ATRIAL FIBRILLATION

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ATRIAL FIBRILLATION

- INCIDENCE :
- WORLDWIDE MORE THAN TWO MILLION CASES / YEAR

- INCREASED INCIDENCE AFTER AGE 65

- MORTALITY ASSOCIATED WITH ATRIAL FIBRILLATION HAS
- DOUBLED IN THE LAST TWENTY YEARS

- ATRIAL FIBRILLATION IS ASSOCIATED WITH FIVE FOLD
- INCIDENCE IN STROKE COMPARED TO AGE MATCHED POPULATION

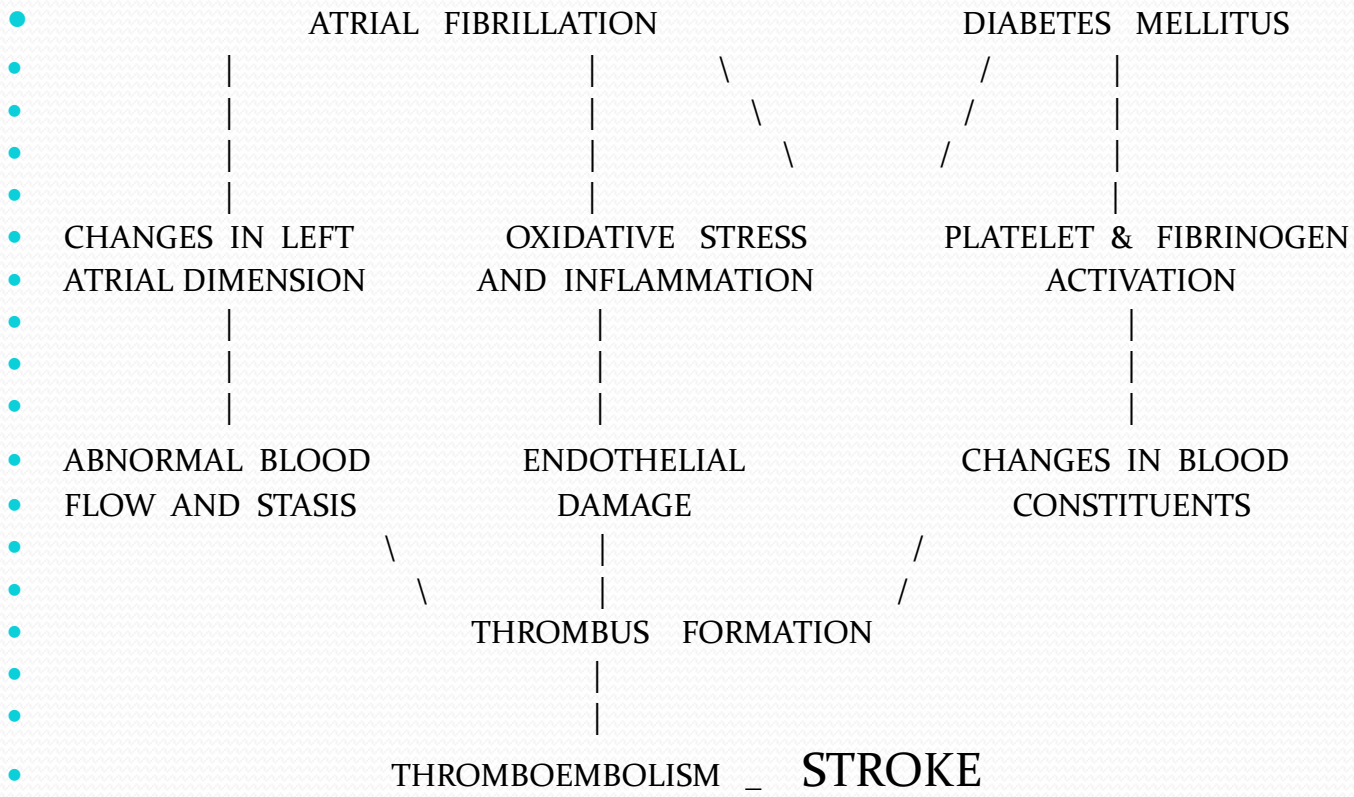
- THE MOST IMPORTANT CATASTROPHIC SEQUELA OF
- ATRIAL FIBRILLATION IS STROKE

ATRIAL FIBRILLATION

- OLDER AGE IS AN INDEPENDENT RISK FACTOR FOR STROKE

AGE	INCIDENCE / YEAR
50 - 59	1.5
60 - 69	2.8
70 - 79	9.9
80 - 89	23.5

ATRIAL FIBRILLATION



ATRIAL FIBRILLATION

- CLINICAL TYPES OF ATRIAL FIBRILLATION (3 Ps)
- PAROXYSMAL < 7 DAYS SELF TERMINATING
- PERSISTENT > 7 DAYS REQUIRES TERMINATING
- PERMANENT REFRACTORY TO CARDIOVERSION OR
- (CHRONIC) ACCEPTED AS THE FINAL RYTHYM

ATRIAL FIBRILLATION

- IMPORTANT POINTS IN CLINICAL HISTORY & PHYSICAL EXAMINATION :
- 1. ONSET OF FIRST SYMPTOMATIC ATRIAL FIBRILLATION OR DATE OF DISCOVERY
- 2. FREQUENCY / DURATION / MODE OF TERMINATION
- 3 SYMPTOMS ASSOCIATED WITH ATRIAL FIBRILLATION
- 4. PRESENCE OF OTHER SYMPTOMS OR SIGNS POINTING TO ETIOLOGY
- 5. CAREFUL AND THOROUGH PHYSICAL EXAMINATION TO EXCLUDE OTHER
- CONDITIONS LIKE GOITER OR THYROID NODULE
- 6. LIISTEN FOR CAROTID BRUIT OR HEART MURMURS TO SUGGEST VALVULAR HEART
- DISEASE. PERFORM ECHOCARDIOGRAM .IF PATIENT IN SINUS RHYTHM DO HOLTER, EVENT
- RECORDER OR NEW HAND DEVISE
