MYELOMA HIGHLIGHTS FROM ASH CONFERENCE ATLANTA 12/5-9/2014

According to Jack Aiello (definitely not medically trained)

PREFACE

This is my 9th year attending ASH (American Society of Hematology), where over 26,000 attendees (most ever) from all over the world (hematologists/oncologists, lab researchers, oncology nurses, scientists & 300 pharma companies) presented latest research results via both oral presentations (1000) as well as posters (3000) on all blood cancers. This year there were 855 abstracts (>100 clinical) on Myeloma alone, many of which were selected for oral presentation.

Rather than attending talks on Biology, I typically focus on the Clinical Trials, which I'm able to understand and are more relevant near-term to patients. Even at that, there are overlapping MM oral sessions as well as 4'x6' posters without reprints, so it's always possible that I have not included something of interest to you or made a typo because I can't read my own writing as detailed powerpoint slides are presented quickly. You might want to view the published abstracts at www.hematology.org and various press releases. [Wherever relevant, I've listed Day-Abstract#-Lead Investigator after the trial results, e.g. {Sat-**31**-R. Vij} and clicking on the abstract number will take you to the actual abstract.]

There are other ways to learn more about results from this conference. The IMF and Patient Power were conducting video interviews of MM experts for postings on their site. There are scheduled webinars (MMRF 1/8/15, IMF 1/15/15) which you can listen to live or by replay. You'll also find some patient blogs (including mine) as well as MM expert video interviews posted on the IMF website (www.myelomal.org). And all of us in the SF bay area should attend the LLS Blood Cancer Conference (which includes updates from ASH) Jan 24, 2015 in SF (http://bit.ly/NorCalBCC to register). Dr. Tom Martin of UCSF will do a great job presenting the latest information.

Presentations and posters of clinical trial results follow the same format: Background (including hypothesis), Study Objective, Design & Treatment schema, Patient Characteristics & Cohorts, Responses (include high-risk cytogenetics), Toxicity (hematological and non-hematological), Conclusion, and Next Step. Remember, the goal of Phase I (typically handful of patients) is to determine "Maximum Tolerated Dose"; Phase I/II and II (typically 25-75 pts) continues to measure dosage escalation and safety while looking at responses; and finally Phase III (several hundred patients) compares response rates between new and current treatments.

Treatment schedules are defined for stages of **Induction**, and optionally **Transplant**, **Consolidation**, and **Maintenance** with specified **Randomization** along the way; dosage amounts and scheduling are provided for each drug along with optimum number of treatment cycles (typically 28 days). **Risk stratification** correlates various techniques such cytogentics and FISH analysis (e.g. chromosome deletions and translocations) gene-expression profiling (GEP).

OVERALL IMPRESSIONS

- **Blockbuster?** While I didn't see a blockbuster announcement this year, I saw many posters and oral presentations that focused on potential myeloma and bone marrow microenvironment markers as treatment targets for which drugs should be developed and may very well become future blockbusters.

- **Smoldering Multiple Myeloma (SMM)** Recently, "*ultra* high-risk" SMM (plasma% > 60%, free light chain ratio > 100, or focal lesions > 1) has now been reclassified by the International Myeloma Working Group (IMWG) as full-blown MM...meaning that contrary to the previous "watch-and-wait" recommendation, this asymptomatic patient should now be treated as any MM pt. And rather than "watch and wait", more studies are being done on "high-risk" SMM pts (M-spike >= 3g/dL and plasma% 10-60% but no CRAB damage) to determine if earlier treatment benefits them. Dr J. Mikhael dubbed this "SLiM"-CRAB...S=60, Li=light chain and M = MRI.

- **Monoclonal Antibodies** This continues to be the most exciting next area beyond Proteasome Inhibitors (e.g. PI such as Velcade) and IMIDs (e.g. Revlimid) that will yield targeted drug therapies. Daratumumab, Elotuzumab, and SAR650984 are all making their way through trials.

