Family Practice Update

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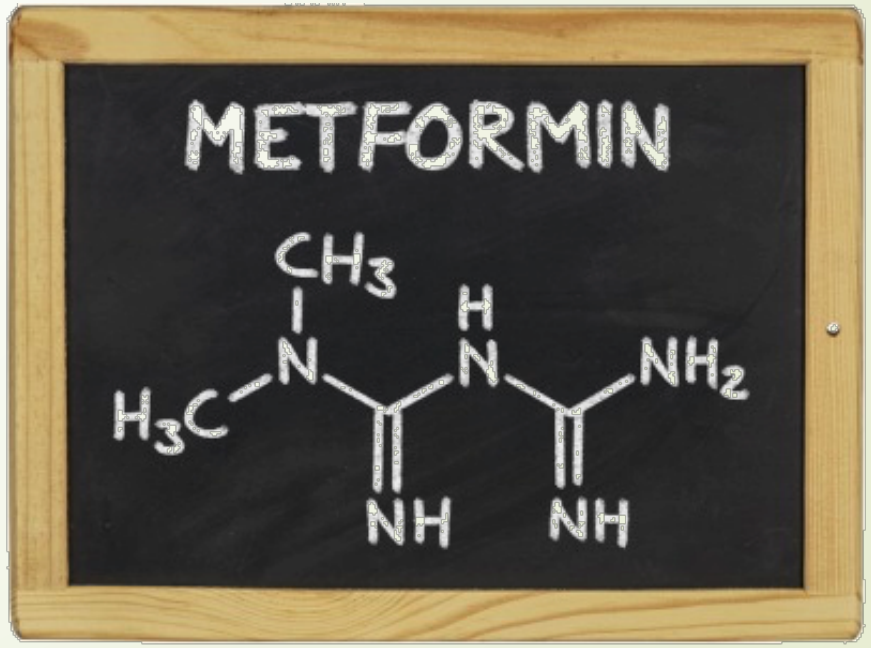
Diabetes medication trends and management

- Metformin: are we still using it ?
- SGLP: when do I choose this class ?
- Insulin: can I suggest this injectable up front?

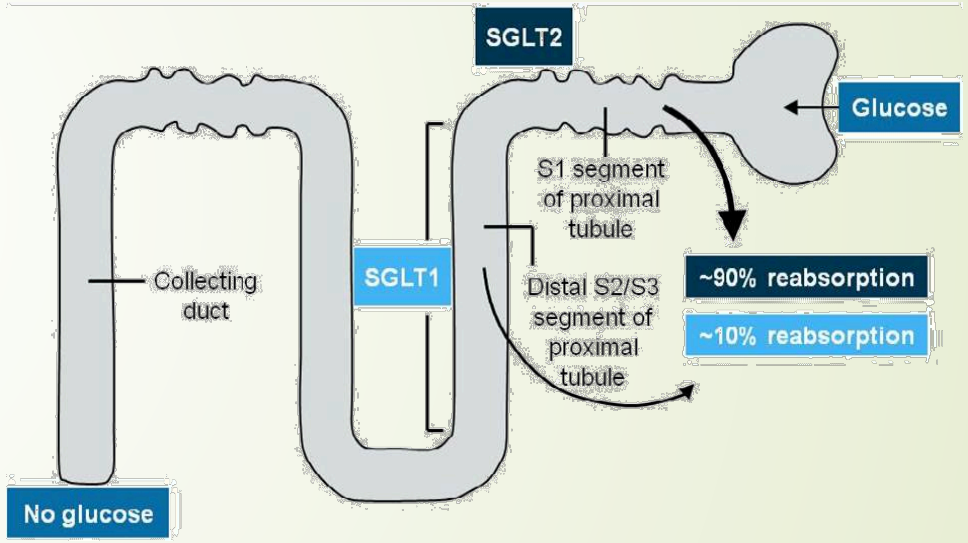
Metformin : Biaguanides

- Decreases insulin resistance
- Increases insulin sensitivity
- Often causes GI upset



SGLT2 Inhibitors

- Farxiga : dapagliflozin 5mg, 10mg
- Excretion is 75% urine half-life 12.9 hours
- Inhibits sodium- glucose cotransporter 2, reducing glucose reabsorption and increasing urinary glucose excretion



Insulin

- Peptide hormone produced by the pancreas
- Important in the glucose transport into tissue
- Tresiba : insulin degludec
  - Onset one hour, no real peak, duration approx. 42 hours

    Type 1 : start at 33% - 50% of daily insulin requirement (0.5-1u/kg/day)

