

SUPPORTING OUR MYELOMA PATIENTS: TREATMENT, ACCESS BARRIERS, AND HIGH RISK PATIENTS

Derived from the live activity which occurred on

**Saturday, April 13, 2019
12:15pm – 1:45pm**

**Hilton Anaheim
Anaheim, CA**

BEATING CANCER IS IN OUR BLOOD.



1

WELCOME AND INTRODUCTIONS

Lauren Berger, MPH

Senior Director

Professional Education & Engagement

The Leukemia & Lymphoma Society

Rye Brook, NY

BEATING CANCER IS IN OUR BLOOD.



2

CE DESIGNATION

Approval for nurses has been obtained by the National Office of The Leukemia & Lymphoma Society under Provider Number CEP 5832 to award 1.5 continuing education contact hours through the California Board of Registered Nursing.

BEATING CANCER IS IN OUR BLOOD.



3

LEARNING OBJECTIVES

At the conclusion of this program, participants will be able to:

- List at least two new drugs/new applications to treat patients with myeloma, along with monitoring and managing side effects
- Assess long-term and late effects of myeloma and myeloma treatments
- Identify populations at high risk for myeloma
- Describe barriers patients face in accessing treatment and ways to address

BEATING CANCER IS IN OUR BLOOD.



4

Our Mission: Cure leukemia, lymphoma, Hodgkin's disease and myeloma, and improve the quality of life of patients and their families.

BEATING CANCER IS IN OUR BLOOD.

5

2017 & 2018 FDA APPROVALS FOR BLOOD CANCERS

LLS helped advance 34 of the 39 blood cancer treatments approved by the FDA in 2017 and 2018

Acute Lymphoblastic Leukemia	Acute Myeloid Leukemia	Chronic Lymphocytic Leukemia	Chronic Myeloid Leukemia	Hodgkin Lymphoma	Non-Hodgkin Lymphoma	Myeloma	Other
<ul style="list-style-type: none"> calaspargase pegol-mknl* (Asparlas*) blinatumumab (Blincyto*) tisagenlecleucel* (Kymriah)† inotuzumab ozogamicin* (Becomori*) blinatumumab (Blincyto*) 	<ul style="list-style-type: none"> gilteritinib* (Xospata*) glasdegib* (Daurismo*) ivosidenib* (Tibsovo*) arsenic trioxide (Trisenox*) venetoclax (Venclesta*) enasidenib* (Sibislar*) midostaurin* (Doralis*) decemabine and cytarabine (Vyvor*) gemtuzumab ozogamicin (Mylotarg*) 	<ul style="list-style-type: none"> duvelisib* (Copikta*) venetoclax (Venclesta*) 	<ul style="list-style-type: none"> nilotinib (Tasigna*) bosutinib (Bosulif*) dasatinib (Sprycel*) 	<ul style="list-style-type: none"> brentuximab vedotin (Adcetris*) pembrolizumab (Keytruda*) 	<ul style="list-style-type: none"> brentuximab vedotin (Adcetris*) tisagenlecleucel (Kymriah)* ibrutinib (Imbruvica*) pembrolizumab (Keytruda*) mogamulizumab* (Preligee*) anticalcagene ciloleucel* (Yescarta*) acalabrutinib* (Calquence*) brentuximab vedotin (Adcetris*) obinituzumab (Gazyva*) rituximab hyaluronidase (Rituxan Hyaloma*) copanlisib* (Allopath*) 	<ul style="list-style-type: none"> carfilzomib (Kyprolis*) daratumumab (Darzalex*) elotuzumab (Empliciti*) 	<ul style="list-style-type: none"> moxetumomab pasudotox* (Lunsumo*) tagraxofusp* (Elzonis*) ibrutinib (Imbruvica*) vemurafenib (Zelboraf*)

▲ Supported by The Leukemia & Lymphoma Society * New therapy ■ Approved in 2018 ■ Approved in 2017 † CAR T-cell immunotherapy
 Note: of other therapies were approved as new indications, reformulations of other therapies, new dosing schedules or in combination with another therapy.

BEATING CANCER IS IN OUR BLOOD.

6

HCP Resources

Online and in-person CME/CE webinars, symposia & rounds
Free CME & CE www.LLS.org/CE



NEW! Podcast series for healthcare professionals

Listen as we speak with experts about diagnosing and treating patients with blood cancer, including survivorship issues

www.LLS.org/HCPpodcast

HCP Palm Card - resources for you & your patients - [in your handout](#)



BEATING CANCER IS IN OUR BLOOD.

7

Resources For Patients and Caregivers

Patient Financial Aid www.LLS.org/PatientAid

Webinars, videos & in-person programs
www.LLS.org/Programs and www.LLS.org/Educationvideos

Podcast series (The Bloodline With LLS)
www.LLS.org/Podcast

Myeloma resources
www.LLS.org/Myeloma

Booklets on disease, treatment, & support
www.LLS.org/Booklets



BEATING CANCER IS IN OUR BLOOD.

8

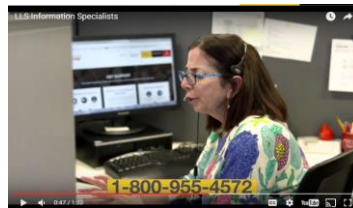
Resources For Patients and Caregivers

- ❑ **Information Specialists** – Provide patients and caregivers with personalized assistance for managing treatment decisions, side effects, and dealing with financial and psychosocial challenges.
 - They can also send you free materials to distribute to your patients.
- ❑ **Clinical Trial Specialists** – RNs nurses navigate patients to find an appropriate clinical trial and sift through the information.
- ❑ **Expert Nutrition Consultations** – One-on-one patient consultations from a certified dietician.

These specialists can serve as an additional resource for your HCP team.

M - F, 9 am to 9 pm ET:

- ❑ Phone: (800) 955-4572
- ❑ Live chat: www.LLS.org/InformationSpecialists
- ❑ Email: infocenter@LLS.org



BEATING CANCER IS IN OUR BLOOD.



9

FACULTY

Ann F. Mohrbacher, MD

Associate Professor of Clinical Medicine
Associate Director, Autologous Bone Marrow Transplant
 Keck School of Medicine of the
 University of Southern California
 Los Angeles, CA

Katrice J. Royster, MS, RN, OCN®

Senior Clinical Nurse II
 University of Maryland
 Marlene and Stewart Greenebaum
 Comprehensive Cancer Center
 Baltimore, MD

BEATING CANCER IS IN OUR BLOOD.



10

FACULTY DISCLOSURES

Ann F. Mohrbacher, MD is on the Speaker's Bureau for Takeda and Genentech

Katrice J. Royster, MS, RN, OCN®, has no affiliations with commercial interests to disclose.

BEATING CANCER IS IN OUR BLOOD.



11

Myeloma

Myeloma is relatively rare

Approximately 32,110 new cases will be diagnosed in 2019

-18,000 male



-14,000 female



American Cancer Society, Jan. 2019.

BEATING CANCER IS IN OUR BLOOD.

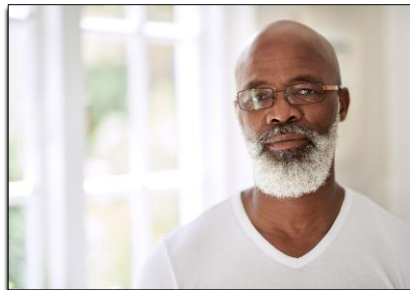


12

Myeloma Risk Factors

Some factors may increase the risk of developing myeloma:

- ❖ Age
- ❖ Sex
- ❖ Race
- ❖ Obesity
- ❖ Medical History
- ❖ Family History



BEATING CANCER IS IN OUR BLOOD.



13

Myeloma Risk Factors

Environmental Factors

- Radiation
- Chemical exposure
 - Pesticides
 - Fertilizers
 - Agent Orange



BEATING CANCER IS IN OUR BLOOD.



14

CASE 1

Clinical Presentation

58-year-old African-American male

- Negative medical history except well-controlled hypertension over the past 5 years.
- Last seen by primary MD 10 months ago, can't get an appointment this week for his current problem.



BEATING CANCER IS IN OUR BLOOD.

LEUKEMIA &
LYMPHOMA
SOCIETY™

15

CASE 1

Clinical Presentation

Presents to an urgent care facility with:

- Fatigue, nausea, somnolence, decreased urine output with shortness of breath on exertion

Labs:

- Hemoglobin of 7
- Creatinine of 3.3
- BUN 39
- Calcium 11.9
- Albumin 3.3
- Total protein 9.8 → Globulin fraction 6.5

BEATING CANCER IS IN OUR BLOOD.

LEUKEMIA &
LYMPHOMA
SOCIETY™

16



CASE 1

Back pain, rule out cord compression

On Review of Symptoms:

- Mid back pain 2 to 3 months above the waistline; worse at night
- Inadequate relief with ibuprofen 400 mg 2 to 3 times a day
- Oxycodone/acetaminophen, left over from previous surgery, w/some relief at night for few hours
- W/O bowel movement in 4 days
- Walking very little; difficulty getting up from toilet
- APP questions patient; urine is darker yellow and foamy

BEATING CANCER IS IN OUR BLOOD.