- **So many options** In general better responses and longer progressions-free survivals result in better overall survivals. The list of treatment options since last year's ASH continues to grow now that we have Carfilzomib and Pomalidomide, which can be combined with other treatments and often work when their predecessor (e.g. Velcade & Revlimid respectively) stopped working.

- **Maintenance** This is still a hot topic. Most agree that maintenance (a better name might be "continued treatment") improves progression-free survival and some trials are showing overall survival benefit as well. Many docs believe that continuous maintenance till progression yields better results than maintenance for a fixed time period.

- **Clinical Trials** There are clinical trials for every diagnosis phase... from high-risk SMM to MM, for newly diagnosed thru relapsed/refractory, both SCT-eligible and non-eligible and maintenance. Trials are so important because that's how we advance possible treatments and new drugs. Perhaps you want to ask your MM doc if there's a trial you should consider.

- **Minimum Residual Disease (MRD)** For the first time, there were 9 oral presentations and posters on incorporating MRD techniques (flow cytometry or DNA sequencing) within trials providing a better diagnostic tool to determine whether a particular treatment has been successful.. In time, MRD may also help guide further treatment (e.g. perhaps to stop maintenance) as well as provide information about your prognosis (e.g. examine the make-up of a myeloma cell). One poster showed that MRD progression via Flow preceded clinical relapse by 8 mos. {Sun-**3394**-M.Gambella}

- **Quality of Life (QOL) & Costs** QOL and Adverse Events (AE) continues to be a strong focus with any trial and while I wasn't able to attend it, there was a major oral presentation on drug costs (more below).

Of course, there continues to be unanswered questions such as:

- I'm **SMM**...should I consider treatment or watch & wait?
- **Best treatment** for me as a newly diagnosed or R/R patient? What if I'm standard or high-risk [del 17, t(4;14), t(14;16) about 25% of pts]?
- For **transplant**-eligible, do it **now, later or never**?
- Length and type of **maintenance**?

Yet, I'm very encouraged by the continued progress to understand everything about MM, determine new MM cell targets, and learn what treatments work best.

COMMENTS AND DISCUSSIONS I FOUND PROVOCATIVE

1. At the IMF Symposium, several questions were asked of the attendees (1000 clinicians and others). After each MM expert presented their side of the story, here were answers ("don't know or maybe" not listed): 1) Should treatment be given to high-risk SMM? Y-17%, N-77%. Note this does not include "ultra" and there was general agreement about doing clinical trials to answer this question; 2) Should maintenance be continuous? Y-58%, N-39% but higher level of "Yes" for high-risk MM; 3) Preferred Therapy for Relapsed/Refractory Pts? Car-Pom-dex (KRd)-56%, Car-dex or Pom-dex -24% or 2nd SCT-19%.

2. "We lack data on the usage of MRD results but fortunately MRD is being incorporated in trials" S.V. Rajkumar (Mayo)

3. I attended a meeting of the NCI Myeloma Steering committee meeting, which approves clinical trials dependent on NCI funding. Since trials are expensive and often difficult to accrue, one discussion was around the NCI MATCH trial which pairs molecular abnormalities with drugs targeting that abnormality and whether this might be an effect umbrella trial design for MM.

4. "Velcade must be part of induction treatment for SCT." At the end of 2014, preliminary randomized data favored early SCT plus novel agents vs novel agents alone. P. Moreau (France)

5. "Early SCT feasibility is 90% but delayed SCT feasibility is 70%." P. Moreau (France)

6. "At some point the biology of a pt's MM will dictate whether or not an SCT is the best treatment." DETERMINATION trial results will help answer this. P Richardson (Dana Farber)

7. "The median survival for standard risk MM patients is approaching 10 years." Mayo's mSMART classification shows OS for Standard (60%), Intermediate (20%) and High-Risk (20%) pts as 8-10, 4-5, and 2-3 yrs respectively. J. Mikhael (Mayo)

8. IMWG definitions: Relapse-disease recurrence of >25% in the absence of current therapy after the pt showed a response. Refractory- refers to a relapse if a patient is on therapy (or within 60 days of completing treatment). Primary refractory means a patient never achieve a response from treatment.