    Type 2 : start 10u SC q daily

  Levemir: insulin detemir

  Onset one hour, no real peak, duration approx. 6-24 hours

  Type 1 : start approx. 33% of daily insulin requirement (0,5-1u/kg/day)

  Type 2: start 10u SC q daily

  Humalog: Insulin lispro

  Type 1 and Type 2 : start 0.5-1u/ kg/day, onset <15 minutes before or right after meals

ALGORITHM FOR ADDING/INTENSIFYING INSULIN

START BASAL (Long-Acting Insulin)

A1C < 8%

TDD 0.1–0.2 U/kg

A1C > 8%

TDD 0.2–0.3 U/kg

Insulin titration every 2–3 days to reach glycemic goal:

- Fixed regimen: Increase TDD by 2 U
- Adjustable regimen:
  - **FBG** > 180 mg/dL: add 20% of TDD
  - **FBG** 140–180 mg/dL: add 10% of TDD
  - **FBG** 110–139 mg/dL: add 1 unit
- If hypoglycemia, reduce TDD by:
  - **BG** < 70 mg/dL: 10% – 20%
  - **BG** < 40 mg/dL: 20% – 40%

Consider discontinuing or reducing sulfonylurea after starting basal insulin (basal analogs preferred to NPH)

***Glycemic Goal:**

- <7% for most patients with T2D; fasting and premeal BG < 110 mg/dL; absence of hypoglycemia
- A1C and FBG targets may be adjusted based on patient's age, duration of diabetes, presence of comorbidities, diabetic complications, and hypoglycemia risk

Glycemic Control Not at Goal*

INTENSIFY (Prandial Control)

Add GLP-1 RA

Or SGLT-2i
Or DPP-4i

Add Prandial Insulin

Basal Plus 1, Plus 2, Plus 3

- Begin prandial insulin before largest meal
- If not at goal, progress to injections before 2 or 3 meals
- Start: 10% of basal dose or 5 units

Basal Bolus

- Begin prandial insulin before each meal
- 50% Basal / 50% Prandial TDD 0.3–0.5 U/kg
- Start: 50% of TDD in three doses before meals

Insulin titration every 2–3 days to reach glycemic goal:

- Increase prandial dose by 10% or 1-2 units if 2-h postprandial or next premeal glucose consistently > 140 mg/dL
- If hypoglycemia, reduce TDD basal and/or prandial insulin by:
  - BG consistently < 70 mg/dL: 10% - 20%
  - Severe hypoglycemia (requiring assistance from another person) or BG < 40 mg/dL: 20% - 40%

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GLYCEMIC CONTROL ALGORITHM

LIFESTYLE THERAPY
(Including Medically Assisted Weight Loss)

Entry A1C < 7.5%

MONOTHERAPY*

- ✓ Metformin
- ✓ GLP-1 RA
- ✓ SGLT-2i
- ✓ DPP-4i
- ! TZD
- ✓ AGi
- ! SU/GLN

If not at goal in 3 months proceed to Dual Therapy

Entry A1C ≥ 7.5%

DUAL THERAPY*

MET or other 1st-line agent +

- ✓ GLP-1 RA
- ✓ SGLT-2i
- ✓ DPP-4i
- ! TZD
- ! Basal Insulin
- ✓ Colesevelam
- ✓ Bromocriptine QR
- ✓ AGi
- ! SU/GLN

If not at goal in 3 months proceed to Triple Therapy

TRIPLE THERAPY*

MET or other 1st-line agent + 2nd-line agent +

- ✓ GLP-1 RA
- ✓ SGLT-2i
- ! TZD
- ! Basal insulin
- ✓ DPP-4i
- ✓ Colesevelam
- ✓ Bromocriptine QR
- ✓ AGi
- ! SU/GLN

If not at goal in 3 months proceed to or intensify insulin therapy

Entry A1C > 9.0%

SYMPTOMS

NO	YES
DUAL Therapy OR TRIPLE Therapy	INSULIN ± Other Agents

ADD OR INTENSIFY INSULIN

Refer to Insulin Algorithm

LEGEND

- ✓ Few adverse events and/or possible benefits
- ! Use with caution

* Order of medications represents a suggested hierarchy of usage; length of line reflects strength of recommendation

PROGRESSION OF DISEASE

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PROFILES OF ANTIDIABETIC MEDICATIONS

