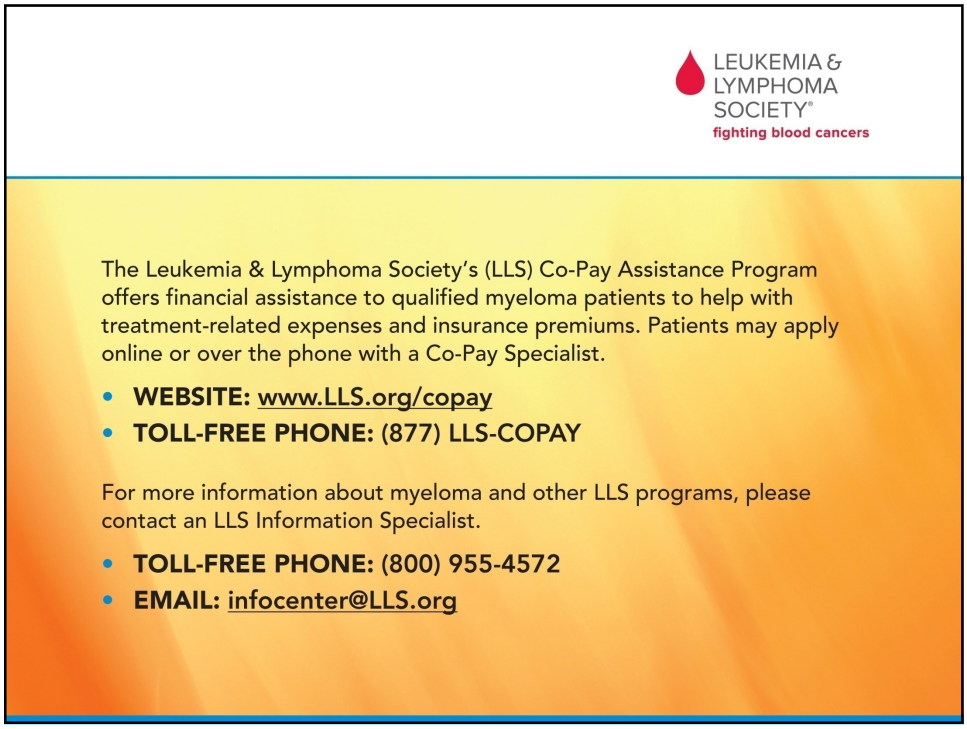
Br J Oral Maxillofac Surg Sep 20, 2010

Conclusion

- Amazing progress in myeloma therapy.
- A lot remains to be done.
- Clinical trials remains the only path to conclusive victory.

- Controversies are good - keep faith and choose a treatment approach that suits you.
- Learn about overall strategic approach to your disease.
- Myeloma is still rare - so seek advise from a myeloma expert.
- LLS - can provide with Myeloma resources in your neighborhood.

Question and Answer Session


LEUKEMIA &
LYMPHOMA
SOCIETY®
fighting blood cancers
The Leukemia & Lymphoma Society's (LLS) Co-Pay Assistance Program offers financial assistance to qualified myeloma patients to help with treatment-related expenses and insurance premiums. Patients may apply online or over the phone with a Co-Pay Specialist.
• WEBSITE: www.LLS.org/copay
• TOLL-FREE PHONE: (877) LLS-COPAY
For more information about myeloma and other LLS programs, please contact an LLS Information Specialist.
• TOLL-FREE PHONE: (800) 955-4572
• EMAIL: infocenter@LLS.org