5 COMMON REASONS FOR CARDIOLOGY CONSULTS.

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NO CONFLICTS OF INTEREST FOR THIS PRESENTATIONS.

HOW OLD IS TOO OLD FOR CORONARY STENT?

- 100 Year old lady
- HTN, Dyslipidemia, Arthritis, GERD
- Chest pain on exertion for few weeks, then rest pain requiring admission
- EKG-NSR with lateral wall T wave abnormalities
- Trop—2.63
- Echo—LVEF 55-60% hypokinetic inf, post wall.
- CP continued during night with IV Heparin and IV NTG.

NEXT STEP?

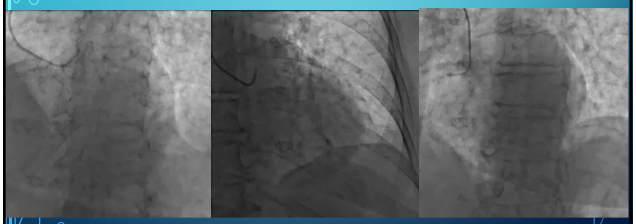
- Continue Medical therapy and 'cool' it.
- Sub Maximal stress test
- CT Angio for coronaries
- Cardiac cath and stent
- Call the Priest and Hospice care
- Need more information

WHAT IS HER FUNCTIONAL STATUS?

- Patient lives by herself, self sufficient, cooks and cleans.
- Similar chest pains few months ago treated conservatively.
- At age 99, went to Italy for vacation and 'walked everywhere'.
- Daughter lives across the street
- Patient wants to continue to be independent.

CORONARY ANGIO DNI/DNR STATUS REVERSED

CORONARY ANGIO – RADIAL APPROACH



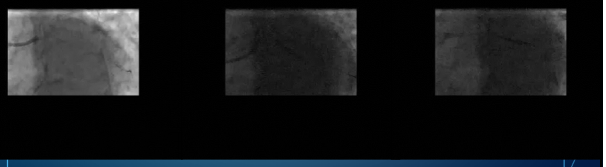
WHAT NEXT?

- Medical therapy
- CABG
- Multivessel Stenting-- same time or in stages
- To Nursing home—she can not be by herself.

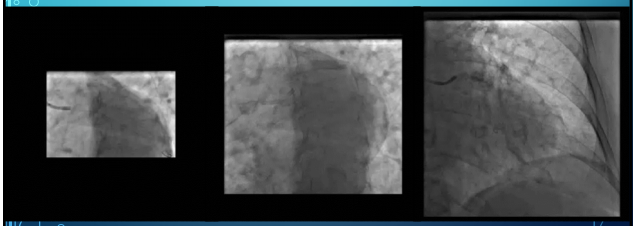
- MANAGEMENT DECISIONS FOR OLDER PATIENTS WITH NSTE-ACS SHOULD BE PATIENT CENTERED, AND CONSIDER PATIENT PREFERENCES/GOALS, COMORBIDITIES, FUNCTIONAL AND COGNITIVE STATUS AND LIFE EXPECTANCY.
- POTENTIAL BENEFITS OF AGGRESSIVE TREATMENT IN OLDER ADULTS WITH NSTE-ACS ARE OFTEN EQUAL OR GREATER THAN THOSE IN YOUNGER PAOPLE.

ACC/AHA/AGA SCIENTIFIC STATEMENT

STENT ONLY THE CULPRIT LESION—IMPORTANT CONCEPT



2.5MM DES PLACE IN THE CIRCUMFLEX



PATIENT OUTCOME

- FOLLOWING STENT—SYMPTOM FREE, AMBULATING
- NTG DRIP WEANED OFF
- IV HEPARIN WEANED OFF
- DISCHARGED HOME ON ASPIRIN 81 MG DAILY, COREG 3.125MG PO BID, AMLODIPINE 5 MG PO DAILY, PLAVIX 75MG PO DAILY, OMEPRAZOLE, VIT, GABAPENTIN.
- CLINICALLY STABLE.

TEACHING POINTS

- OLDER PATIENTS ARE AT INCREASED RISK OF ADVERSE OUTCOMES and VASCULAR COMPLICATIONS-CONSIDER RADIAL APPROACH
- IT IS EMPHASIZED THAT THERAPIES SHOULD NOT BE WITHHELD SOLELY BASED ON AGE ALONE.
- MORE PROSPECTIVE RANDOMIZED CLINICAL TRIALS NEEDED IN THIS AGE GROUP AS THE POPULATION OF THE NONAGENARIANS IS INCREASING NOT ONLY IN USA BUT ACROSS THE WORLD.

HOW LONG SHOULD WE CONTINUE DAPT?

