Statin

(HMG-CoA Reductase Inhibitor)

Therapy

Implementation in the setting of established atherosclerotic cardiovascular disease (ASCVD) and employment as prophylaxis to reduce the risk of future events.

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Objectives

1. Understand the role of statin (HMG-CoA reductase inhibitor) therapy for secondary prevention
2. Recognize the appropriate candidates for utilization of statin therapy in the setting of primary prevention
3. Demonstrate knowledge of appropriate statin prescribing
4. Identify techniques to mitigate statin intolerance

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Disclosure

- I do not have (nor does any immediate family member have) a vested interest in or affiliation with any corporate organization offering financial support or grant monies for this continuing education activity, or any affiliation with an organization whose philosophy could potentially bias my presentation
- There was no financial support obtained for this CME activity
- This presentation may include a discussion of off label medication use

Significance of Statin (HMG-CoA reductase inhibitor) therapy

- Serum lipid levels (in particular: ↑LDL-C, ↑TG, and ↓HDL-C) are risk factors for atherosclerotic cardiovascular disease (ASCVD)
- Statin (HMG-CoA reductase inhibitor) medications:
  - Clinical trails have demonstrated consistent and significant reductions of LDL-C and TG, as well as increases in HDL-C
  - Proposed anti-inflammatory effect post-ACS
  - Backed by guidelines as standard of care in secondary and primary prevention of ASCVD
- NOTE: lifestyle modification is key

Karlson, B. el al. A VOYAGER Meta-Analysis of the Impact of Statin Therapy on Low-Density Lipoprotein Cholesterol and Triglyceride Levels in Patients with Hypertriglyceridemia. *Am J Cardiol*, 117(9), 1444-8. doi:10.1016/j.amjcard.2016.02.11.

McTaggart, F. and Jones, P. Effects of Statins on High-Density Lipoproteins: A Potential Contribution to Cardiovascular Benefit. *Cardiovascular Drugs and Therapy*, 22(4): 321-338. doi: 10.1007/s10557-008-6113-z

Rosenson, R. et al. Lipoproteins as Biomarkers and Therapeutic Targets in the Setting of Acute Coronary Syndrome. *Circulation Research*, 114: 1880-1889. doi: 10.1161/circresaha.114.302805

Statin (HMG-CoA reductase inhibitor) therapy for secondary prevention

- Criteria for utilization:
  - Established ASCVD (i.e. ACS, hx of MI, stable or unstable angina, coronary or other arterial revascularization, stroke/TIA, PAD of atherosclerotic origin)
    - ≤ 75 y/o: High intensity statin (goal to reduce LDL-C by ≥ 50%)
    - > 75 y/o: Moderate or high intensity statin
    - General LDL-C goal is <55 to <70mg/dL depending on risk factors/10 year risk assessment
- Necessity of adjunct therapy:
  - Unable to achieve goal LDL-C with appropriately dosed statin therapy
  - Intolerant to high intensity statin

Grundy SM, et al. 2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation, 139: e1082-e1143.* doi:10.1161/cir.0000000000000625.

Grundy, SM,e t al. 2018 Guideline on the Management of Blood Cholesterol: Guidelines Made Simple (a selection of tables and figures). *J Am Coll Cardiology*. DOI 10.1016/j.jacc.2018.11.003

Jellinger, P. et al. AACE 2017 Clinical Practice Guidelines for Managing Dyslipidemia & Prevention of CVD. *Endocr Pract*, 23 (2). doi: 10.4158/ep171764.appgl

