Aspirin for Everything?
An Update and Review

Alice N. Hemenway, PharmD, BCPS
Clinical Assistant Professor/Clinical Pharmacist
University of Illinois at Chicago College of Pharmacy- Rockford Regional Campus
Mercyhealth Rockford Memorial Hospital
Rockford, IL
Disclosures and Conflict of Interest

- Alice Hemenway declares no conflicts of interest, real or apparent, and no financial interests in any company, product, or service mentioned in this program, including grants, employment, gifts, stock holdings and honoraria.
Pharmacist Objectives

At the conclusion of the program, the pharmacists will be able to:

1. Describe the data supporting different indications for aspirin
2. Discuss the risks and benefits of different doses of aspirin
3. Review risks associated with aspirin use, and ways to mitigate the risks
4. Given a patient case, explain whether aspirin use is appropriate, and if so, the most appropriate dose.
Per the U.S. Preventative Services Task Force recommendation statement on use of aspirin for primary prevention of cardiovascular disease and colorectal cancer, which age group provides the best benefit to risk ratio to support the use of aspirin?

A. < 50 years of age
B. 50-59 years of age
C. 60-69 years of age
D. ≥ 70 years of age
Per the 2018 AHA/ASA Early Management of Patients with Acute Ischemic Stroke, which antiplatelet option has the highest strength of recommendation/level of evidence for early treatment of acute ischemic stroke?

A. Aspirin
B. Oral anticoagulation
C. Dual antiplatelet therapy with (aspirin and clopidogrel) for 21 days
D. Prasugrel
Which confers the highest risk of GI bleed in a patient using low-dose aspirin?

A. History of GERD
B. Concomitant oral anticoagulation
C. History of diabetes
D. Increased body mass index
Topics for Update and Review:

Indications

- Primary
  - CHD
  - Stroke
- Secondary
  - VTE
  - Cancer
Topics for Update and Review:

Indications

Primary
- CHD
- Stroke

Secondary
- VTE
- Cancer
Abbreviations and Definitions

- ACS = Acute coronary syndrome
- ASCVD = Atherosclerotic cardiovascular disease
- CABG = Coronary artery bypass graft
- CAD = Coronary artery disease
- CHD = Coronary heart disease
- CKD = Chronic kidney disease
- CVD = Cardiovascular disease
- DAPT = Dual antiplatelet therapy
- DOAC = Direct-acting oral anticoagulant
- LVD = Left-ventricular hypertrophy
- MI = Myocardial Infarction
- PCI = Percutaneous coronary intervention
- PVD = Peripheral vascular disease
- SIHD = Stable ischemic heart disease
- TIA = Transient ischemic attack
- VTE = Venous thromboembolism
- VHD = Valvular heart disease
A 58 year old African American female presents to your pharmacy asking if she should be taking an aspirin. She read online that it can help decrease her risk of heart attack.

PMH: Hypertension, GERD

Medications: lisinopril 10 mg daily, famotidine 20 mg PRN for heartburn (once weekly)

She is a former smoker (she quit 10 years ago). Her blood pressure is usually well controlled, and the store machine reads it as 134/84 today. She doesn’t know what her cholesterol levels are, but thinks they were normal the last time they were checked.

Is aspirin recommended for CHD prevention?
What if she had other risk factors?
Is aspirin recommended for her to prevent other conditions?
# Primary Prevention of CHD

<table>
<thead>
<tr>
<th>Risk Factors for CHD</th>
<th>Guidelines Recommend?</th>
<th>Literature supporting aspirin independently?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>✓ 1</td>
<td>✓ 2</td>
<td>Consider for high risk patients (≥ 50 years + additional risk factor) without increased bleed risk¹</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>✗ 4,5</td>
<td>✗ 3</td>
<td>Not addressed by lipid guidelines³,⁴</td>
</tr>
<tr>
<td>Hypertension</td>
<td>✗ 6</td>
<td>✓ 7</td>
<td>Not addressed by 2017 hypertension guidelines⁵ Benefit with 75 mg for non-fatal MI (HOT trial, 1998)⁶</td>
</tr>
<tr>
<td>Smoking</td>
<td>---</td>
<td>✗ 3</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>---</td>
<td>✓ 3</td>
<td>Greater risk reduction with older age²</td>
</tr>
<tr>
<td>Gender</td>
<td>---</td>
<td>✓ 3</td>
<td>No strong evidence²</td>
</tr>
<tr>
<td>CKD</td>
<td>✗ 8</td>
<td>✗ 9</td>
<td>KDIGO- Secondary only⁷ Bleed risk offsets benefits⁸</td>
</tr>
<tr>
<td>10- year ASCVD¹⁰</td>
<td>---</td>
<td>✓ 11</td>
<td>Evaluation using pooled-cohort equations⁹,¹⁰</td>
</tr>
</tbody>
</table>