17



CASE 1

Lab Workup

- APP test leg strength; efforts limited by back pain
- Patient denies having any numbness radiating down his legs.
- Patient is a retired veteran and a widower
- His adult children live out of state

BEATING CANCER IS IN OUR BLOOD.



18



CASE 1

Lab Workup

What Tests Would You Order Next?

BEATING CANCER IS IN OUR BLOOD.



19

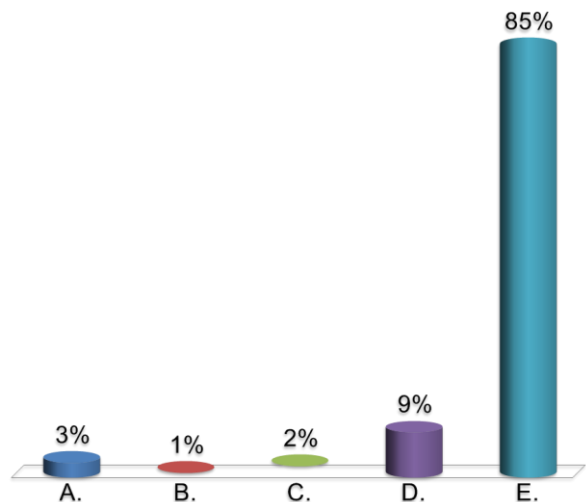


CASE 1

Lab Workup

Tests Ordered:

- A. Iron studies, erythropoietin level, sed rate, serum protein electrophoresis, ESR kappa lambda light chains,
- B. Urinalysis, urine protein electrophoresis
- C. Thoracic and lumbar sacral spine x-rays
- D. A and C
- E. A, B, and C



BEATING CANCER IS IN OUR BLOOD.



20

CASE 1

Lab Workup

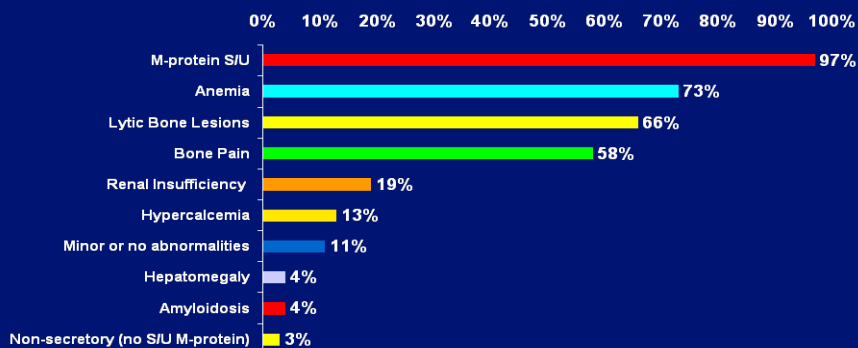
- Iron studies show elevated ferritin; iron is slightly low, TiBC and saturation is 12%
- ESR is 110
- SPEP, UPEP, light chains and EPO are pending.
- Urinalysis shows 1+ protein
- Spine x-ray shows a compression fracture at T 11 and L2: radiologist comments that there is a lytic lesion on the left lower 11th rib, and notes that the bowel is full of stool on LS spine view

BEATING CANCER IS IN OUR BLOOD.



21

Presenting Features of MM



Adapted with permission from Kyle RA et al. *Mayo Clin Proc.* 2003;78:21

© 2006 LLS dlm

BEATING CANCER IS IN OUR BLOOD.



22



CASE 1

Lab Workup

Results:

- Iron studies show elevated ferritin; iron is slightly low, TIBC and saturation is 12%.
- ESR is 110
- SPEP, UPEP, light chains and EPO are pending.
- Urinalysis shows 1+ protein

Spine x-ray shows a compression fracture at T11 and L2:

- Radiologist comments lytic lesion on the left lower 11th rib
- Bowel is full of stool on Lumbar Spine view

BEATING CANCER IS IN OUR BLOOD.



23



CASE 1

Spine MRI

What Test Would You Order Now?

BEATING CANCER IS IN OUR BLOOD.



24

CASE 1

Spine MRI

Tests to order:

- Strongly consider spine MRI thoracic lumbar sacral and possibly additionally C-spine.
- Recall that the calcium is quite elevated, consistent with hypercalcemia of malignancy, perhaps, given the findings on the x-rays.

BEATING CANCER IS IN OUR BLOOD.



25

CASE 1

Spine MRI

**Why Is The Patient Constipated
Or Nauseated?**

BEATING CANCER IS IN OUR BLOOD.



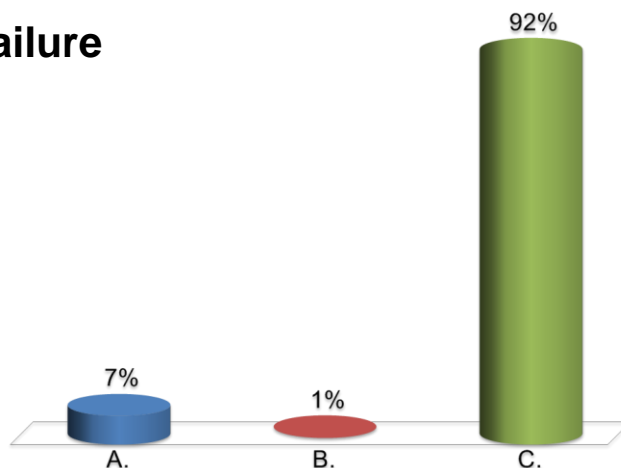
26



CASE 1

Hypercalcemia and Renal Failure

- A. Hypercalcemia
- B. Narcotics
- C. A and B



BEATING CANCER IS IN OUR BLOOD.



27



CASE 1

Hypercalcemia and Renal Failure

**Oncology and Renal Nephrology Consults
are Requested.**

**What Procedures or Tests do you Think they
will Request Next?**

BEATING CANCER IS IN OUR BLOOD.

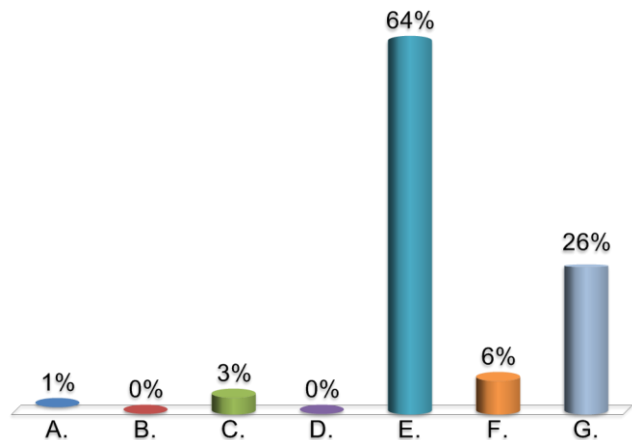


28

CASE 1

Hypercalcemia and Renal Failure

- A. Renal ultrasound
- B. 24 hour urine collection
- C. Bone marrow biopsy
- D. Vertebral spine biopsy
- E. A, B, and C
- F. A, B, and D
- G. All of the above



BEATING CANCER IS IN OUR BLOOD.

LEUKEMIA &
LYMPHOMA
SOCIETY®

29

What Diagnosis Might be Suspected from the Difference between the Total Protein and the Albumin, Called the Globulin Fraction?

BEATING CANCER IS IN OUR BLOOD.

LEUKEMIA &
LYMPHOMA
SOCIETY®

30

CASE 1

Bone Marrow Biopsy

- Kidney ultrasound shows no abnormalities
- Oncologist suggests a regular bone marrow biopsy at the posterior iliac crest, rather than a biopsy of the vertebral lesion at L2. Why?

BEATING CANCER IS IN OUR BLOOD.



31

CASE 1

Bone Marrow Biopsy

- Regular diagnostic bone marrow biopsy at this location is quite safe
 - Vertebral biopsies can be risky
 - If multiple myeloma is found in the diagnostic biopsy, no need to pursue the lytic lesion directly; additional risks can be avoided

BEATING CANCER IS IN OUR BLOOD.



32

What Medical Interventions Might Help the High Calcium Level and Kidney Dysfunction?

BEATING CANCER IS IN OUR BLOOD.

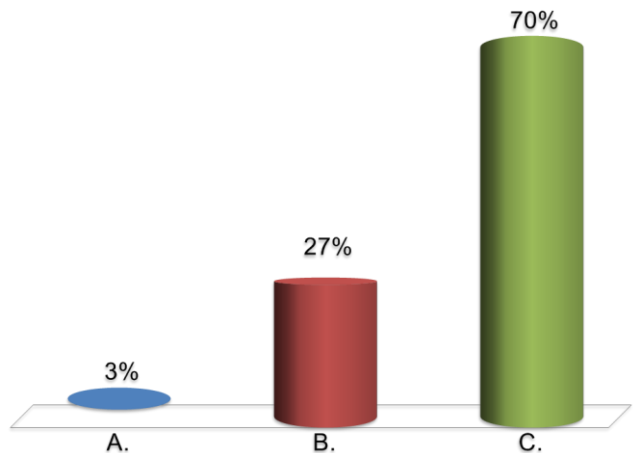


33

Hypercalcemia and Renal Management

The Oncologist orders:

- A. Dexamethasone 10 mg 4 X /day for 2 days
- B. IV saline, pamidronate 90 mg IV Over 2 hours
- C. A and B



BEATING CANCER IS IN OUR BLOOD.