- 7. IDENTIFY COORECTABLE CAUSES OF ATRIAL FIBRILLATION LIKE W-PW, OBSTRUCTIVE
- SLEEP APNEA, HYPERTHYROIDISM, DRUGS OR ALCOHOL

ATRIAL FIBRILLATION

- CORNERSTONE OF ATRIAL FIBRILLATION MANAGEMENT
- 1. RATE CONTROL
- 2. RHYTHM CONTROL
- 3. PREVENTION OF THROMBOEMBOLIC EVENTS - STROKE
- GOALS OF THERAPY
- 1. STROKE PREVENTION
- 2. SYMPTOM CONTROL
- 3. PREVENTION OF HOSPITALIZATION - HOSPITALIZATION USUALLY FOR
- HEMODYNAMIC INSTABILITY, SEVERE SYMPTOMS, OR INITIATION OF DRUG
- THERAPY REQUIRING HEMODYNAMIC MONITORING

ATRIAL FIBRILLATION

- RATE CONTROL VS RHYTHM CONTROL

STUDY	NO. OF PTS.	YRS. OF STUDY	RATE CONTROL PRIMARY ENDPOIT- MORTALITY	RHYTHM CONTROL MORTALITY
AFFIRM	4060	5	21.3 %	23%
R A C E	522	2.5	17.2%	22.6%
AF - CHF	1376	EF < 35%	25%	27%

- INTUITIVELY RHYTHM SHOULD DO BETTER- BUT NO MORTALITY BENEFIT – BUT PATIENTS
- PROBABLY FELT BETTER WHEN IN SINUS RHYTHM.
- * IN AFFIRM - ANTICOAGULANTS STOPPED 4 WEEKS IN SINUS RHYTHM

- HEART RATE CONTROL
- ESMOLOL IV 500 MCG/KG, THEN 50-200 MCG/KG
- METOPROLOL IV 2.5 – 5 MG BOLUS OVER 2 MIN. (UP TO 3 DOSES)
- ATENOLOL PO 25 – 100 MG DAILY
- CARVEDILOL PO 3.125 - 25 M Q 12 HRS (UP TO 5OMG Q 12 HRS
- FOR PTS > 85 KG. MAY USE SUSTAINED RELEASE 10-80
- VERAPAMIL IV 0.075 - 0.15 MG/KG OVER 2 MIN.
- PO 120 – 480 MG/DAY (SLOW RELEASE PREFERRED)
- DILTIAZAEM IV 0.25 MG/KG EVERY 2 MIN (CONSIDER 2ND BOLUS
- PO 120 - 480 MG/DAY (SLOW RELEASE)
- DIGOXIN IV 0.25 MG Q 2HRS (UP TO 1.5 MG) THEN 0.125 -0.375MG/DAY
- PO 0.125 – 0.375 MG/DAY