9. Drs should ask 5 questions when treating a relapsed pt: 1.Do I need to treat the pt now? 2.Should I retreat with previous therapy? 3.Have I used the Big 5 (Thal, Rev, Pom, Vel, Cfz)? 4.Have I used add-on agents (e.g. Cytoxan, Doxil)? 5.Have I considered an individualized, risk-stratified treatment such as intermediate risk needing velcade-based and high-risk needing more intense combinations. J. Mikhael (Mayo)

SMOLDERING MM

10. This Spanish phase 3 trial was the first significant study that compared Rev-dex versus "watch & wait", for SMM pts considered high risk (PC > 10% and M-protein > 3g/dL, or >95% aberrant Plasma Cells...abnormal expression of CD antigens, or abnormal FLCs). 119 pts have been followed a median of 5+ yrs and shown 1) progression to MM for 23% vs 85%; 2) For those that progressed to MM and started therapy, those alive 5 yrs later are 83% vs 58%; OS is 93% vs 67%. {Sun-**3465**-M-V.Mateos} There are other HR SMM trials looking at Rev-only {Sagar Lonial} and Cfz-Rev-dex {Ola Landgren}.

11. This poster offered clinical factors that predict the progression of SMM into MM within 2 yrs by having followed 287 SMM pts, 52% having progressed to MM. Factors associated with significant progression where 1) FLC ratio > 30; 2) plasma% > 15%; 3) M-protein > 2.3 g/dL; 4) beta2 microglobulin > 2 mg/l. They concluded that the 2-yr progression risk was about 18%, 21%, 42% and 79% if 0, 1, 2, or 3 risk factors were present. {Sat-**2071**-R.Hajek}

FRONTLINE THERAPY FOR TRANSPLANT ELIGIBLE PATIENTS

12. While I didn't see a significant presentation or poster in this area, MM experts at the IMF's "Make Sense of Treatment" discussion agreed that RVd should be used independent of risk status but the results of the ASPIRE trial (see below) suggest KRd is also a reasonable option.

TRANSPLANTS

13. I was not able to attend this presentation but auto-mini-allo (mostly MUD) was compared with tandem auto in newly diagnosed FISH-del13q MM in this German study that looked at 200 pts. At median follow-up of 49 mos, 2-yr PFS (calculated from day 1 of second SCT) was 59% versus 47% respectively although median OS has not yet been reach for either group. Those smaller number of pts with both del13p and del17p also tended towards favoring the auto-mini-allo but it's still early. {Sat-**43**-S.Knop}

FRONTLINE THERAPY FOR TRANSPLANT INELIGIBLE PATIENTS

14. This phase 1-2 study examined weekly (instead of twice/wk) Carfilzomib, Cytoxan and dex (wCCd) in 30 newly diagnosed elderly pts. For the 21 pts at the MTD Cfz of 70mg/m2 plus Cfz maintenance, >=nCR was 41% (47% for twice/wk) and >=VGPR was 91% (77% for twice/wk). Toxicity similar with 19% serious AE's. This may turn out to be a very important trial for patients, considering the big difference in going to an infusion center once per week instead of two consecutive days as is currently the requirement for Carfilzomib.{Sun-**175**-A.Palumbo}

15. A phase 3 trial compared MPT-T versus MPR-R for 637 newly dx'd pts. Both arms resulted in similar PFS (~20 mos), response rates, and OS (~54% @ 4yrs). {Sun-**179**-S.Zweegman}