34

Results:

- Patient's urine output increases
- Fluid intake and output: 3 L in 1 L out /24 hours
- Feels slightly short of breath

Oncologist orders:

- 1 dose of Lasix® (furosemide)

Results:

- Creatinine is decreased to 2.6
- Calcium comes down to 10.8 at 48 hours after starting above measures

Racial disparities in supportive care of Myeloma: ASH 2018 abstract

BEATING CANCER IS IN OUR BLOOD.



35

CASE 1 Hypercalcemia and Renal Management

- ❖ Why was pamidronate used instead of zoledronate?
- ❖ How often should he receive a bisphosphonate in the future?

Racial disparities in supportive care of Myeloma: ASH 2018 abstract.

BEATING CANCER IS IN OUR BLOOD.



36



CASE 1

Regimen Choices

- Bone marrow biopsy done on 2nd day
- By 4th day, diagnosis of multiple myeloma is made:
 - IgG lambda with 60% marrow involvement with plasma cells. FISH molecular studies are sent

BEATING CANCER IS IN OUR BLOOD.



37



What Regimen Choice Would Not Be Considered For This Patient?

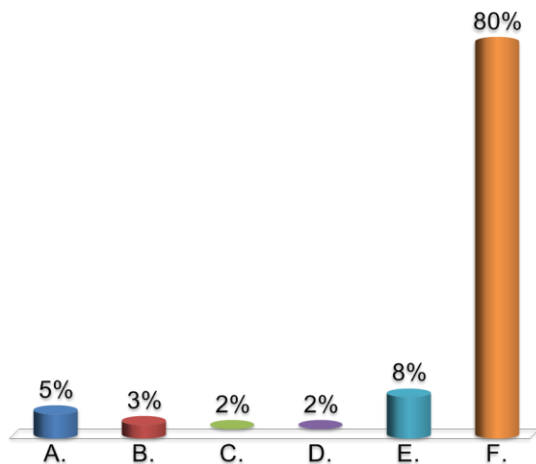
BEATING CANCER IS IN OUR BLOOD.



38

CASE 1 Regimen Choices

- A. CyBorD – cyclophosphamide, bortezomib (Velcade®) dexamethasone
- B. VRD- bortezomib (Velcade®), lenalidomide (Revlimid®), and dexamethasone
- C. Bortezomib (Velcade®), dexamethasone
- D. Lenalidomide (Revlimid®), dexamethasone
- E. KRd- carfilzomib, lenalidomide(Revlimid®), and dexamethasone
- F. Ibrutinib (Imbruvica®)



BEATING CANCER IS IN OUR BLOOD.



39

CASE 1 Chemo Side Effects

Started on bortezomib (Velcade®) and dexamethasone in hospital; discharged to outpatient 1 week later

Seen by oncologist:

- Creatinine decreased to 1.9
- Estimated creatinine clearance is 40 mL per minute

Oncologist orders lenalidomide (Revlimid®) 15 mg

BEATING CANCER IS IN OUR BLOOD.



40

What Are Some Of The Expected Side Effects Of The VRD Regimen And Which Drug Causes Which Side Effects?

BEATING CANCER IS IN OUR BLOOD.



41

CASE 1 Chemo Side Effects

Side Effects:

- Bortezomib (Velcade®)- thrombocytopenia, peripheral neuropathy
- Lenalidomide (Revlimid®)- hives, rash, itching, neutropenia
- One month later, patient still has back pain, limiting him from doing work
- Sees spine surgeon who suggests a vertebroplasty

BEATING CANCER IS IN OUR BLOOD.



42



MRI OF T CSPINE, COMPRESSION FRACTURE

T7 hyperintense unhealed compression fracture, old compression of T11



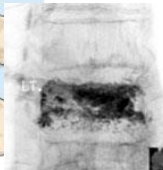
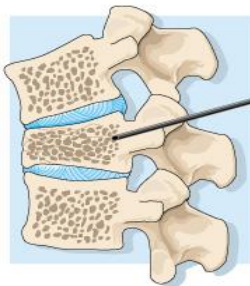
BEATING CANCER IS IN OUR BLOOD.



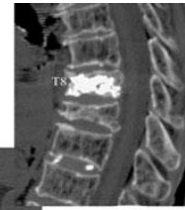
43



VERTEBROPLASTY INSERTS BONE CEMENT INTO WEAKENED VERTEBRA



Completed vertebroplasty



Post-op CT

44

MYELOMA CLINICAL MANIFESTATIONS

Malignant Plasma Cells:

-replace marrow -> cytopenias

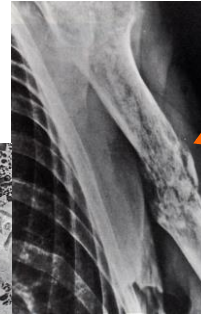
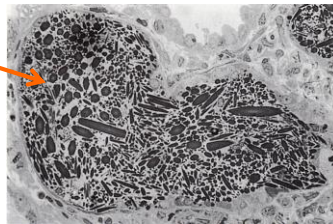
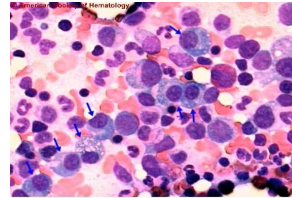
-Cause lytic lesions of bone

Fractures, pain ->

-Secrete monoclonal protein, light chains

deposit

in kidneys ->



45

CASE 1 Stem Cell Transplant Referral

After 2 months of therapy:

- Oncologist tells patient he is responding well
- Monoclonal protein on the SPEP decreased from 6 to 1.7 IgG lambda
- Refers the patient to a transplant specialist at a comprehensive cancer center

Why does oncologist recommend evaluation for stem cell transplant?

What impact should the patient expect this will have on his disease course over the years?

46

CASE 1

Prognosis by FISH/Cytogenetics and Response to Therapy

Patient completes 4 total months of VRD; his monoclonal protein decreases to 0.3 IgG lambda.

- Prior to transplant he has echocardiogram, pulmonary function test; repeat bone marrow biopsy shows less than 5% plasma cells.
- The patient asks why he needs a stem cell transplant at this time if he's had such a good response.
- What are some of the considerations the stem cell transplant specialist discussed with him?

BEATING CANCER IS IN OUR BLOOD.



47

CASE 1

Prognosis by FISH/Cytogenetics and Response to Therapy

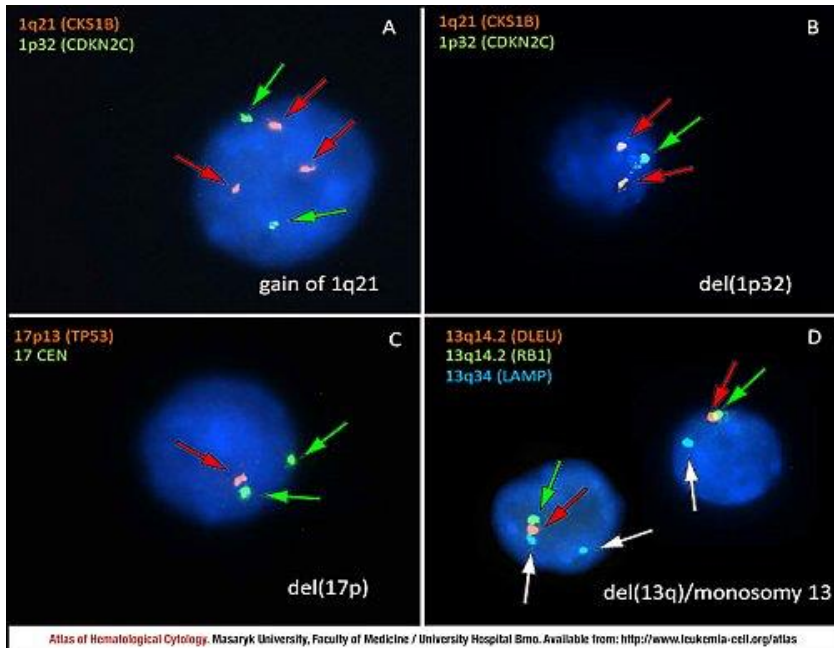
- ❖ Stem cell transplant is life-prolonging but not curative
- ❖ The dominant model in most cancer centers in Western countries now is to consolidate first line response with transplant within the first year
 - Followed by maintenance with low-dose lenalidomide (Revlimid®) for 2 or more years post-transplant
 - Some patients do choose to defer transplant if:
 - Achieved a complete remission with complete disappearance of their monoclonal protein and marrow plasma cells
 - Reserve transplant for first sign of relapse
- ❖ Patient had FISH studies showing translocation (4;14) on his original bone marrow biopsy
- ❖ How will this influence the decision for transplant?

BEATING CANCER IS IN OUR BLOOD.