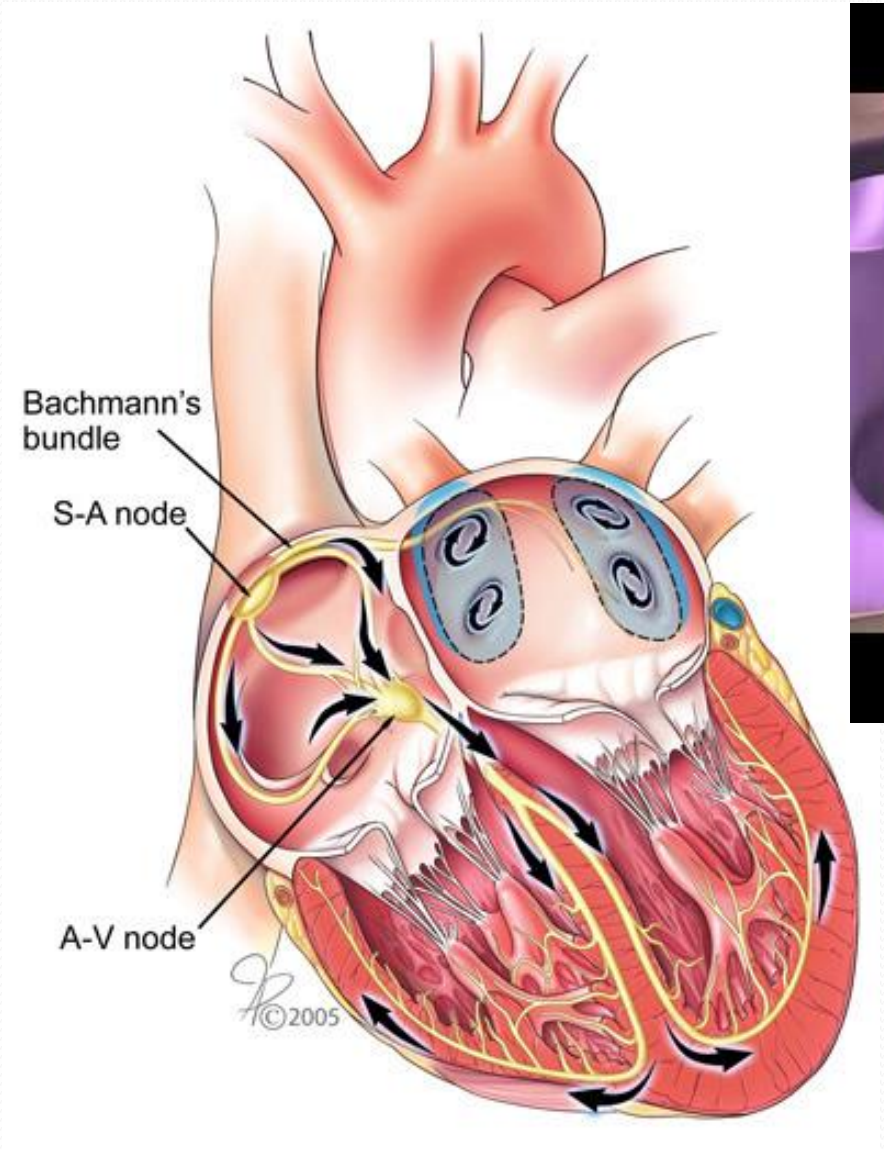
ATRIAL FIBRILLATION

- HEART RHYTHM CONTROL
- VAUGHN WILLIAMS CLASS I
- FLECAINIDE PO 50 – 150 Q 12 HRS
- PROPAFENONE PO 150 – 300 Q 8 HRS OR SR- 225 – 425 Q 12 HRS