16. You might hear about RVD-lite, Rev 15 mg days 1-12, Vel 1.3 mg/m2 once/wk, dex either 40mg/wk for pts <= 75 or 20mg/wk for pts >75 for 33 pts resulted in 82% ORR and was well-tolerated. {Sun-**3454**-E.O'Donnell}

TREATMENTS FOR RELAPSED/REFRACTORY (R/R) PATIENTS

17. The Phase 3 ASPIRE trial compared Cfz-Rev-dex (KRd) versus Rd for 792 relapsed MM pts. The results were a longer median PFS of 9 mos (26.3 vs 17.6) and a trend to longer OS although median OS has not been reached in either group. ORR was 87% vs 67% and, impressively, CR rates of 31% vs 9%.. All neuropathy for both groups was about 17% and grade >=3 PN was infrequent (each about 3%). Also interesting the patient reported outcomes showed an improved QOL for the KRd arm (perhaps because of deeper responses). {Sun-**79**-K.Stewart}

18. The Phase 3b STRATUS trial examined Pom-dex for 604 R/R MM pts, nearly 80% refractory to both Velcade and Revlimid. Median PFS and OS were 4 mos and 11 mos respectively while ORR was 35% (7% >= VGPR)...all this being good numbers for this heavily pre-treated group of pts. Grade 3 neutropenia (low white count) of 42% was the highest AE but counts recovered quickly. {Sun-**80**-M.Dimopoulos}

19. Pom-Cytoxan-dex was shown to be superior to previous Pom-dex study in a Phase 2 trial of 36 R/R pts, 100% Rev refractory, 75% Vel refractory and 40% Cfz refractory. Improvements shown in ORR (65% vs 35%), PFS (9.5 vs 4.4 mos) and median OS (not yet reached vs 16.8 mos). Adding Cytoxan to those on Pom-dex only showed minimum benefit. {Mon-**303**-R.Baz}

20. Pom-Vel-dex (PVd) results in a Phase 2 study of 42 R/R pts showed 85% ORR (including 45% >= VGPR) and median PFS of 10.7 mos (including 9.5 mos in high-risk pts). Pts were Rev-refractory and most had prior Vel and SCT's. Grade 3+ AE's (mostly hematological) seen in 83% of pts but this is typical for Pom-dex. {Mon-**304**-M.Lacy}

MAINTENANCE (including CONSOLIDATION)

21. While I was not able to attend this presentation, this retrospective analysis of 466 pts examined timing and duration of Rev maintenance (5-15 mg daily or every other day) after an SCT. Questions asked: 1) Did maintenance improve disease status, e.g. put pts in CR who had not achieved CR before maintenance? Ans: After 2 yrs, 37% improved response and 50% of those pt improvements were from non-CR to CR; 2) What are the effects of starting maintenance early (within 4 mos) versus late (after 4 mos)? Ans: No PFS or OS differences; and 3) Does continuous maintenance beyond 2-3 yrs improve PFS and OS? Ans: No difference in PFS but there was an OS improvement. {Sun-**194**-I.Mian}

22. A poster from the FIRST trial (Continuous Rd vs Rd18 vs MPT) of over 1600 newly diagnosed elderly pts examined maintenance and concluded that continuous Rd improved outcomes (PFS, OS) irrespective of responses achieved. {Sun-**3458**-N.Bahlis}

NEW DRUGS

23. Ibrutinib is a BTK inhibitor expressed by MM cells as well as osteoclasts, which breaks down bones, and recently received FDA approval for CLL and Mantel Cell Lymphoma. These early results from this phase 2 trial for R/R MM pts demonstrated that Ibrutinib showed response activity (25% >= stable disease, 4 mos PFS) with and without dex but also showed about half the pts having grade >=3 hematological AE's so further studies will be done on Ibrutinib. {Sat-**31**-R. Vij}