48

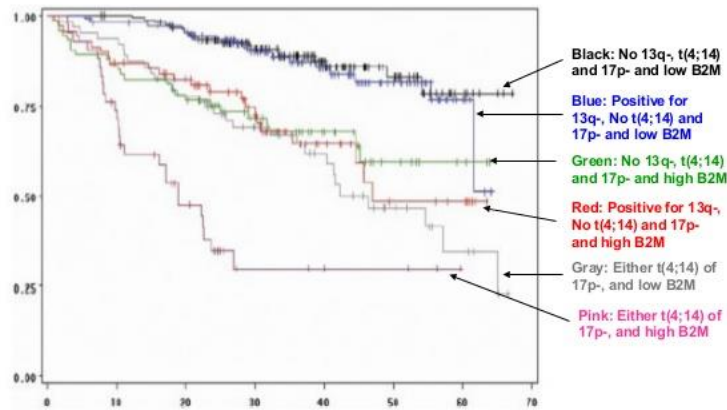
FISH Fluorescence in Situ in Myeloma Plasma Cells



49

FISH Myeloma Panel

Prognostic significance



Avet-Loiseau et al, Blood 2007; 109: 3489 - 95

50



mSMART 3.0: Classification of Active MM

High-Risk

■ High Risk genetic Abnormalities ^{a,b}

- t(4;14)
- t(14;16)
- t(14;20)
- Del 17p
- p53 mutation
- Gain 1q

- RISS Stage 3
- High Plasma Cell S-phase^c
- GEP: High risk signature

- Double Hit Myeloma: Any 2 high risk genetic abnormalities
- Triple Hit Myeloma: 3 or more high risk genetic abnormalities

Standard-Risk^a

All others including:

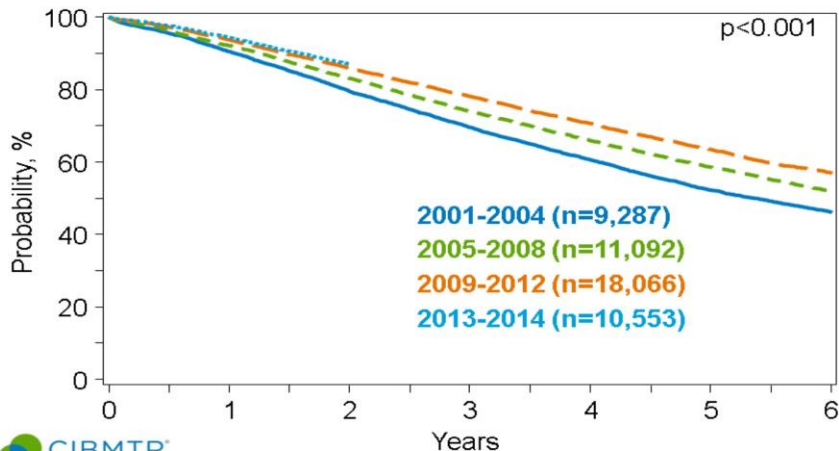
- Trisomies
- t(11;14)^d
- t(6;14)

^aTrisomies may ameliorate
^bBy FISH or equivalent method
^cCut-offs vary
^dt(11;14) may be associated with plasma cell leukemia

Dispenzieri et al. Mayo Clin Proc 2007;82:323-341; Kumar et al. Mayo Clin Proc 2009 84:1095-1110; Mikhael et al. Mayo Clin Proc 2013;88:360-376. v14 //last reviewed August 2018

51

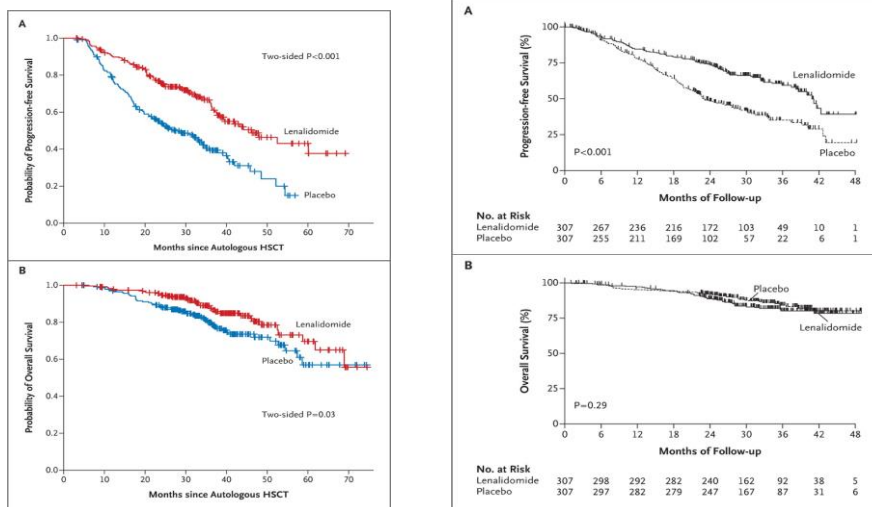
Trends in survival after Autologous HCT for Multiple Myeloma, 2001-2014



43

52

Maintenance Therapy after Stem Cell Transplant improves PFS, but OS ?



Attal M et al. N Engl J Med 2012;366:1782-1791.

53

CASE 1 Stem Cell Transplant, Maintenance, Relapse

- Patient undergoes high-dose chemotherapy → stem cell transplant
→ low dose Revlimid® (lenalidomide) maintenance for 2 1/2 years
- Pt off therapy for two years
 - Then reappearance of IgG lambda monoclonal protein and elevation of lambda light chains in the serum gradually over a few months
 - Otherwise feels well
 - Hemoglobin is decreased from 14 to 12 over that same time period

BEATING CANCER IS IN OUR BLOOD.



54

What Does His Oncologist Recommend Next In Terms Of Evaluation?

BEATING CANCER IS IN OUR BLOOD.



55

CASE 1 Stem Cell Transplant, Maintenance, Relapse

In many cases a new bone marrow biopsy will be ordered to document percentage plasma cells and new therapy regimen will be recommended.

What are some of the options?

- Revlimid® (lenalidomide) and dexamethasone, VRD, KRD, DVD, DRD
- Second salvage transplant?

Lifestyle issues, prior side effects of therapy influence choice of next therapy.

BEATING CANCER IS IN OUR BLOOD.



56



Supportive Care

FLU SHOTS, oseltamivir phosphate (Tamiflu)

Bone strengtheners to prevent fractures

Acyclovir to prevent shingles, herpes

[Racial Disparities in the Utilization of Recommended Supportive Care Among Patients with Multiple Myeloma in the US](#) Blood 2018 132:978

BEATING CANCER IS IN OUR BLOOD.



57



Immune Suppression Occurs Due to Decreased Antibody Levels

32% of patients respond to vaccination (Pneumovax ?)

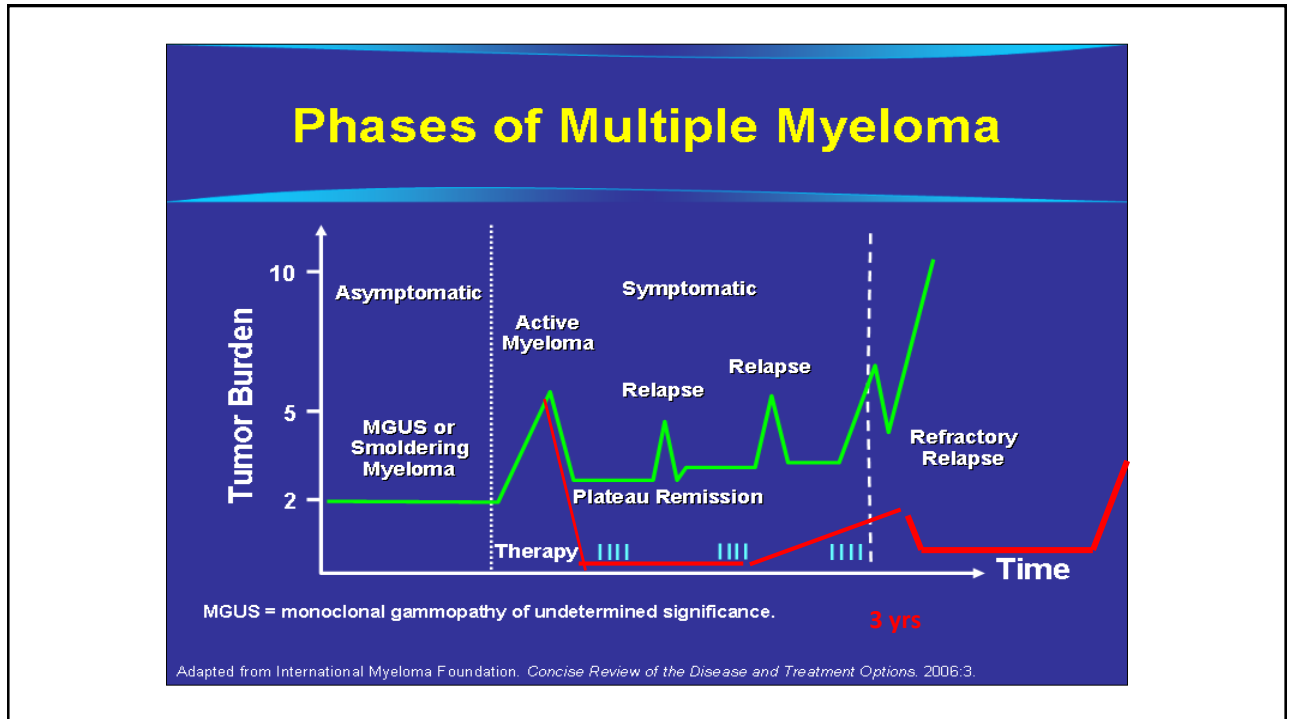
Measure IgG, IgM, IgA immunoglobulins (antobodies)

May replace low levels with IVIG: immunoglobulins from healthy individuals

BEATING CANCER IS IN OUR BLOOD.