- VAUGHN WILLIAMS CLASS III
- IBUTILIDE IV I MG OVER 10 MIN. AND CHECK QTC / PROARRHYTHMIA. MAY
- REPEAT DOSE AFTER 10 MINUTES BUT RISK OF PROARRYHTNIA
- SOTALOL PO 80 – 160 TO A MAXIMUM OF 320 Q 12 HRS BASED ON RENAL
- FUNCTION
- DOFETILIDE PO 125 – 500 Q 12 HRS BASED ON RENAL FUNCTION
- AMIODARONE IV 150 MG OVER 10 MIN., THEN 0.5 MG – 1 MG/ MIN
- PO 800 MG /DAY FOR 1 WK.,THEN 600 MG FOR IWK, 400 MG FOR
- FOR 4 – 6 WKS, THEN 200 MG/ DAY
- DRONEDARONE PO 400 MG BID WITH MEALS

ATRIAL FIBRILLATION

- RESTORATION AND MAINTENANCE OF SINUS RHYTHM
- A REASONABLE TREATMENT OPTION FOR EVERY PATIENT WITH
- ATRIAL FIBRILLATION
- CARDIOVERSION :
- ELECTRICAL CARDIOVERSION
- PHARMACOLOGIC APPROACH
- ABLATION THERAPY
- ANTIGOAGULATION CONSIDERATIONS


Bachmann's bundle
S-A node
A-V node
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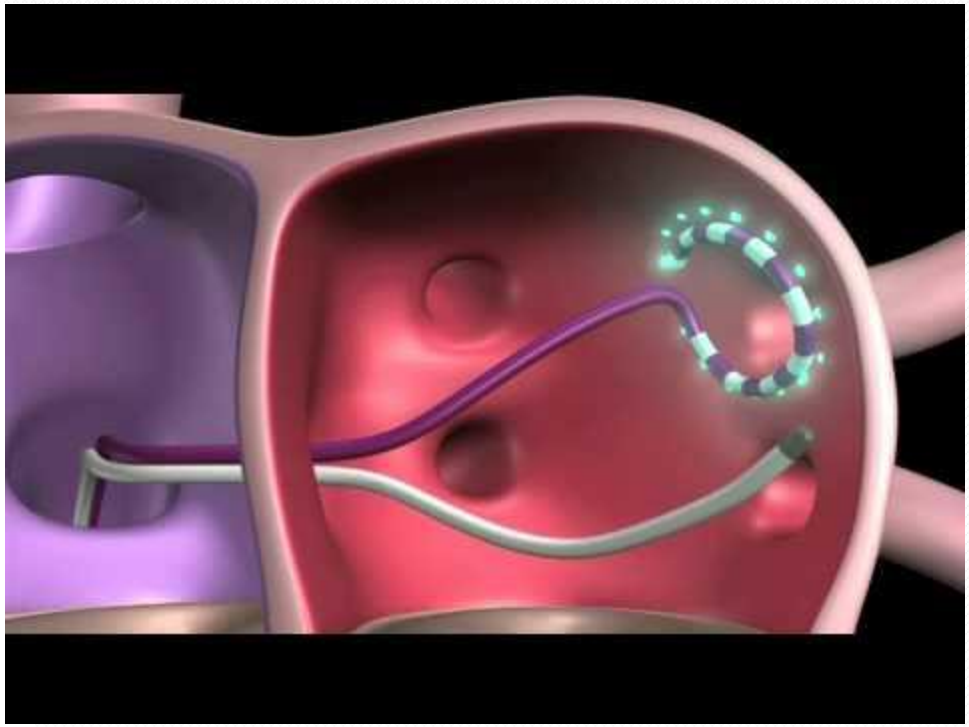


CABANA (CATHETER ABLATION VS, ANTIARRYTHMIC DRUG THERAPY FOR ATRIAL FIBRILLATION)

- Study started in 2009 – 2204 Patients- 110 medical centers in 10 countries
- Average age - 65 15% older than 75

- Primary Endpoint – All cause mortality, stroke, serious bleeding or cardiac arrest

- Randomized Intention to Treat - NO significant difference and failed to
- Accomplish what it was designed to prove that ablation is better than medical therapy

- Problems With The Study :
- 30% of patients assigned to medical therapy crossed over to ablation therapy
- 10% assigned to ablation refused the procedure

- BUT : Per Protocol or On Treatment Analysis
- There was a 27 % risk reduction in primary endpoint in patients treated with ablation
- Compared to those exclusively treated with medical therapy. And patients did better
- With age < 65 compared to patients > 75.