24. Panobinostat (Pan) is an HDAC inhibitor that recently was not approved by an FDA advisory committee (GI/diarrhea issues vs addtl 2.2mo PFS) but is still being tested in trials. A final determination by FDA regarding approval is still pending. A small (6 pts reported) phase 1 study of Pan (20 mg) + Cfz (+ minimal dex of 0-8mg/week) for R/R MM pts showed 46% ORR (inc 19% >= VGPR) but also some AE's. {Sat-**32**-J. Kaufman}

25. Another Phase 1/1b Panobinostat trial for 31 pts paired it with RVd, except this time with Pan 10mg and for newly dx'd pts, resulting in 95% ORR and a promising depth of response with a nCR/CR for 50% of pts and no surprising toxicities. {Sat-**33** -J. Shah}

26. Oprozomib is an oral PI from Onyx tested as a single agent in a Phase 1b/2 study for 87 pts. Cfz-refractory pts had an 18% ORR. Oprozomib, being given either 2 days per week for 2 weeks or days 1-5 for 2 weeks, has been reconfigured from powder in a capsule to a tablet to an extended-release tablet in order to improve efficacy and minimize AE's. {Sat-**34**-R. Vij}

27. Ixazomib is an oral PI from Takeda (Millennium name is going away) and was tested in 50 newly dx'd pts in a Phase 2 trial. Ixazomib-Rev-dex was given as induction for 12 cycles followed by Ixazomib maintenance until progressionat 4mg on day 1, 8, and 15 each month. ORR was 90% (>= VGPR 59%) with PFS of 22 mos. Maintenance improved response in 48% of pts, with CR/nCR going from 24% to 62% with manageable AE's. {Sun-**82**-S. Kumar}

28. SAR650984 (Anti CD-38 mAb from Sanofi) was tested in a Phase 1b trial with Rev-dex in R/R MM 31 pts @ SAR dosage 10mg/kg. SAR (given twice/week)-Rd resulted in 63% ORR for pts (94% refractory to Rev!). For those refractory to both Rev & Vel, 40% ORR. Some hematologic AE's (common with Rev), some infusion site reaction during first 2 cycles. {Sun-**83**-T.Martin}

29. Daratumumab (Anti CD-38 mAb from Janssen) was tested in a Phase 2 trial with Rev-dex in R/R MM 30 pts with Dara dosage 16mg/kg (once/wk 8wks, then twice/mth 16 wks, then once/mth till progression). This achieved an ORR of 87% (7% CR, 43% VGPR) with a median time to CR of 5 mos. For pts not Rev-refractory, 75% >= VGPR and AE's same as Rd. {Sun-**84**-T.Plesner}

30. Daratumumab was combined with 4 "baseline" regimens Vd, VTd, VMp and Pom-d (6 pts in each arm) and all newly diagnosed except Pom-d R/R. ORR was 100% in the first 3 arms and 50% in the Pom-d arm, all with very low AE's. {Sun-**176**-P.Moreau}

31. Elotuzumab (Anti SLAMF7, formerly CS-1, mAb, expressed on 95% of MM cells but little on normal tissue) was combined with Rd in a Phase 2 trial of 73 R/R (but Rev-naïve) pts. At 10mg/kg dosage, Elo-Rd showed ORR 92% and PFS 32 mos with no dose-limiting toxicities. Elo is being tested in Phase 3 trials for R/R and NDMM pts. {Mon-**302**-P.Richardson} In a poster, Elo-Rd was similarly effective for pts with renal insufficiency. {Sat-**2119**-J.Berdeja}

32. LGH447 (Pan-Pim Kinase inhibitor, daily MTD 500mg, oral from Novartis) was studied in a Phase 1 trial of R/R pts with doses 70-700mg. Single agent activity was 10.5% ORR (best VGPR) over all doses, some grade 3/4 AE's (mostly hematologic). {Mon-**301**-M.Raab}

33. Other new drugs you might hear about are: Ricolinostat (ACY-1215), HDAC Inhibitor; Selinexor (KPT-330), anti-tumor suppressor; PRLX 93936, Ras pathway inhibitor; Cabozantinib (SL-401), tyrosine kinases inhibitor; Ulocuplumab (BMS-936564) Anti-CKCR4 antibody; Filanesib (ARRY-520), kinesin spindle protein (KSP) inhibitor; Indatuximab Ravtansine (BT062), antibody conjugate including anti CD-138; Ricolinostat (ACY-1215), HDAC6 inhibitor; and more.