58

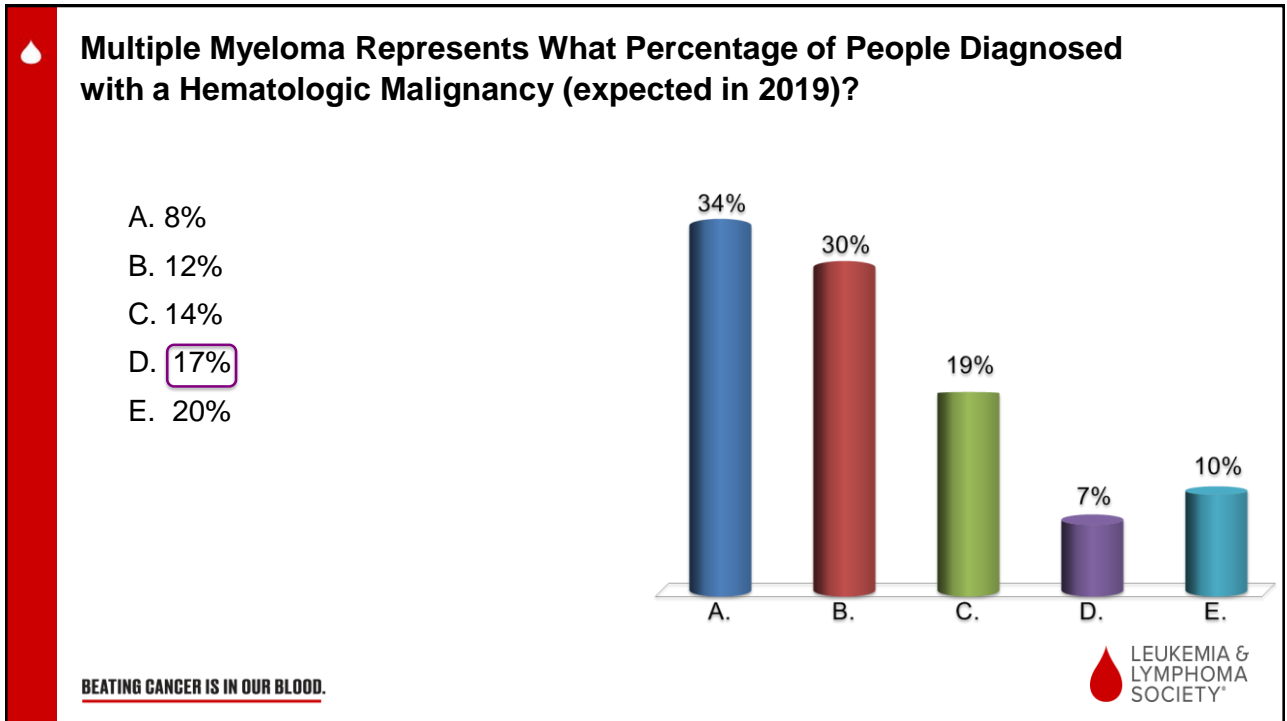


59

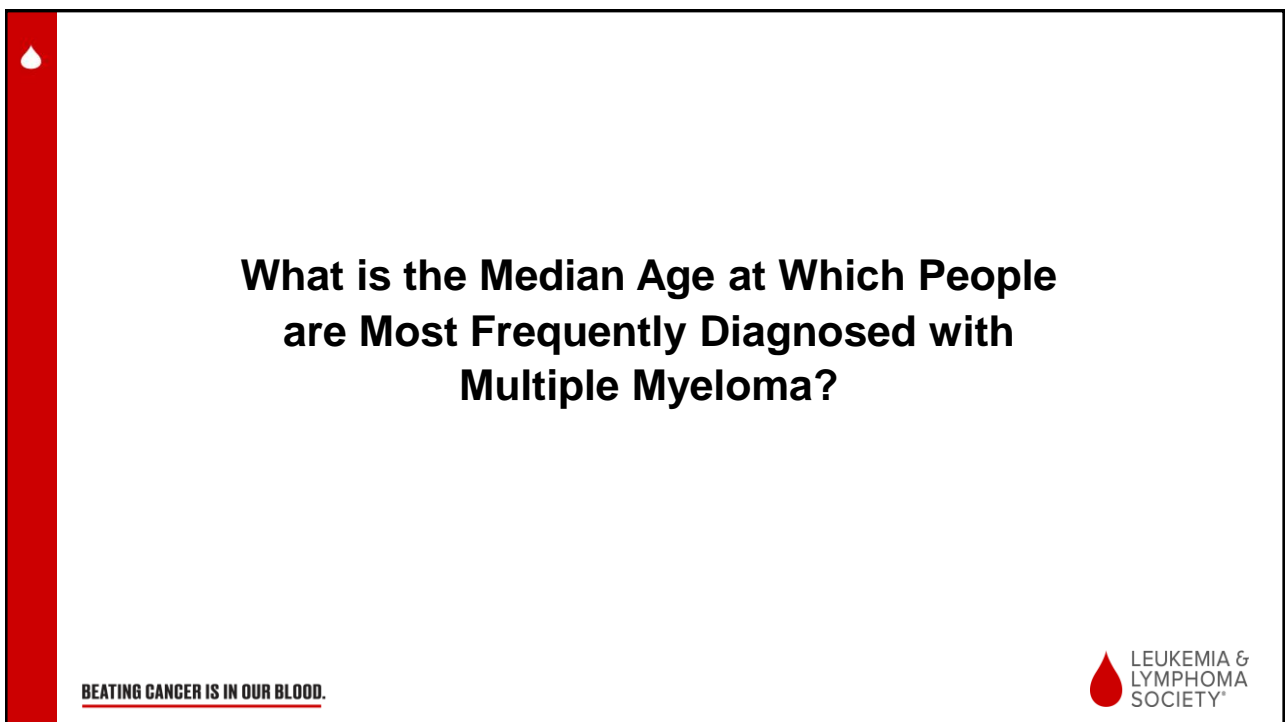
Multiple Myeloma Represents What percentage of People Diagnosed with a Hematologic Malignancy (expected in 2019)?

BEATING CANCER IS IN OUR BLOOD.

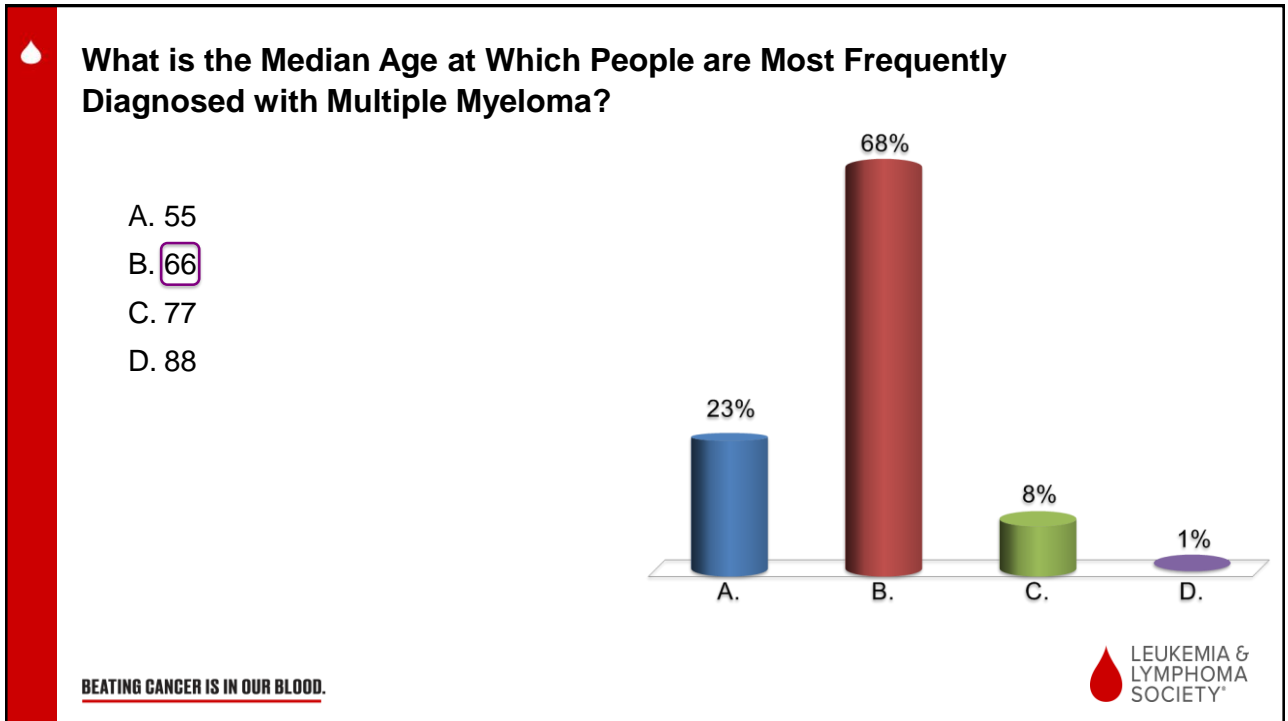
60



61



62



63

All of the Following are Common Signs and Symptoms of Myeloma Except:

BEATING CANCER IS IN OUR BLOOD.