ANNUAL RISK OF STROKE BASED ON CHADS2 OR CHA2DS2- VASC SCORE

CHADS – I POINT FOR CHF, HYPERTENSION, AGE > 75 , DIABETES MELLITUS, 2 POINTS FOR STROKE OR TRANSIENT ISCHEMIC ATTACK

CHA2DS2 – VASC : 1 POINT FOR CHF, HYPERTENSION , AGE 65-74, DIABETES MELLITUS, VASCULAR DISEASE (CORONARY ARTERY DISEASE, PERIPHERAL ARTERIAL DISEASE, AORTIC ANEURYSM) SEX CATEGORY FEMALE ; 2 POINTS FOR AGE > 75 AND FOR PRIOR STROKE OR TIA.

SCORE	CHADS2	CHA2DS2-VASc
0	1.9 %	0.0 %
1	2.8 %	1.3 %
2	4.0 %	2.2 %
3	5.9 %	3.2 %
4	8.5 %	4 .0 %
5	12.5 %	6.7 %
6	18.2 %	9.6 %
7		9.8 %
8 9		12.5% 15.2 %

SCORES TO PREDICT BLEEDING ON ANTICOAGULATION THERAPY

- HAS - BLED POINTS HEMORR2HAGES POINTS

HYPERTENSION	1	HEPATIC/RENAL ABNORMALITY	1
ABNORMAL RENAL F.	1	ETHANOL ABUSE	1
ABNORMAL LIVER F.	1	MALIGNANCY	1
STROKE	1	OLDER AGE (> 75)	1
BLEEDING HISTORY	1	REDUCED PLATELET F.	1
LABILE INR	1	REBLEEDING RISK	1
ELDERLY (AGE > 65)	1	HYPERTENSIOON	1
DRUGS	1	ANEMIA	1
ALCOHOL	1	GENETIC FACTORS	1
		EXCESSIVE FALLS	1
		STROKE	1
MAXIMUM SCORE	9	MAXIMUM SCORE	12

ATRIAL FIBRILLATION

- ANTICOAGULATION THERAPY

- WARFARIN - GOLD STANDARD FOR MANY YEARS
- INHIBITS FACTORS II, VII, IX, X, PROTEIN C & S

- BASED ON STUDIES : AFASAK, BAATAF, CAFA, SPAF& SPINAF – 68 % REDUCTION
- COMPARED TO PLACEBO

- NOACS (NON-VITAMIN K ORAL ANTICOAGULANTS, NEW OR NOVEL
- ANTICOAGULANTS ALSO CALLED DOACS – DIRECT ACTING ANTICOAGULANTS

- 1. THROMBIN INHIBITOR - DABIGATRAN (PRADAXA)

- 2. Xa INHIBITORS
-
- A) RIVAROXABAN (XARELTO) B) APIXABAN (ELIQUIS) C) EDOXABAN (SAVAYSA)
-

COMPARISON OF NOACS VS WARFARIN

N O A C S

STUDY	DRUG	DOSE	EFFICACY	GI BLLEDING	ICH
REL-Y	DABIGATRAN	150 BID	SUPERIOR	MORE	LESS
	(PRADAXA)	110 BID	NON-INFERIOR	LESS	LESS
ROCKET	RIVAROXABAN	20 QD	NON-INFERIOR	MORE	LESS
	(XARELTO)	15 QD	NON –INFERIOR	LESS	LESS
ARISTOTLE	APIXABAN	5 BID	SUPERIOR	LESS	LESS
	(ELIQUIS)	2,5 BID	NON-INFERIOR	LESS	LESS
ENGAGE-AF	EDOXABAN	60 QD	NON-INFERIOR	MORE	LESS
TIMI 48	(SAVAYSA)	30 QD	NON-INFERIOR	LESS	LESS

ALL RENAL EXCRETION

ATRIAL FIBRILLATION

- N O A C S (D O A C S)
- ADVANTAGES OVER WARFARIN :
- RAPID ONSET
- PREDICTABLE ANTICOAGULANT EFFECT
- SHORTER HALF- LIFE
- FEW DRUG- DRUG INTRACTION OR DIETARY RESTRICTION
- GIVEN IN FIXED DOSE
  WITHOUT MONITORING