## Primary Prevention of Stroke

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Atrial Fibrillation</td>
<td>✓1</td>
<td>✓2</td>
<td>CHA₂DS₂-VASc score of 1¹</td>
</tr>
<tr>
<td>LVH/HF</td>
<td>❌3</td>
<td>❌4</td>
<td>Unless other specific indication³</td>
</tr>
<tr>
<td>Hypertension</td>
<td>❌5</td>
<td>❌6</td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td>---</td>
<td>❌7</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>---</td>
<td>❌7</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>---</td>
<td>❌7</td>
<td></td>
</tr>
<tr>
<td>10-year ASCVD⁸</td>
<td>---</td>
<td>✓9</td>
<td>Evaluation using Pooled-cohort equations⁸,⁹</td>
</tr>
</tbody>
</table>

Conflicting Primary Prevention Guidelines

Yes

- AHA/ASA Stroke- 2014
- ACCP CVD- 2012
- AHA CVD Women- 2011
- USPS Task Force CVD CRC- 2016

No

- ESC CVD- 2016
- British Columbia DM- 2015

But...will balance shift with addition of recent prospective trials?

USPS= US Preventative Services
CRC= Colorectal Cancer

Randomized, double-blind, placebo-controlled trial comparing low dose aspirin (100 mg) to placebo in 12,546 patients over 55 years of age (male) or 60 (female) at moderate risk of cardiovascular disease

Moderate risk: 2-4 risk factors for males, 3 or more for females.

Risk factors included: high cholesterol, current smoking, low HDL cholesterol, high blood pressure, on medication to treat high blood pressure, positive family history of CVD

Excluded patients with history of bleeding, or diabetes

Followed for median of 60 months.

No difference in primary endpoint (composite of cardiovascular death, MI, unstable angina, stroke, or TIA) between 2 groups

4.29% for patients in the aspirin group versus 4.48% of patients in the placebo group (p=0.6038)

Event rate represents more of a low-risk population

More GI bleeding events in aspirin group (0.97% vs 0.46%, p= 0.0007), but rates of serious adverse events were similar.

REFERENCES: Lancet. 2018; Published Online: http://dx.doi.org/10.1016/S0140-6736(18)31924-X. Lancet. 2018;
New prospective trial: ASCEND

Randomized, double-blind, placebo-controlled trial comparing low dose aspirin (100 mg) to placebo in 15,480 patients 40 years of age or older with a diagnosis of diabetes without known cardiovascular disease.

Also: “substantial uncertainty about whether antiplatelet therapy would confer worthwhile benefit”

Excluded patients with known indication or contraindication for aspirin

Followed for mean of 7.4 years

Lower rate of primary endpoint (composite of nonfatal MI, nonfatal stroke or TIA, or death from any vascular cause) in group who received aspirin

8.5% for patients in the aspirin group compared to 9.6% of patients in the placebo group (p = 0.01)

Higher rates of major bleeding in aspirin group (4.1% vs. 3.2%, p= 0.003)

Majority of major bleeding was GI or other extracranial bleeding

REFERENCES: NEJM. 2018; Published Online: DOI: 10.1056/NEJMoa1804988.
Estimation per USPS Task Force Guidelines: Use of ASCVD Risk Score

Pooled-cohort equation for assessment of 10-year ASCVD risk

Replaced Framingham calculator in 2013

Race and sex specific

Includes stoke as an endpoint

Must be between 40 and 79 years to use

Some studies show a greater accuracy in determining patients at risk for CVD, but recent concern for overestimation.