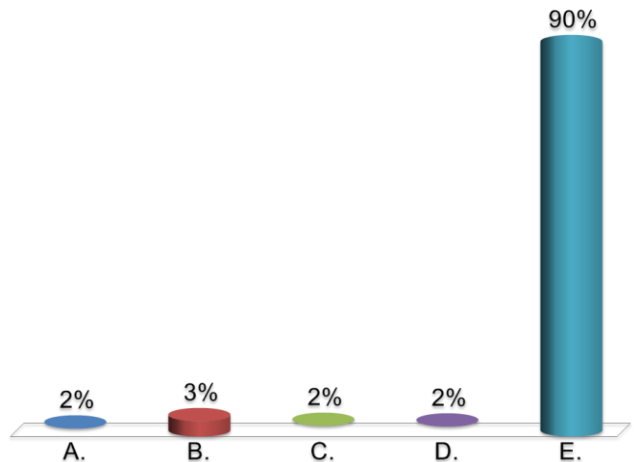
LEUKEMIA & LYMPHOMA SOCIETY™

64



All of the Following are Common Signs and Symptoms of Myeloma Except:

- A. Anemia
- B. Dehydration
- C. Bone pain
- D. Hypercalcemia
- E. Hair loss



BEATING CANCER IS IN OUR BLOOD.



65



Aside from Multi-Agent Chemotherapy, Which other Myeloma Therapy has the Highest Risk for Venous Thromboembolism?

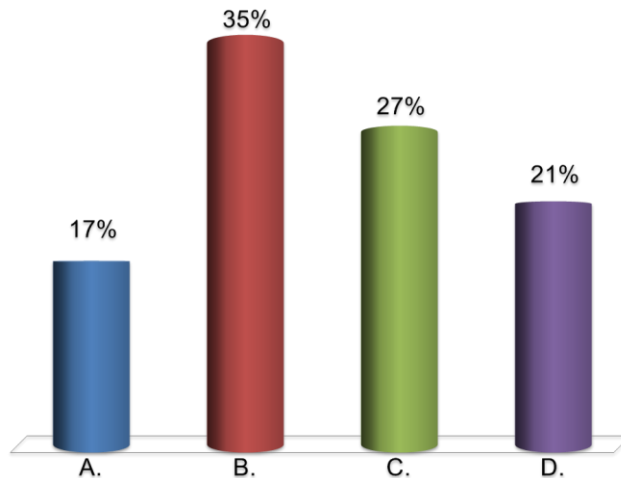
BEATING CANCER IS IN OUR BLOOD.



66

Aside from Multi-Agent Chemotherapy, Which other Myeloma Therapy has the Highest Risk for Venous Thromboembolism?

- A. lenalidomide + low-dose dexamethasone
- B. lenalidomide as a single agent
- C. immunomodulatory drugs + high-dose dexamethasone
- D. bortezomib + low-dose dexamethasone



BEATING CANCER IS IN OUR BLOOD.

LEUKEMIA & LYMPHOMA SOCIETY™

67

Doctors Sometimes use the Acronym CRAB to Describe Symptoms of Myeloma. Which of the Following Symptom is incorrect?

BEATING CANCER IS IN OUR BLOOD.

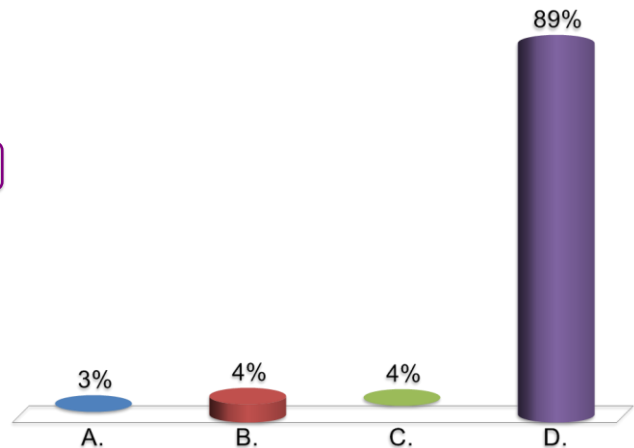
LEUKEMIA & LYMPHOMA SOCIETY™

68



Doctors Sometimes use the Acronym CRAB to Describe Symptoms of Myeloma. Which of the Following Symptom is Incorrect?

- A. C = calcium elevation
- B. R = renal insufficiency
- C. A = anemia
- D. B = Bence Jones protein elevation



BEATING CANCER IS IN OUR BLOOD.



69



Bortezomib

Common Side Effects

- ❖ Fatigue, generalized weakness
- ❖ Peripheral neuropathy
- ❖ Thrombocytopenia
- ❖ Constipation
- ❖ Diarrhea
- ❖ Poor appetite
- ❖ Nausea and vomiting
- ❖ Fever
- ❖ Anemia

BEATING CANCER IS IN OUR BLOOD.



70

Dexamethasone

Common Side Effects

- ❖ Increased appetite
- ❖ Irritability
- ❖ Insomnia
- ❖ Fluid retention
- ❖ Heartburn
- ❖ Muscle weakness
- ❖ Impaired wound healing
- ❖ Increased blood sugar levels

BEATING CANCER IS IN OUR BLOOD.



71

Lenalidomide

Common Side Effects

- ❖ Neutropenia
- ❖ Diarrhea
- ❖ Itching
- ❖ Rash
- ❖ Fatigue, tiredness

BEATING CANCER IS IN OUR BLOOD.



72

Which of the Following are Helpful Reminders to Taking Oral Medicines at Home?

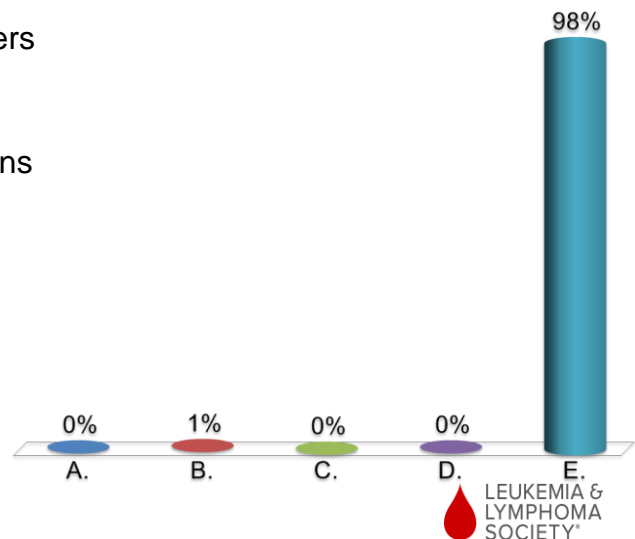
BEATING CANCER IS IN OUR BLOOD.



73

Which of the Following are Helpful Reminders to Taking Oral Medicines at Home?

- A. Alarm and smart phone reminders
- B. Visible pill boxes
- C. Sticky notes reminders
- D. Calendar to check off medications when taken
- E. All of the above



BEATING CANCER IS IN OUR BLOOD.



74

Patient Education

- Safety precautions:
Contraceptive use



- Adherence



Self-care

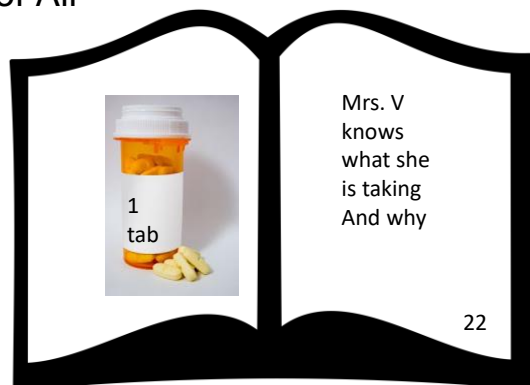
BEATING CANCER IS IN OUR BLOOD.

**LEUKEMIA &
LYMPHOMA
SOCIETY™**

75

Oral Adherence

Education for All



BEATING CANCER IS IN OUR BLOOD.

**LEUKEMIA &
LYMPHOMA
SOCIETY™**

76

Treatment Disparities

Numerous studies have identified treatment disparities among myeloma patients

- Racial Barriers
 - African Americans
 - Hispanics
- Access
- Insurance Coverage
- Co-morbid Conditions

BEATING CANCER IS IN OUR BLOOD.



77

Which of the Following Receptors Plays a Role in Cell Adhesion and Signaling?

BEATING CANCER IS IN OUR BLOOD.