DISADVANTAGES :

COST

NO ANTIDOTE EXCEPT FOR DABIGATRAN (PRADAXA)

FOR Xa INHIBITORS ? ANDEXAMET- ALPHA ?? USE PCC (PROTHROMBIN COMPLEX CONCENTRATE)

ARISTOPHANES

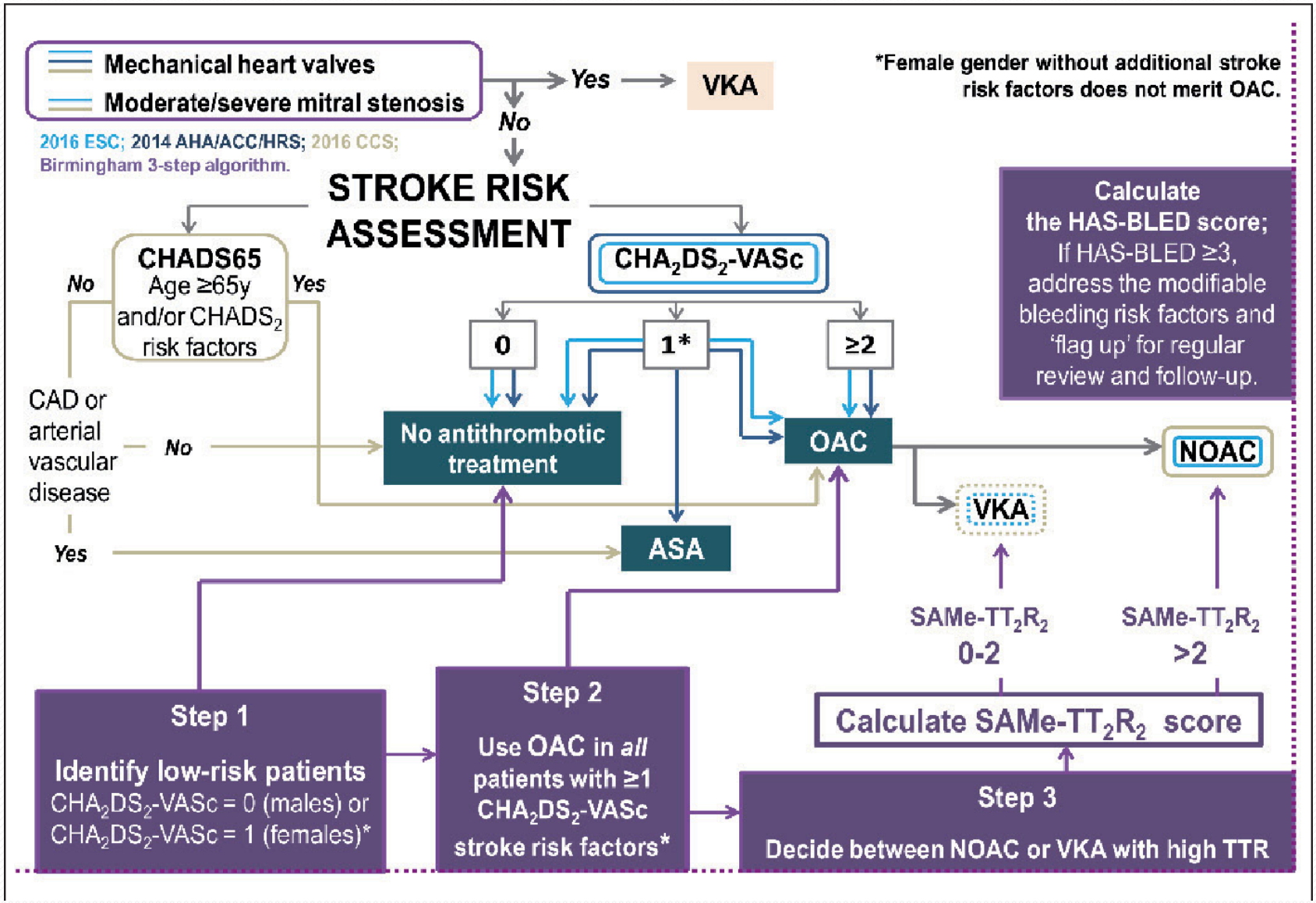
- RETROSPECTIVE OBSERVATIONAL NON-RANDOMIZED STUDY
  COMPARING : APIXABAN VS DABIGATRAN
  APIXABAN VS RIVAROXABAN
  RIVAROXABAN VS DABIGATRAN