Primary Prevention of Cancer

Total cancer reduction/Low dose “Short-term”:
Initial risk of major bleeding, but decrease in rates of cancer incidence after 3 years (odds ratio [OR] 0.76, 95% confidence interval [CI] 0.66-0.88)
Decrease of cancer related deaths after 5 years of treatment (OR 0.63, 0.49-0.82)

Colorectal cancer reduction/Low dose “Long-term”:
Reduction in 20-year risk of colon cancer (hazard ratio [HR] 0.76, 0.60-0.96)
Reduction in risk of rectal cancer with at least 5 years of use (HR 0.58, 0.36-0.92)
No additional benefits for doses over 75 mg

Ovarian cancer:
Data from 13 cohort studies. 10+ years of frequent aspirin use.
Slight reduction in ovarian cancer risk (rate ratio [RR] 0.90, 0.82 to 1.00)

Based on age and ASCVD risk

<table>
<thead>
<tr>
<th>Population</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-59 years + ≥10% 10 year risk</td>
<td>Initiate</td>
</tr>
<tr>
<td>60-69 years + ≥10% 10 year risk</td>
<td>Individualize</td>
</tr>
<tr>
<td>&lt; 50 years</td>
<td>No recommendation</td>
</tr>
<tr>
<td>≥70 years</td>
<td>No recommendation</td>
</tr>
</tbody>
</table>

Dose suggested is 81 mg
In addition to other risk-lowering recommendations
Balance with risk factors for GI bleeding
Need to take for at least 5 years for colorectal cancer benefit

What dose for prevention?

Meta-analysis of 10 trials that evaluated aspirin for primary prevention

Evaluated rates of cardiovascular rates stratified by weight (< 70 kg and ≥ 70 kg) and use of low-dose aspirin (≤ 100 mg) or high-dose aspirin (≥ 300 mg)

Better response for low dose with lower weight patients

More research needed to confirm

<table>
<thead>
<tr>
<th></th>
<th>75-100 mg aspirin HR (95% CI)</th>
<th>300-325 mg aspirin HR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardiovascular Events</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-69 kg*/60-69 kg**</td>
<td>0.77 (0.68 - 0.87)*</td>
<td>0.86 (0.68-1.09)**</td>
</tr>
<tr>
<td>≥ 70 kg</td>
<td>0.95 (0.86 - 1.04)</td>
<td>0.79 (0.70 - 0.90)</td>
</tr>
<tr>
<td><strong>Colorectal Cancer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 70 kg*/&lt; 80 kgb</td>
<td>0.64 (0.50 - 0.82)a</td>
<td>0.69 (0.55 - 0.87)b</td>
</tr>
<tr>
<td>≥ 70 kgc/ ≥80 kgd</td>
<td>0.87 (0.71 - 1.07)c</td>
<td>1.08 (0.83 - 1.39)d</td>
</tr>
</tbody>
</table>

REFERENCES: Lancet 2018; 392: 387-99
Case #1 Follow up- Primary Prevention of CHD, CVD and Colorectal Cancer

Current guidelines suggest using the Pooled-cohort equation to calculate her 10 year ASCVD risk.

Calculating her ASCVD is difficult because of missing cholesterol levels. Assuming normal levels (Total cholesterol of 190, LDL 100 and HDL 40) would give her a 8.2% 10-year risk.

She would not require aspirin at this time for CVD or colorectal cancer reduction per the US Preventative Services Task Force recommendations.

She should follow up with periodic cholesterol checks from her PCP, and she should be re-evaluated for use in the future.

If she had diabetes then both ADA guidelines and ASCEND trial would support use of aspirin for primary prevention.
Case #2- Primary Prevention for VTE

An 80 year old Caucasian patient is admitted from a nursing home for a hip fracture. He undergoes surgical repair and is not currently receiving VTE prophylaxis.

PMH: CHD (MI with PCI in 2010), Hypertension, Hyperlipidemia, Dementia

Medications: aspirin 81 mg daily, lisinopril 10 mg daily, amlodipine 5 mg daily, atorvastatin 20 mg daily, memantine 10 mg daily

Pertinent laboratory results: Hgb: 11.4; Plts: 180k; SCr:0.9 (CrCl~40 ml/min)

Does he need VTE prophylaxis as an inpatient? When he leaves? Long-term at the nursing home?
Which option would be the best for him?
### Reasons for VTE Prophylaxis