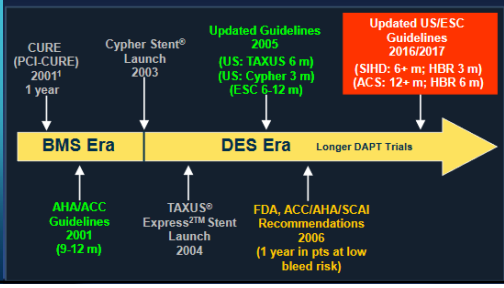
Oral $P2Y_{12}$ Inhibitor Pharmacology

	Clopidogrel	Prasugrel	Ticagrelor
Class	Thienopyridine	Thienopyridine	Triazolopyrimidine
Reversibility	Irreversible	Irreversible	Reversible
Activation	Prodrug, limited by metabolism	Prodrug, not limited by metabolism	Active drug
Onset of Effect*	2-4 hours	30 minutes	30 minutes
Duration of Effect	3-10 days	5-10 days	3-4 days
Withdrawal before major surgery	5 days	7 days	5 days

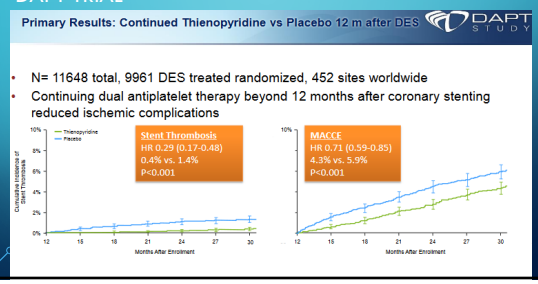
DAPT BASED ON CLINICAL PRESENTATION/STENT

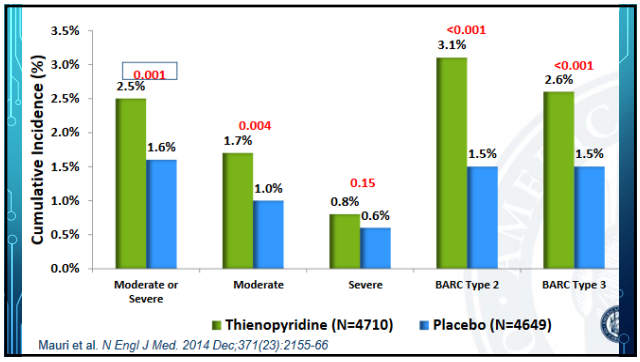
- SICAD- DES 6 Months (3 Months if bleeding risk is high)
  BMS 1 Month
- ACS Medical Therapy—12 Months
  BMS 12 Months
  DES 12 Months
  (6 Months if bleeding risk is high)

Evolution of Optimal Dual Anti-platelet Therapy Post DES: Still Unclear?



DAPT TRIAL





WOEST

(What is the Optimal AntiplatElet and Anticoagulant Therapy in Patients with Oral Anticoagulation and Coronary StenTing)

	Dual Therapy (warfarin + clopi) N=279	Triple Therapy (warfarin + clopi + aspirin) N=284	*P* Value
Any Bleeding Event	19.4%	44.4%	<.0001
TIMI Major Bleeding	3.2%	5.6%	.159
Composite Efficacy*	11.1%	17.6%	.025
Death	2.5%	6.3%	.027
Stent thrombosis	1.4%	3.2%	.165

* Composite Efficacy=Death, MI, Target-vessel Revascularization, Stroke, Stent Thrombosis

DAPT AND SURGICAL PROCEDURES

- Can the surgery postponed? 4 weeks after BMS, 6 Months after DES
- Can Aspirin be continued?
- High risk patients—history ST, more than one stent, long stents, bifurcation, LM, small vessel stent, DM, CHF, low EF.
- Low risk bleeding—Endoscopy, minor ortho surgeries, ENT, Dental, Eye

CARDIOLOGY CLEARANCE PRIOR TO SURGERY

(INDEPENDENTLY HIGH RISK—RECENT ACS WITH IN 6 MONTHS, CVA WITH IN 3 MONTHS, CORONARY STENT WITH IN 6 MONTHS)

EXPECTED PERI OP MI---1.4%
EXPECTED PERI OP MORTALITY---1%

RCRI---REVISED CARDIAC RISK INDEX
NSQIP---NATIONALSURGICAL QUALITY IMPROVEMENT PROGRAM

RISK OF SURGERY---

EMERGENCY SURGERY

VASCULAR, THORACIC AND TRANSPLANT SURGERY
VOLUME SHIFTE, BLOOD LOSS, INCREASED O2 REQUIREMENT, INCREASE IN HR AND BP, INCREASED PLATELET ACTIVITY AND INCREASED CATECHOLAMINE LEVELS

HIGH RISK PATIENT

- CVD, CHF (HIGH BNP), RECENT MI LESS THAN 60 DAYS,
- UNSTABLE ANGINA, HIGH GRADE ARRHYTHMIAS, SEVERE AORTIC STENOSIS
- CVA, DM INSULIN REQUIRING, CREAT >2.0, ADVANCED AGE
- POOR FUNCTIONAL CAPACITY