MATCHED WITH DEMOGRAPHICS AND COMORBIDITIES

	APIXABAN	VS	DABIGATRAN	RR
INCIDENCE OF STROKE/ EMBOLIC EVENTS	1.01		1.42	31 %
MAJOR BLEEDING	2.7		3.3	23 %

	APIXABAN	VS	RIVAROXABAN	
INCIDENCE OF STROKE/ EMBOLIC EVENTS	1.21		1,42	27 %
MAJOR BLEEDING	3.1		5.7	46 %

	RIVAROXABAN	VS	DABIGATRAN
INCIDENCE OF STROKE EMBOLIC EVENTS	1.23		1.4
MAJOR BLEEDING	4.76		3.28


Mechanical heart valves
Moderate/severe mitral stenosis
Yes
VKA
No
*Female gender without additional stroke risk factors does not merit OAC.
2016 ESC; 2014 AHA/ACC/HRS; 2016 CCS; Birmingham 3-step algorithm.
STROKE RISK ASSESSMENT
CHADS65
Age ≥65y and/or CHADS2 risk factors
No
Yes
CHA2DS2-VASc
0
1*
≥2
Calculate the HAS-BLED score; If HAS-BLED ≥3, address the modifiable bleeding risk factors and 'flag up' for regular review and follow-up.
CAD or arterial vascular disease
No
Yes
No antithrombotic treatment
ASA
OAC
NOAC
VKA
SAMe-TT2R2 0-2
SAMe-TT2R2 >2
Calculate SAMe-TT2R2 score
Step 1
Identify low-risk patients
CHA2DS2-VASc = 0 (males) or CHA2DS2-VASc = 1 (females)*
Step 2
Use OAC in all patients with ≥1 CHA2DS2-VASc stroke risk factors*
Step 3
Decide between NOAC or VKA with high TTR

OVERVIEW OF GUIDELINES

- 2016 EUROPEAN SOCIETY OF CARDIOLOGY (ESC)
- 2014 AMERICAN HEART ASSOCIATION (AHA) /
- AMERICAN COLLEGE OF CARDIOLOGY (ACC)
- 2016 CANADIAN CARDIOLOGY SOCIETY (CCS)
- CHA2DS2 –VASC 0 (MALES) OR 1 (FEMALE)
- NO ANTICOAGULATION
- CHA2DS2 –VASC >= I ANTICOAGULATION

ALTERNATIVE FORMS OF THERAPY

- SURGICAL TREATMENT :
- COX - MAZE PROCEDURE EXCISION OF LAA
- PERCUTANEOUS THERAPY FOR LAA CLOSURE
- PLAATO
- WATCHMAN DEVICE (UMBRELLA)
- AMPLATZER CARDIAC PLUG (CLAMSHELL DEVICE)
- LARIAT DEVICE (NOOSE AROUND LAA)

CASE PRESENTATION

- An 86 years old white female with hypertension, osteoporosis and mild cognitive impairment presents with episodes of palpitations and " heart fluttering." These episodes occur 1-2 times per week, last for up to 3 -4 hours and are associated with shortness of breath and reduced activity tolerance. She is widowed and lives in a retirement facility, but she is independent in activities of daily living. She has fallen twice in the past year without significant injury.
- Physical examination reveals HR-86 & regular. BP- 150/90 RR- 18. ECG reveals Sinus rhythm HR-75, voltage criteria for LVH and ST-T abnormalities. A 30 day event monitor reveals several episodes of paroxysmal atrial fibrillation that correspond to her symptoms. A subsequent Echocardiogram shows normal systolic left ventricular function and mild diastolic dysfunction, and NO valvular abnormalities. T4-TSH- Normal

Questions :

1. What is the risk of stroke ?
2. Does she need anticoagulation therapy ?
3. What is the risk of bleeding from anticoagulation therapy ?
4. How should the fall risk be addressed in the decision making ?
5. What other factors should be considered ?

T H A N K Y O U