<table>
<thead>
<tr>
<th>Reason</th>
<th>Guidelines</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical/ICU Patients</td>
<td>❌ 1</td>
<td>Use of LDUH, LMWH, fondaparinux recommended¹</td>
</tr>
<tr>
<td>General Surgical Patients</td>
<td>❌ 2</td>
<td>Use of LDUH, LMWH recommended. Aspirin as alternative if others contraindicated.²</td>
</tr>
<tr>
<td>THA/TKA</td>
<td>✓ 3</td>
<td>LMWH, LDUH, DOAC, VKA, aspirin all Grade 1B. Preference for LMWH.³</td>
</tr>
<tr>
<td>Hip Fracture Surgery (HFS)</td>
<td>✓ 3</td>
<td>LMWH, LDUH, VKA, aspirin all Grade 1B. Preference for LMWH.³</td>
</tr>
<tr>
<td>Facility Residents-chronically immobilized</td>
<td>❌ 1</td>
<td>Recommend against thromboprophylaxis¹</td>
</tr>
<tr>
<td>Travel</td>
<td>❌ 1</td>
<td>Recommend against aspirin or anticoagulant.¹</td>
</tr>
</tbody>
</table>

**LDUH** = low dose unfractionated heparin  
**LMWH** = low molecular weight heparin  
**THA** = Total hip arthroplasty  
**TKA** = Total knee arthroplasty  
**DOAC** = Direct-acting oral anticoagulants  
**VKA** = Vitamin K antagonist

Data supporting aspirin in the CHEST guidelines:

Versus placebo: PEP trial
160 mg daily x 35 days vs placebo undergoing HFS or THA
28% relative risk reduction in symptomatic DVT; not enough information for PE

Versus LMWH:
325 mg BID vs enoxaparin in patients undergoing TKA
No differences in rates of DVT, but non-significant trend towards LMWH

Summary of 2 studies Versus LMWH:
*Increased* rate of DVT with use of aspirin (RR 1.87, 95% CI 1.3-2.7)

Data supporting aspirin since the CHEST guidelines

Versus dalteparin for extended prophylaxis (elective THA):
10 days of dalteparin, then 28 days of dalteparin or aspirin 81 mg
Aspirin was non-inferior to dalteparin

Versus rivaroxaban for extended prophylaxis:
5 days of rivaroxaban (10 mg), then either 9 days of rivaroxaban or aspirin 81 mg (TKA), or 30 days of rivaroxaban or aspirin (THA)
No significant difference when compared to rivaroxaban

Aspirin vs anticoagulant meta-analysis:
No difference between aspirin and anticoagulant for prevention of proximal DVT
Wide range of aspirin: 200 mg/day to 3000 mg/day
Most comparisons against heparin or warfarin

He is appropriate for inpatient and temporary outpatient VTE prophylaxis.

Aspirin is one possible option per the guidelines, but preference is given to LMWH per the guidelines.

There is increasing comfort and familiarity with DOACs, but not listed as an option for HFS in the guidelines.

New studies suggest LMWH or DOAC followed by aspirin, however these studies are done in TKA/THA so they are not appropriate choices for him.

Enoxaparin 40 mg SQ daily for minimum of 10-14 days (and up to 35 days, if tolerating).
Topics for Update and Review:

Indications

Primary
- CHD
- Stroke

Secondary
- VTE
- Cancer

Secondary VTE prophylaxis with aspirin:
Case #3- Secondary Prevention of CVD

A 75 year old male presents to your pharmacy with questions regarding his aspirin. He had an MI and CABG 10 years ago and was started on aspirin at that time.

He was diagnosed with a TIA and atrial fibrillation six months ago and was started on warfarin at that time. He is concerned about using both aspirin and warfarin long-term and asks your opinion. He denies major issues with bleeding/bruising/dark, tarry stools.

PMH: Diabetes mellitus Type 2, CHD (h/o CABG), Hypertension, Hyperlipidemia, Atrial Fibrillation, h/o TIA.

Medications: aspirin 325 mg daily, glipizide 10 mg every morning, lisinopril 10 mg daily, metoprolol XL 50 mg daily, warfarin 4 mg daily, atorvastatin 20 mg daily

He says that all of his medical conditions are “well controlled”, and his most recent “warfarin level” was OK.

What recommendation would you make? How do his other conditions factor in?
# Secondary Prevention of CHD