OTHER RESULTS

34. On Saturday a lecture was presented called "The Rising Cost of Medical Care: Understanding the Problem and Exploring Solutions" which certainly includes the rising cost of drug. While I wasn't able to attend, I heard the example being given about Gleevec (possibly the first targeted novel therapy), a daily tablet that results in curative control of Chronic Lymphocytic Leukemia. When it became available in 2001, the annual cost was $28K/yr. Now, with no difference in the drug formulation or packing, that annual cost has skyrocketed to $92K/yr. Apparently the phrase "financial toxicity" was frequently used during this meeting. And patients are not taking their medicine or even filling presricptions because of cost. Should docs introduce the concept of "cost-effectiveness" to the pt? Dr. Kantarjian from MD Anderson said that drug prices are now set not at a reasonable return on investment, but on "whatever the market will bear". Clearly, the cost of medical innovation and the fair price of new medicines is a complex topic which requires urgent attention.

35. For Light Chain MM, Free Light Chain test via serum (blood) is more reliable than FLC test via urine due to the rapid clearance of the LC in urine. {Sun-**180**-J.Corre}

36. While I wasn't able to attend this presentation, this abstract gives you some insights in understanding gene mutations where 150 MM cases were sequenced via a 77-gene mutation panel. After the first 30 cases, the most commonly mutated genes were *KRAS* (37%), *NRAS* (21%), *BRAF*(13%), *TP53*, *CDKN1B*, *DIS3* (each 11%), *FAM46C*, *STAT3*, and *IRF4* (each 8%). The MEK-ERK pathway was mutated in 61% of cases and in 3 cases more than one gene in this pathway (*NRAS*, *KRAS*, *BRAF*) was simultaneously mutated. {Sun-**169**-KM.Kortuem}

37. While I wasn't able to attend this presentation, this abstract was another study on risk analysis and gene mutations from the MMRF CoMMpass trial (in which at least 2 of our SF Bay Area MM group participate). CoMMpass will study 1000 pts, of which over 650 have been accrued and 195 were reported on in this presentation. Looking at gene mutations, 44 distinct genes were mutated in at least 2% of patients. The most common mutations (>7 patients) occurred in KRAS, NRAS, IGLL5, DIS3, BRAF, ACTG1, EGR1, FAM46C, TRAF3, DUSP2, FGFR3, and PRR14L. As the study continues to mature, we expect it will provide unprecedented molecular characterization and correlating clinical datasets that will help define the factors of response to anti-myeloma agents and facilitate future clinical trial designs, thus serving as a stepping-stone toward personalized medicine for myeloma patients. {Mon-**722**-J.Keats}

38. Renal response was evaluated in a retrospective study of 150 R/R pts with moderate or severe Renal Insufficiency (RI) in this poster. After treatment with Rev and/or Vel based treatments, 15% showed renal improvement (compared with 38% ORR), although there was no difference between Rev or Vel efficacy. {Sat-**2104**-J.Rubia} Another poster for 1135 NDMM pts with RI showed 66% showed improvement and 51% had complete reversal. {Sun-**3368**-W.Gonsalves}

39. A study examined prevalence and predictors of delayed cardiovascular disease (e.g. heart failure, stroke) and concluded that MM pts have a two-fold increase in experience CVD. As such, it was recommended that we should consider having a cardiologist as part of our medical team. {Tue-**857**-S.Armenian}