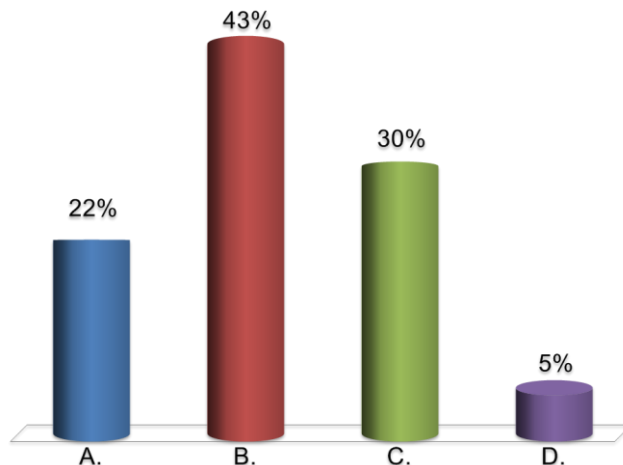


78



Which of the Following Receptors Plays a Role in Cell Adhesion and Signaling?

- A. CD38
- B. CD20
- C. CD19
- D. CD52



BEATING CANCER IS IN OUR BLOOD.



79



CASE 2 Clinical Presentation

71-year-old Caucasian female seen for regular annual visit

- Elevated total protein of 10.5 chemistry test
- Two point drop in her hemoglobin from 12 to 10.2 on CBC
- She otherwise feels well
- Iron studies are normal
- Patient had a colonoscopy 2 years ago
- She had a history of DCIS breast cancer 3 years ago



BEATING CANCER IS IN OUR BLOOD.



80

What Tests Does Her Primary MD Order Next?

BEATING CANCER IS IN OUR BLOOD.

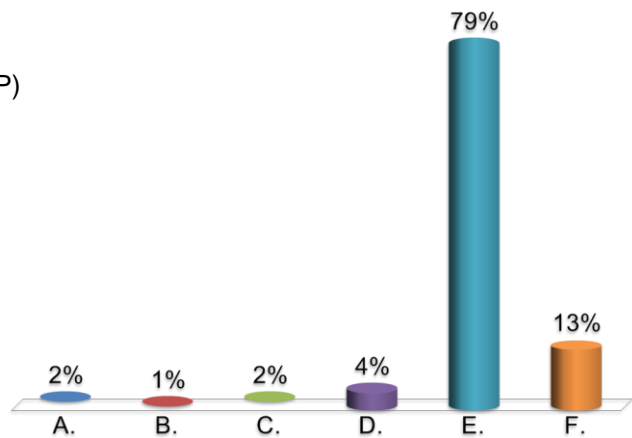


81

CASE 2 Clinical Presentation

HER PRIMARY PHYSICIAN ORDERS:

- A. A serum protein electrophoresis (SPEP)
- B. Serum free light chains
- C. A urinalysis
- D. Random urine protein electrophoresis
- E. A, B, C and D
- F. A, B, and D



BEATING CANCER IS IN OUR BLOOD.



82



Results:

- SPEP: IgA kappa 2.8 g/dL
- Serum free light chains show kappa 75, lambda 10, ratio 7.5

BEATING CANCER IS IN OUR BLOOD.



83



CASE 2

Myeloma Workup

What Other Tests Might Be Ordered Now?

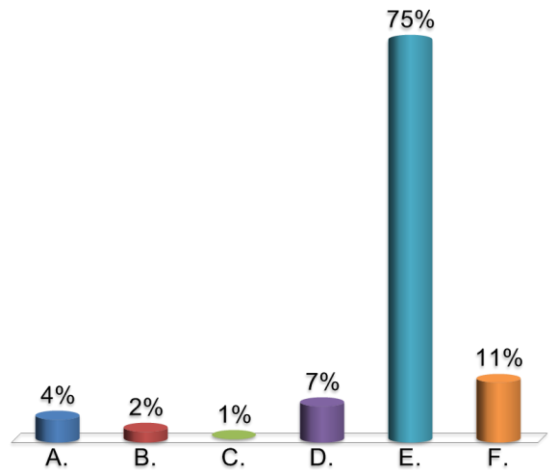
BEATING CANCER IS IN OUR BLOOD.



84

What Other Tests Might Be Ordered Now?

- A. Bone marrow biopsy
- B. Quantitative immunoglobulins IgG, IgM
- C. Beta2 macroglobulin
- D. Skeletal x-ray survey, pet scan, spine MRI, bone density test
- E. A, B, C and D
- F. B, C, and D



BEATING CANCER IS IN OUR BLOOD.

LEUKEMIA & LYMPHOMA SOCIETY

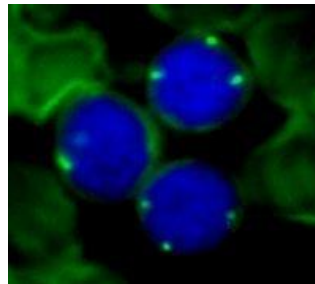
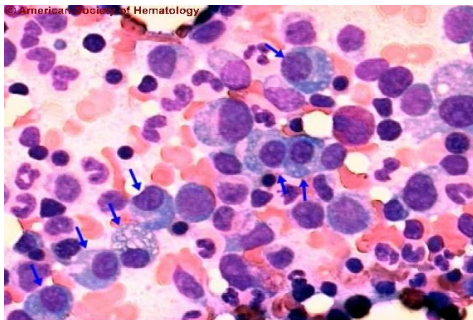
85

CASE 2

Bone marrow biopsy/FISH

Bone marrow biopsy showed 30% plasma cells

Cytogenetics and FISH on bone marrow showed no abnormalities



BEATING CANCER IS IN OUR BLOOD.

LEUKEMIA & LYMPHOMA SOCIETY

86



CASE 2 Patient Lifestyle Considerations, Access Regimen choices

The patient is an active volunteer teaching English as a second language in the local community college. She lives an hour from her oncologist's office and 3 hours from the major cancer center.

BEATING CANCER IS IN OUR BLOOD.



87



What are Some of Her Treatment Options?

BEATING CANCER IS IN OUR BLOOD.



88

CASE 2 Patient Lifestyle Considerations, Access Regimen Choices

- Lenalidomide (Revlimid®), dexamethasone
- Bortezomib (Velcade®), dexamethasone
- VRD - bortezomib, lenalidomide, dexamethasone
- KRd - carfilzomib, lenalidomide, dexamethasone
- NRD - ixazomib (Ninlaro®), lenalidomide, dexamethasone

BEATING CANCER IS IN OUR BLOOD.



89

CASE 2 Oral Medications vs Injectables

- Oral medications vs injectables
- Pharmacy plan coverage and copay, patient assistance programs
Questionnaires, Specialty pharmacy
- Subcutaneous injections vs IV medications
- Cardiac vs neuropathy side effects

BEATING CANCER IS IN OUR BLOOD.



90

Criteria for Diagnosis of Myeloma

MGUS	Smoldering MM	Active MM
<3 g M spike <10% PC*	≥ 3 g M spike OR ≥ 10% PC*	≥ 10% PC* M spike +
<p>AND No anemia or bone lesions, normal calcium and kidney function</p>		<p>AND Anemia, bone lesions, high calcium, or abnormal kidney function</p>

*In bone marrow

Kyle RA, et al. *N Engl J Med.* 2002;346(8):564-569.

91

CASE 2 Bone Health Issues

Results:

- Bone x-rays show no lesions
- Does not have any areas of bone pain
- Bone density test 5 years ago which showed borderline osteopenia
 - Now her bone DEXA T-score is -3 in the lumbar spine, i.e. in osteoporosis range
- She had been on oral Fosamax® (alendronate) for the past 2 years

BEATING CANCER IS IN OUR BLOOD.



92

Should She Go On An Intravenous Bisphosphonate?

BEATING CANCER IS IN OUR BLOOD.



93



Duration of bisphosphonate therapy

- **Patients should receive infusions of bisphosphonates monthly for 1 year, and then every 3 months for 2nd year**
- **After 2 years:**
 - **If stable disease or better, discontinue and follow general osteoporosis guidelines**
 - **If less than stable, continue monthly dosing**
 - **With relapse, return to monthly dosing and restart as above**

BEATING CANCER IS IN OUR BLOOD.



94

CASE 2

RD Anticoagulation

- After discussion about her lifestyle and quality-of-life issues patient chose lenalidomide (Revlimid®) and dexamethasone.
- Why do you think she chose this?
- What risks of this combination should be discussed with the patient and what can be done to prevent them?

BEATING CANCER IS IN OUR BLOOD.



95

CASE 2

Lenalidomide Anticoagulation

Aspirin vs anticoagulation

- Blood clots occur in up to 20% of patients on Revlimid® (lenalidomide) and dexamethasone
- At a minimum patient should be on daily aspirin
- If there are higher risk features such as prior history of blood clots, surgery, obesity or inactivity, higher level anticoagulation can be considered
- Patient chooses to take aspirin daily



BEATING CANCER IS IN OUR BLOOD.



96

CASE 2

Deep Vein Thrombosis

- Two months later patient develops discomfort in her left calf and swelling of the left ankle
- Goes to primary MD who Doppler ultrasound finds a blood clot extending to just above the knee or popliteal vein
- The patient is started on rivaroxaban → leg swelling gets better

BEATING CANCER IS IN OUR BLOOD.



97

**Does She Need to Discontinue
Revlimid® (lenalidomide) and
Dexamethasone?**

BEATING CANCER IS IN OUR BLOOD.



