VISE Assignment for Week 4

- Hypertension

Normal blood pressure – Systolic <120 mmHg and diastolic <80 mmHg

- **Elevated blood pressure** – Systolic 120 to 129 mmHg and diastolic <80 mmHg
- **Hypertension:**
  - Stage 1 – Systolic 130 to 139 mmHg or diastolic 80 to 89 mmHg
  - Stage 2 – Systolic at least 140 mmHg or diastolic at least 90 mmHg

Hypertension is associated with a significant increase in risk of adverse cardiovascular and kidney outcomes.

- Left ventricular hypertrophy
- Heart failure, both reduced ejection fraction (systolic) and preserved ejection fraction (diastolic)
- Ischemic stroke
- Intracerebral hemorrhage
- Ischemic heart disease, including myocardial infarction and coronary interventions
- Chronic kidney disease and end-stage kidney disease

Any causes of hypertension such as meds?

Nonpharmacologic therapy — Treatment of hypertension should involve nonpharmacologic therapy (also called lifestyle modification) alone or in concert with antihypertensive drug therapy We suggest that at least one aspect of nonpharmacologic therapy should be addressed at every office visit.

- Dietary salt restriction – In well-controlled randomized trials, the overall impact of moderate sodium reduction is a fall in blood pressure in hypertensive and normotensive individuals of 4.8/2.5 and 1.9/1.1 mmHg,. The effects of sodium restriction on blood pressure, cardiovascular disease, and mortality as well as specific recommendations for sodium intake, are discussed in detail elsewhere.
- Potassium supplementation, preferably by dietary modification, unless contraindicated by the presence of chronic kidney disease or use of drugs that reduce potassium excretion
- Weight loss – Weight loss in overweight or obese individuals can lead to a significant fall in blood pressure independent of exercise. The decline in blood pressure induced by weight loss can also occur in the absence of dietary sodium restriction The weight loss-induced decline in blood pressure generally ranges from 0.5 to 2 mmHg for every 1 kg of weight lost (

- DASH diet – The Dietary Approaches to Stop Hypertension (DASH) dietary pattern is high in vegetables, fruits, low-fat dairy products, whole grains, poultry, fish, and nuts and low in sweets, sugar-sweetened beverages, and red meats. The DASH dietary pattern is consequently rich in potassium, magnesium, calcium, protein, and fiber but low in saturated fat, total fat, and cholesterol. A trial in which all food was supplied to normotensive or mildly hypertensive adults found that the DASH dietary pattern reduced blood pressure by 6/4 mmHg compared with a typical American-style diet that contained the same amount of sodium and the same number of calories. Combining the DASH dietary pattern with modest sodium restriction produced an additive antihypertensive effect. These trials and a review of diet in the treatment of hypertension are discussed in detail elsewhere.
- Exercise – Aerobic, dynamic resistance and isometric resistance exercise can decrease systolic and diastolic pressure by, on average, 4 to 6 mmHg and 3 mmHg, respectively, independent of weight loss. Most studies demonstrating a reduction in blood pressure have employed at least three to four sessions per week of moderate-intensity aerobic exercise lasting approximately 40 minutes for a period of 12 weeks.
- Limited alcohol intake – Women who consume two or more alcoholic beverages per day and men who have three or more drinks per day have a significantly increased incidence of hypertension compared with nondrinkers. Adult men and women with hypertension should consume, respectively, no more than two and one alcoholic drinks daily

most guidelines and recommendations, including the 2017 ACC/AHA guidelines, recommend that initial therapy be chosen from among the following four classes of medications

- Thiazide-like or thiazide-type diuretics
- Long-acting calcium channel blockers
- Angiotensin-converting enzyme (ACE) inhibitors
- Angiotensin II receptor blockers (ARBs)

- **Hyperlipidemia**

It is reasonable to recommend that all patients, particularly those with high LDL-C, undergo lifestyle modifications such as weight loss in overweight patients, aerobic exercise, and eating diets lower in saturated fats

We acknowledge that there is a benefit from LDL-C lowering with statin therapy at virtually all levels of cardiovascular risk

In patients with very high LDL-C levels (eg, >160 mg/dL [>4.14 mmol/L]), despite a calculated risk between 5.0 and 10 percent, we usually recommend statin therapy.

Moderate-intensity statin therapy includes daily treatment with:

- Lovastatin 40 to 80 mg
- Pravastatin 40 to 80 mg
- Simvastatin 20 to 40 mg
- Atorvastatin 10 to 20 mg
- Rosuvastatin 5 to 10 mg

Hyperlipidemia labs:

LDL-C should be measured six to eight weeks after initiating statin therapy.

Total cholesterol: <200

Triglycerides: < 150

LDL: < 100

HDL: > 40?

- **Diabetes Mellitus Type 2**

Treatment of patients with type 2 diabetes mellitus includes education, evaluation for micro- and macrovascular complications, attempts to achieve near normoglycemia, minimization of cardiovascular and other long-term risk factors, and avoidance of drugs that can exacerbate abnormalities of insulin or lipid metabolism.