<table>
<thead>
<tr>
<th>CHD</th>
<th>Guidelines Recommend aspirin?</th>
<th>Dose recommended?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVD</td>
<td>✓ 1</td>
<td>75-325 mg</td>
<td>OR clopidogrel in symptomatic patients for reduction in CVD. Less support in asymptomatic.¹</td>
</tr>
<tr>
<td>ACS</td>
<td>✓ 2,3,4,5</td>
<td>75²,4,5-325 mg</td>
<td>AND P₂Y₁₂ for at least 1 year. 81 mg is preferred dose.³,⁴ (81-162 mg in NSTEMI guidelines)⁵</td>
</tr>
<tr>
<td>Post-PCI (SIDH)</td>
<td>✓ 4</td>
<td>81 mg</td>
<td>AND P₂Y₁₂ for 3-6 months depending on type of stent; can consider longer DAPT.⁴</td>
</tr>
<tr>
<td>Post-CABG (SIDH)</td>
<td>✓ 4,6</td>
<td>81⁴,6-325 mg</td>
<td>Off-pump bypass: DAPT with clopidogrel (aspirin dose 81-162 mg) for 12 months.⁶</td>
</tr>
<tr>
<td>Stable CHD</td>
<td>✓ 7</td>
<td>75-162 mg</td>
<td>Continued indefinitely.⁷</td>
</tr>
</tbody>
</table>

# Secondary Prevention of Stroke

<table>
<thead>
<tr>
<th>Stroke</th>
<th>Guidelines recommend aspirin?</th>
<th>Dose recommended?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-cardioembolic</td>
<td>✓1,2</td>
<td>50- 325 mg(^1)</td>
<td>Options include aspirin, clopidogrel, or aspirin/dipyridamole.(^1,2) Option includes cilostazol.(^2) Preference for clopidogrel, or aspirin/dipyridamole.(^2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75- 100 mg(^2)</td>
<td></td>
</tr>
<tr>
<td>Cardioembolic</td>
<td>✓1,2</td>
<td>50- 325 mg(^1)</td>
<td>Indicated for early treatment.(^3) Continued for secondary IF unable to take oral anticoagulants.(^1,2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75- 100 mg(^2)</td>
<td></td>
</tr>
</tbody>
</table>

Combination with clopidogrel after stroke

The first 90 days:

CHANCE trial: Clopidogrel x 90 days plus aspirin (75 mg) x 21 days OR placebo plus aspirin (75 mg) x 90 days started within 24 hours of stroke.

Decreased stroke in combination group (8.2% versus 11.9%; Hazard ratio [HR], 0.68; 95% CI, 0.57 to 0.81)

2018 AHA/ASA Guidelines for early management- treatment with combination for 21 days starting within 24 hours of stroke. (Level IIa recommendation)

Beyond 90 days:

MATCH trial: Clopidogrel plus aspirin (75 mg) OR clopidogrel plus placebo for 18 months in patients with stroke/TIA plus additional vascular risk factor.

No difference in composite outcome, but increase in major and life-threatening bleeds.
Stroke while on aspirin

Meta-analysis of 5 trials of stroke that occurred on aspirin therapy. Options included switch to another agent, or addition of agent.

Addition or switching of agent lead to reduction in MACE (Hazard ratio [HR], 0.68; 95% CI, 0.54-0.85) and stroke (HR, 0.70, 0.54-0.92).

No evaluation of addition or switch separately.

References: Stroke. 2017; 48(9):2610-2613
Aspirin and warfarin in stable CHD

Stable CHD with atrial fibrillation:
Cohort study reviewing patients with atrial fibrillation and stable CHD (> 12 months after ACS).

No difference in MI/coronary death between VKA monotherapy and VKA/aspirin (Hazard ratio [HR], 1.12; 95% CI, 0.94-1.34), but increased bleeding risk (HR, 1.50, 1.23-1.82). Similar results for VKA/clopidogrel.

Bleeding risk in patients with stable CHD:
Prospective study that documented bleed risk and reasons.
Overall 0.6% rate of major bleed/year with 54.9% being GI bleed.
Increased risk of bleeding with combination of VKA and antiplatelet agent (HR, 7.30, 3.91 - 13.64)

Case #3 Follow up

325 mg is a higher dose than needed. Guidelines for both stable CHD and secondary prevention of stroke (ACCP) suggest lower doses.

Also, since his TIA was associated with a diagnosis of atrial fibrillation a cardioembolic source is likely and oral anticoagulation is the preferred treatment.

Even though he has not yet experienced bleeding, given his history of TIA, DM and age he is at higher risk for bleeding.

The data supporting addition of aspirin to warfarin for stable CHD are limited, with increased risk of bleeding; would consider stopping aspirin.