FUNCTIONAL CAPACITY

ABILITY TO ACHIEVE 4 METS WITH OUT SYMPTOMS IS A GOOD PROGNOSTIC SIGN

- CAN TAKE CARE OF SELF—EAT, DRESS, USE TOILET ETC- 1 MET
- CAN WALK UP A FLIGHT OS STEPS, OR A HILL, OR WALK AT 3-4 MPH- 4 METS
- CAN DO HEAVY WORK---MOVING FURNITURE, CLIMB 2 FLIGHTS OF STEPS- 4-10 METS
- CAN PARTICIPATE IN STRENUOUS SPORTS- >10 METS.

RCRI REVISED CARDIAC RISK INDEX

SIMPLE AND WIDELY USED

HIGH RISK SURGERY
HISTORY OF IHD
HISTORY OF CHF
HISTORY OF CVA
DIABETES REQUIRING INSULIN
CREAT-->2.0

RATE OF DEATH, NON FATAL MI, NON FATAL CARDIAC ARREST
NO RISK FACTORS----0.4%
ONE RISK FACTOR----1.0%
2 RISK FACTORS---- 2.4%
3 OR MORE RISK FACTORS—5.4%

RISK OF SURGERY

- HIGH RISK
  - AORTIC AND OTHER VASCULAR SURGERY
  - PERIPHERAL ARTERY SURGERY
- INTERMEDIATE RISK
  - CAROTID SURGERY
  - HEAD AND NECK SURGERY
  - ORTHO SURGERY
  - PROSTRATE SURGERY
- LOW RISK
  - AMBULATORY SURGERY
  - ENDOSCOPIC SURGERY
  - CATARACT SURGEY
  - SUPERFICIAL SURGERIES AND BIOPSY

SOME PRACTICAL MANAGEMENT POINTS

- NON INVASIVE TESTING IS INDICATED FOR HIGH RISK SURGERY, MORE THAN 2 CLINICAL FACTORS AND POOR FUNCTIONAL CAPACITY.
- PERI OPERATIVE BETA BLOCKERS—CONTINUE IF PATIENT IS ALREADY ON THEM. INITIATION IF HIGH RISK SURGERY AND MORE THAN 2 CLINICAL FACTORS AND ONLY WITH TITRATION AT LEAST 2 WEEKS PRIOR TO SURGERY.
- PERIOPERATIVE STATINS SHOULD BE CONTINUED.
- USE OF LOW DOSE ASPIRIN SHOULD BE INDIVIDUALIZED.
- BEWARE OF STENT THROMBOSIS
- SPECIAL HIGH RISK POPULATION—SYMPTOMATIC PATIENTS WITH SEVERE AORTIC STENOSIS—MAY CONSIDER AVR OR BALLOON VALVULOPLASTY OR TAVR.

WHEN SHOULD I GIVE ANTIBIOTIC PROPHYLAXIS?

- PROSTHETIC CARDIAC VALVES INCLUDING TRANS CATHETER IMPLANTED PROSTHESIS AND HOMOGRAFTS
- PROSTHETIC MATERIAL USED FOR CARDIAC VALVE REPAIR SUCH AS ANNULOPLASTY RINGS
- PREVIOUS ENDOCARDITIS
- CARDIAC TRANSPLANT RECIPIENTS WITH VALVE REGURGITATIONS
- CONGENITAL HEART DISEASE---
  - UNREPAIRED CYANOTIC CHD INCLUDING PALLIATIVE SHUNTS
  - COMPLETELY REPAIRED CHD FOR FIRST 6 MONTHS
  - REPAIRED CHD IF VALVE REGURGITATION IS PRESENT , PROSTHETIC PATCH OR DEVICE IS USED.

WHEN DO I BRIDGE WITH IV HEPARIN IN ANTICOAGULATED PATIENT FOR PROCEDURES?

- DENTAL PROCEDURES WHERE LESS THAN 3 TEETH ARE REMOVED—NO INTURRUPTION
- DENTAL PROCEDURES WHERE MORE THAN 3 TEETH ARE REMOVED—STOP ANTICOAGULATION 2-3 DAYS PRIOR
- ENDOSCOPIC PROCEDURES—COUMADIN FOR 3-4 DYAS AND DOACS FOR 48 HRS.
- MECHANICAL AORTIC VALVE—IF IN NSR—NO BRIDGING IG COUMADIN IS STOPPED FOR 2-3 DAYS.
- MITRAL PROSTHESIS----NEEDS BRIDGING WITH IV HEPARIN REGARDLESS OF NSR OR A. FIB.
- ALWAYS BETTER TO CONTINUE BABY ASPIRIN IF AT ALL POSSIBLE.

THANK YOU.

ANY QUESTIONS?