Statin (HMG-CoA reductase inhibitor) therapy for primary prevention

- Criteria for utilization:
  - ***LDL-C ≥ 190mg/dL: high intensity statin***
  - Age 0-19 y/o:
    - Primarily lifestyle modifications; consider statin if family history (hypercholesterolemia)
  - Age 20-39 y/o:
    - Risk assessment
    - Consider statin if family history, premature ASCVD and LDL-C 160mg/dL, or duration of type 1 diabetes ≥15 years.
  - ***Age 40-75 y/o:***
    - 10 year ASCVD risk assessment (non-diabetic patient; LDL-C ≥70 – <190mg/dL)
      - <5% = lifestyle modifications
      - 5 – <7.5% = consider moderate intensity statin (utilize CAC biomarker monitoring if appropriate, discuss risk enhancers)
      - ≥7.5% – <20% = consider moderate intensity statin to reduce LDL-C by 30-49% (utilize CAC biomarker monitoring if appropriate, discuss risk enhancers)
      - ≥ 20% = high intensity statin to reduce LDL-C by ≥50%
    - ***Diagnosis of diabetes = moderate intensity statin (consider high intensity if other risk factors present)***
  - Age >75 y/o:
    - Clinical assessment and risk discussion (longstanding diabetes presents an equivalent risk factor to known CVD)
  - General LDL-C goal is <70 to <130mg/dL depending on risk factors/10 year risk assessment

Arnett, D. et al. Clinical Practice Guideline: 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease. *Journal of the American College of Cardiology*, 74(10): e177-e232. doi:10.1016/j.jack.2019.03.010

Grundy SM, et al. 2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation, 139: e1082-e1143.* doi: 10.1161/cir.0000000000000625.

Grundy, SM, et al. 2018 Guideline on the Management of Blood Cholesterol: Guidelines Made Simple (a selection of tables and figures). *J Am Coll Cardiology*. doi: 10.1016/j.jacc.2018.11.003

Riddle, M, et al. *Diabetes Care*, Vol 42, S1. doi: 10.2337/dc19-sint01

Jellinger, P. et al. AACE 2017 Clinical Practice Guidelines for Managing Dyslipidemia & Prevention of CVD. *Endocr Pract*, 23 (2). doi: 10.4158/ep171764.appgl

Statin (HMG-CoA reductase inhibitor) prescribing

- Low-moderate-high intensity statin therapy
- Timing of dosing for optimal benefit
- Documentation of appropriate contraindications
  - Pregnancy (or in-vitro/fertility treatments), liver disease (cirrhosis), ESRD, intolerance/adverse effects (myalgia, myopathy, rhabdo, etc.)
- Drug-Drug interactions
  - Hepatic metabolism (atorvastatin, lovastatin, simvastatin)
  - Potentiation of toxicity (fibric acid derivatives)
  - Medications with a narrow therapeutic window (e.g. warfarin, digoxin)

CMS: Prev-13: Statin Therapy for the Prevention and Treatment of Cardiovascular Disease, 2019. https://qpp.cms.gov/docs/QPP_quality_measure_specifications/Web-Interface-Measures/2019_Measure_PREV13_CMSWebInterface_Updated.pdf. Accessed 10 Jan 2020.

BCBSNE 2020 Quality Measures: Statin Therapy for Patients with Diabetes

Techniques to mitigate statin intolerance and improve lipid management

- Alternative dosing strategies
- Drug holiday
- Changing statins (lipophilic vs hydrophilic)
- Correction of underlying issues and drug interactions
- Patient counseling
  - Importance of statin therapy (ASCVD risk reduction and mortality benefit)
  - Relatively low incidence of statin related ADRs
- Utilization of adjunct/augmenting therapies
  - LDL-C lowering agents (e.g. ezetimibe, PCSK9, bile acid sequestrants)
  - Triglyceride targeted agents (e.g. Omega-3, fibric acid derivatives, niacin)

Konstantinos, A. et al. Summarizing the Current State and Evidence on Efficacy and Safety of Statin Therapy. *American College of Cardiology*. https://acc.org/latest-in-cardiology/articles/2016/11/17/09/03/summarizing-the-current-state-and-evidence-on-efficacy-and-safety-of-statin-therapy. Accessed 1/29/2019.

Brinton, E. Understanding Patient Adherence and Concerns with Statins and Medication Discussion with Physicians (ACTION): A survey on the patient perspective of dialogue with healthcare providers regarding statin therapy. *Clinical Cardiology,* 41:710-720, doi: 10.1002/clc.22975.

Jellinger, P. et al. AACE 2017 Clinical Practice Guidelines for Managing Dyslipidemia & Prevention of CVD. *Endocr Pract*, 23 (2). doi: 10.4158/ep171764.appgl

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Questions?

Karsen Duncan, PharmD

Email: karsen.duncan@bryanhealth.org