Would also review control of glucose, signs/symptoms of low blood glucose, and recent dizziness/falls.
Risk factors for GI bleeding with aspirin therapy

- History of GI Bleed/Peptic Ulcers (OR 6.5, 2.0-21.2)
- GERD
- H. pylori infection (OR 4.7, 2.0-10.9)
- Comorbid conditions
- Alcohol Use (OR 4.3, 1.7-10.4)
- Increased age
- Increased aspirin dose
- Concomitant NSAIDS
- Concomitant Anticoagulation/Antiplatelets (HR 7.30, 3.91-13.64)/(OR 1.61, 0.85-3.05)
- Corticosteroid Use
- H. pylori infection (OR 4.7, 2.0-10.9)

Use of PPIs to reduce GI bleed risk

PPI Versus H2-receptor antagonists for prevention with low-dose aspirin:
Meta-analysis of randomized, controlled trials, specifically with low-dose aspirin
PPIs had lower rates of GI erosion/ulcer (OR, 0.28; 95% CI, 0.16-0.50) and bleed (OR, 0.28; 95% CI, 0.14-0.59).

Cost-effectiveness of gastroprotection with PPIs in older adults:
Economic study assessing benefit of PPI use (incremental cost-utility ratios for quality-adjusted life year) for adults using low dose aspirin (age groups: 60-69, 70-70, >80)
PPI use is cost-effective, but decreases with those >80 years of age due to risk of adverse effects of PPIs
Study was performed in the Netherlands, translating to U.S. health care system may be difficult.

Primary Prevention:
CVD/Colorectal cancer prevention- Based on age and 10 year ASCVD risk.
VTE prophylaxis in orthopedic patients- Aspirin is an option, but data is limited and evolving.

Secondary Prevention:
Extremely strong evidence for CHD and stroke.
Ongoing questions regarding optimal dose, combination with other anti-platelets, and oral anticoagulants.

GI Protection:
No validated scoring system to determine GI bleed risk with low dose aspirin. Choice to start PPI should be based on individual assessment of risk.
Questions??
Post Test Question #1

Per the U.S. Preventative Services Task Force recommendation statement on use of aspirin for primary prevention of cardiovascular disease and colorectal cancer, which age group provides the best benefit to risk ratio to support the use of aspirin?

A. < 50 years of age
B. 50-59 years of age
C. 60-69 years of age
D. ≥ 70 years of age
B. 50-59 years of age

This age range, in addition to having a ≥10% 10-year ASCVD risk provides a moderate benefit when compared to the increased risk of bleeding.

This drops to a small benefit for ages 60-69 and ≥10% 10-year ASCVD risk.

Patient specific risk factors for bleeding should also be taken into account before suggesting use of aspirin for primary prevention.


Post Test Question #1
Post Test Question #2

Per the 2018 AHA/ASA Early Management of Patients with Acute Ischemic Stroke, which antiplatelet option has the highest strength of recommendation and level of evidence for early treatment of acute ischemic stroke?

A. Aspirin
B. Oral anticoagulation
C. Dual antiplatelet therapy (aspirin and clopidogrel) for 21 days
D. Prasugrel
A. Aspirin

Aspirin within 24-48 hours after onset is a COR I, LOE A recommendation.

Urgent anticoagulation is not recommended (COR III, LOE A), but can be initiated within 4-14 days in patients with AF and acute ischemic stroke. (COR IIa, LOE B).

Dual antiplatelet therapy is recommended in the guidelines, but with a lower strength of recommendation and level of evidence. (COR IIa, LOE B).

Prasugrel is not mentioned in the 2018 guidelines, but it is contraindicated in patients with a history of TIA or stroke.

Post Test Question #3

Which confers the highest risk of GI bleed in a patient using low-dose aspirin?

A. History of GERD
B. Concomitant oral anticoagulation
C. History of diabetes
D. Increased body mass index
B. Concomitant oral anticoagulation

History of GERD/dyspepsia, co-morbid conditions including diabetes, and increased BMI have been shown to be associated with an increased risk of GI bleeding with antiplatelet use.

However, use of both aspirin and warfarin have been associated with a large risk of bleeding and patients on both should be evaluated for continued appropriateness.

JACC. 2014; 64:1430-6.
Resources & References - CVD Primary Prevention


Gaziano JM, et al. Use of aspirin to reduce risk of initial vascular events in patients at moderate risk of cardiovascular disease (ARRIVE): a randomised, double-blind, placebo-controlled trial. Lancet. 2018; Published Online: http://dx.doi.org/10.1016/S0140-6736(18)31924-X.


Resources & References- Cancer and VTE Primary Prevention


Resources & References - Secondary Prevention


Resources & References - Secondary Prevention and PPI Utilization


Speaker Contact Information

Alice N. Hemenway, PharmD, BCPS; aliceh@uic.edu