98

CASE 2

Response, Continued Therapy

- After 4 months her monoclonal protein has gone down by approximately 70% - appears to plateau at 0.9 g/dL.
- What additional or different therapies might she consider at this time or should she just stay on her current regimen?
- Should she consider a stem cell transplant?

BEATING CANCER IS IN OUR BLOOD.



99

CASE 2

Response, Continued Therapy

She may continue on lenalidomide (Revlimid®), and dexamethasone if she prefers

OR

consider addition of the oral agent ixazomib (Ninlaro®) if she prefers not to drive weekly to the oncologist for IV or subcutaneous medicines.

BEATING CANCER IS IN OUR BLOOD.



100

CASE 2

Triple Oral Regimen

- She chooses to add in ixazomib (Ninlaro®) and stays on NRD for 5 months.
- Her monoclonal protein decreased to 0.1 and her hemoglobin has gone back to 12.
- She's asking about stopping therapy versus maintenance now.
- Her oncologist recommends staying on Revlimid® (lenalidomide) 10 mg single agent for the next 2 years or until increasing markers of her disease suggest progression.

BEATING CANCER IS IN OUR BLOOD.



101

There are over ___ clinical trials open for multiple myeloma that focus on every stage of the disease?

BEATING CANCER IS IN OUR BLOOD.

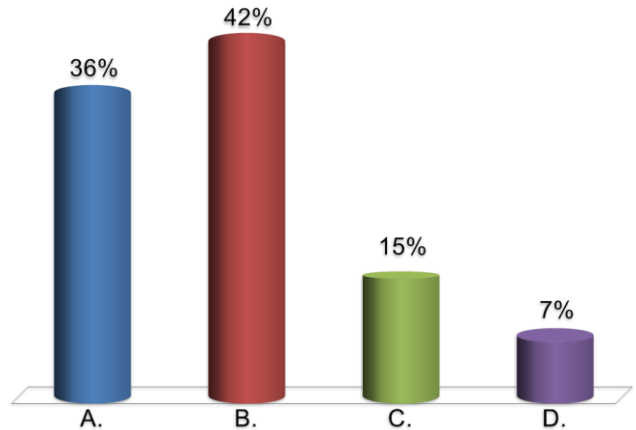


102



There are over ____ clinical trials open for multiple myeloma that focus on every stage of the disease?

- A. 85
- B. 150
- C. 225
- D. 400



BEATING CANCER IS IN OUR BLOOD.



103

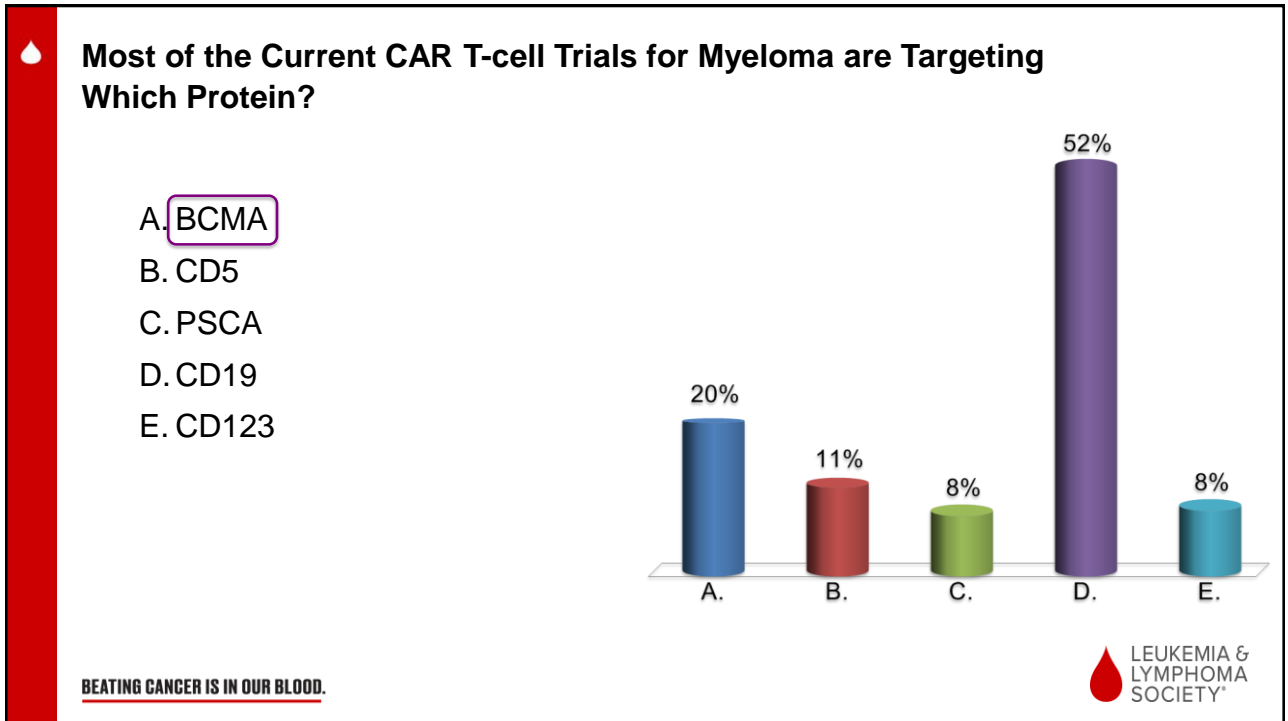


Most of the Current CAR T-cell Trials for Myeloma are Targeting Which Protein?

BEATING CANCER IS IN OUR BLOOD.



104



105

What Does BCMA Stand For?

BEATING CANCER IS IN OUR BLOOD.

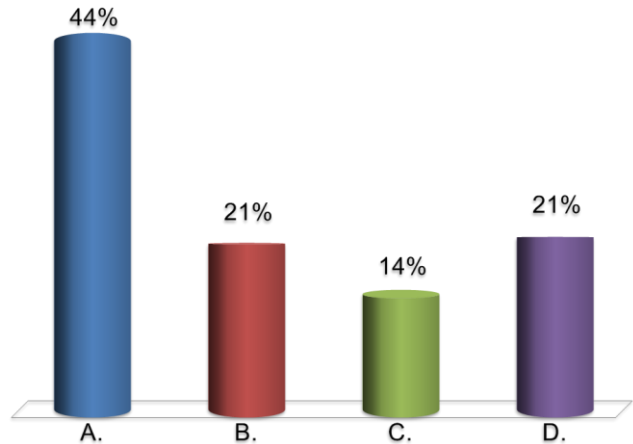
LEUKEMIA & LYMPHOMA SOCIETY®

106



What Does BCMA Stand For?

- A. B-Cell Microglobulin Antigen
- B. B-Cell Myeloma Antibody
- C. B-Cell Maturation Antigen
- D. B- cell monoclonal Antibody



BEATING CANCER IS IN OUR BLOOD.

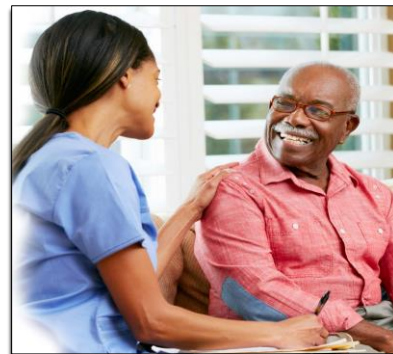


107



LIVING WITH MYELOMA

- Physical Changes
 - Body Image
 - Physical abilities
- Psychosocial Changes
 - Depression
 - Anxiety
 - Fear
- Symptom Management
 - Pain
 - Peripheral Neuropathy
 - Renal damage



BEATING CANCER IS IN OUR BLOOD.



108

Barriers to Access

Difficult Diagnosis

- ❖ Vague Symptoms
 - pain/discomfort
 - shortness of breath
 - decreased urine output
- ❖ Lack of Recognition
- ❖ Denial

BEATING CANCER IS IN OUR BLOOD.



109

Barriers to Access

- ❖ Lack of Knowledge
 - Health Literacy
 - Resources
- ❖ Lack of Social Support
 - Family
 - Friends



BEATING CANCER IS IN OUR BLOOD.



110

Barriers to Access

❖ Poor Communication

- Healthcare system
- Healthcare provider

❖ Financial Issues

- Insurance
- Socio-economic status

❖ Logistics

- Transportation
- Appointments

BEATING CANCER IS IN OUR BLOOD.



111

Oral Chemotherapy Patient Education

Patient education about oral chemotherapeutic agents should include:

- Side effects of the medication(s)
- Possible adverse affects of the medication(s)
- What to report to their oncologist and when
- The importance of communicating with all healthcare providers
- The importance of taking the medication(s) exactly as ordered

****How to contact their healthcare provider(s)**

BEATING CANCER IS IN OUR BLOOD.



112

Sources of Support

Patient Education Material

- Pharmaceutical Companies
- The Leukemia & Lymphoma Society
- National Cancer Institute
- American Cancer Society
- Oncology Nursing Society
- International Myeloma Foundation



BEATING CANCER IS IN OUR BLOOD.



113

Improving Access to Care

Outreach

- Places of worship
- Community venues
- Health Fairs
- Word of Mouth



BEATING CANCER IS IN OUR BLOOD.



114



THANK YOU

We have one goal: A world without blood cancers