40. This study examined how access to advanced care might result in better Myeloma survival by categorizing 45,000 pts in A) 43% < 20 mi from SCT facility; B) 35% 20-70 mi; C) 18% 70-200 mi and D) 4% > 200 mi. Median Survival based on distances were A) 34 mos, B) 37, C) 31, and D) 30. Other impacts studied were household income, race ethnicity and education. {Tue-**858**-R.Innis-Shelton}

41. One of the posters I found intriguing investigated treatment outcomes for patients who have more than one monoclonal immunoglobulin (M-protein), such as IgG kappa + IgA lambda rather than only IgG kappa. I didn't even know this was possible but in fact about 2% of MM patients have multiple M-proteins. How bout that? It turns out that this occurrence is NOT associated with adverse treatment or survival outcomes. {Sat-**2038**-T.Mark}

42. This comment is from my good friend Jim Omel, MD and MM pt, who attended a presentation "Cancer Genome Conundrum" in which Dr. T. Golub said there has been a 95% cost reduction in human gene expression profiling. GEP is a very reliable predictor of early treatment response and relapse. Further research is needed to connect tumor genotype to tumor vulnerabilities. Lastly he indicated the genome sequencing will become routine, but interpretation will remain vexing for some time.

SUMMARY

For someone diagnosed with stage III MM 20 years ago with only 2 treatment options available (MP or VAD-SCT) and given 2-3 years expected survival, I've seen incredible progress since 2000. While there continue to be unanswered questions, we now have many more effective treatments for MM, providing patients with better opportunities to manage their disease.

GLOSSARY (according to Jack)

Drug Class/Category
IMID – Immunomodulary Drug
PI – Proteasome Inhibitor
mAb – Monocloncal Antibody

Drugs (other name)
C – Cytoxan (Cyclophosphamide)
Cfz – Carfilzomib (Kyprolis)
D - Daratumumab
E - Elotuzumab
M – Melphalan
P – Prednisone
Pom – Pomalidomide (Pomalyst)
R – Revlimid (Lenalidomide)
S - SAR650984
T – Thalidomide
V- Velcade (Bortezomib)

Treatment Success Measurements
EFS – Event-free Survival
ORR – Overall response (>=PR)
OS – Overall Survival
PD – Progressive Disease
PFS – Progression-free Survival
PFS2 – PFS + next-line treatment PFS
TTP - Time to Progression
TTR - Time to Respond

Treatment Response
CR – Complete Response: No sign of MM (0 M-spike)
nCR – Near CR (positive M-spike, may be same as VGPR)
MR – Marginal Response: 0-50% reduction in MM
PR- Partial Response: 50% reduction in MM
SD – Stable Disease i.e. no response but also not worse
sCR-Stringent CR: CR+ normal FLC & no clonal cells
VGPR – 90% reduction in MM
MRD – Minimum Residual Disease typically by Flow Cytometry or DNA sequencing to provide more accurate measure of MM.

Side Effects
AE – Adverse Event (aka Side Effects)
DVT - Deep Vein Thrombosis (blood clots)
MTD – Maximum Tolerated Dose
ONJ – Osteonecrosis of the Jaw
PE – Pulmonary Embolism
PN – Peripheral Neuropathy
QOL – Quality Of Life
VTE - Venous Thromboembolism (PE + DVT)

Tests/When to treat?
CRAB – High Calcium, Renal, Anemia, and Bone…
CRABi – CRAB + "i" increased infections
FLC – Free Light Chain
SLiMCRAB – Includes Ultra High-Risk SMM

SCT – Auto stem cell transplant.

"d" and "D" – Typically both mean Low-dose Dex (40 mg/week) these days
MGUS – Monoclonal Gammopathy of Undetermined Significance
Pt(s) – Patient(s)
R/R- Relapsed/Refractory Ref defined progressing while on Tx or within 60 days.
SMM – Smoldering MM