Target glycated hemoglobin (A1C) levels in patients with type 2 diabetes should be tailored to the individual, balancing the anticipated reduction in microvascular complications over time with the immediate risks of hypoglycemia and other adverse effects of therapy. A reasonable goal of therapy is an A1C value of ≤7 percent (53.0 mmol/mol) (calculator 1) for most patients.

In addition to glycemic management, vigorous cardiac risk reduction (smoking cessation; blood pressure control; reduction in serum lipids with a statin; diet, exercise, and weight loss or maintenance; and aspirin for those with established atherosclerotic cardiovascular disease [ASCVD] or after shared decision-making) should be a top priority for all patients with type 2 diabetes.

Diagnosis of type 2 diabetes is often a powerful motivator for lifestyle change. Dietary modification is a highly effective strategy for weight loss and for management of glycemia and hypertension in patients who are willing to commit to it, with metabolic benefit likely outlasting the effect of weight loss per se. The improvement in glycemia is related both to the degree of caloric restriction and weight reduction

Regular exercise is beneficial in type 2 diabetes, independent of weight loss. It leads to improved glycemic management due to increased responsiveness to insulin; it can also delay the progression of impaired glucose tolerance to overt diabetes

Although metformin is usually started for the management of hyperglycemia, it is also frequently an effective medication to promote modest weight loss. When additional body weight reduction is a primary goal of therapy, we choose medications that promote weight loss and lower glucose. Glucagon-like peptide 1 (GLP-1) receptor and dual GLP-1 and glucose-dependent insulinotropic polypeptide (GIP) agonist therapies promote weight loss and help prevent weight gain due to other glucose-lowering pharmacotherapies. We add these medications sequentially to metformin if additional glucose lowering or weight loss is a treatment goal.

For most patients presenting with A1C at or above target level (ie, >7.5 to 8 percent), pharmacologic therapy should be initiated at the time of type 2 diabetes diagnosis (with lifestyle modification).

Metformin — In the absence of specific contraindications, we suggest metformin as initial therapy for patients with newly diagnosed type 2 diabetes who are asymptomatic. We begin with 500 mg once daily with the evening meal and, if tolerated, add a second 500 mg dose with breakfast. The dose can be increased slowly (one tablet every one to two weeks) as tolerated to reach a total dose of 2000 mg per day. (See 'When to start' above and "Metformin in the treatment of adults with type 2 diabetes mellitus", section on 'Dosing'.)
Metformin is the preferred initial therapy because of glycemic efficacy (see 'Glycemic efficacy' below), promotion of modest weight loss, very low incidence of hypoglycemia, general tolerability, and favorable cost

Any kidney disease?

If metformin is not tolerated due to GI upset, could try slower titration and ensure they are taking med with food.

- **A1C >9 percent (>74.9 mmol/mol)** – For patients with A1C levels relatively far from goal (eg, 9 to 10 percent [>74.9 to 85.8 mmol/mol]), we suggest insulin or a GLP-1 receptor agonist for initial therapy.
Although historically insulin has been used for type 2 diabetes only when inadequate glycemic management persists despite oral agents and lifestyle intervention, there are increasing data to support using insulin earlier and more aggressively in type 2 diabetes

•For patients presenting with symptomatic (eg, weight loss, polydipsia, polyuria) or severe hyperglycemia with ketonuria, insulin is indicated for initial treatment.
•For patients presenting with severe hyperglycemia (fasting glucose >250 mg/dL [13.9 mmol/L], random glucose consistently >300 mg/dL [16.7 mmol/L], A1C >9 percent [74.9 to 85.8 mmol/mol]) but without ketonuria or spontaneous weight loss, in whom type 1 diabetes is not likely, insulin (or a glucagon-like peptide 1 [GLP-1] receptor agonist) is an option, along with metformin, if no contraindications.

A single daily dose of either insulin NPH or detemir given at bedtime or insulin glargine or degludec given in the morning or at bedtime is a reasonable initial regimen

We start with bedtime NPH or detemir, taken at 10:00 PM if the person is testing his or her fasting glucose at 7:00 or 8:00 AM, or bedtime or morning glargine or degludec. Since glargine and degludec can be administered any time of day, the timing of daily insulin glargine or degludec is based on patient preference to facilitate adherence.

The initial dose for NPH, detemir, glargine, or degludec is 0.2 units per kg (minimum 10 units, up to 15 to 20 units) daily.

- **Back Pain:**

- **Anxiety:**

The main options for the management of anxiety are medications with anxiolytic effects and cognitive-behavioral therapy (CBT). For individuals with GAD who warrant treatment, the choice of treatment is individualized and one of shared decision making.

Selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) are the preferred initial pharmacotherapy in the treatment of generalized anxiety disorder (GAD). Serotonergic reuptake inhibitors (SRIs) have been shown to be effective in the treatment of anxiety symptoms associated with GAD [16-25]. SRIs have less propensity to cause sedation or cognitive side effects than other antidepressant options (eg, tricyclic antidepressants [TCAs]) and less risk of dependence than