	MET	GLP-1 RA	SGLT-2i	DPP-4i	AGi	TZD (moderate dose)	SU / GLN	COLSVL	BCR-QR	INSULIN	PRAML
HYPO	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate/ Severe / Mild	Neutral	Neutral	Moderate to Severe	Neutral
WEIGHT	Slight Loss	Loss	Loss	Neutral	Neutral	Gain	Gain	Neutral	Neutral	Gain	Loss
RENAL / GU	Contrain-dicated if eGFR < 30 mL/ min/1.73 m^2	Exenatide Not Indicated CrCl < 30 / Possible Benefit of Liraglutide	Not Indicated for eGFR < 45 mL/min/ 1.73 m^2 / Genital Mycotic Infections / Possible Benefit of Empagliflozin	Dose Adjustment Necessary (Except Linagliptin) Effective in Reducing Albuminuria	Neutral	Neutral	More Hypo Risk	Neutral	Neutral	More Hypo Risk	Neutral
GI Sx	Moderate	Moderate	Neutral	Neutral	Moderate	Neutral	Neutral	Mild	Moderate	Neutral	Moderate
CHF	Neutral	Possible Benefit of Liraglutide	Possible Benefit of Empagliflozin	Possible Risk for Saxagliptin and Alogliptin	Neutral	Moderate	More CHF Risk	Neutral	Neutral	More CHF Risk	Neutral
CARDIAC* ASCVD		Possible CV Benefit	Possible CV Benefit	Neutral		May Reduce Stroke Risk	?	Benefit	Safe	Neutral	
BONE	Neutral	Neutral	Canagliflozin Warning	Neutral	Neutral	Moderate Fracture Risk	Neutral	Neutral	Neutral	Neutral	Neutral
KETOACIDOSIS	Neutral	Neutral	DKA Occurring in T2D in Various Stress Settings	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral

Few adverse events or possible benefits | Use with caution | Likelihood of adverse effects | ? Uncertain effect | * FDA indication to prevent CVD death in diabetes plus prior CVD events

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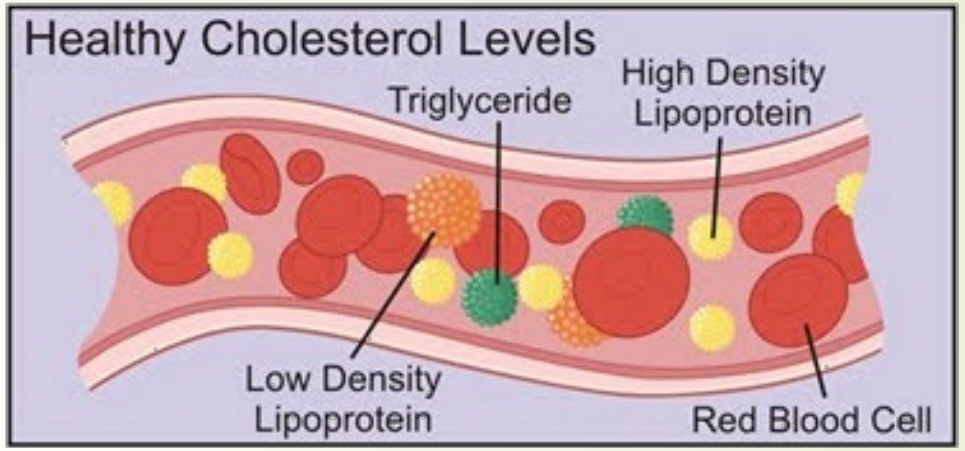
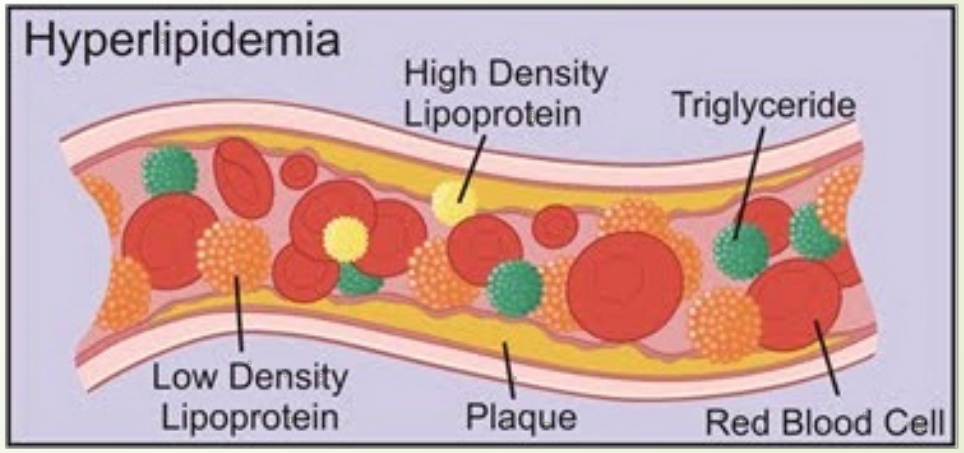
Hyperlipidemia

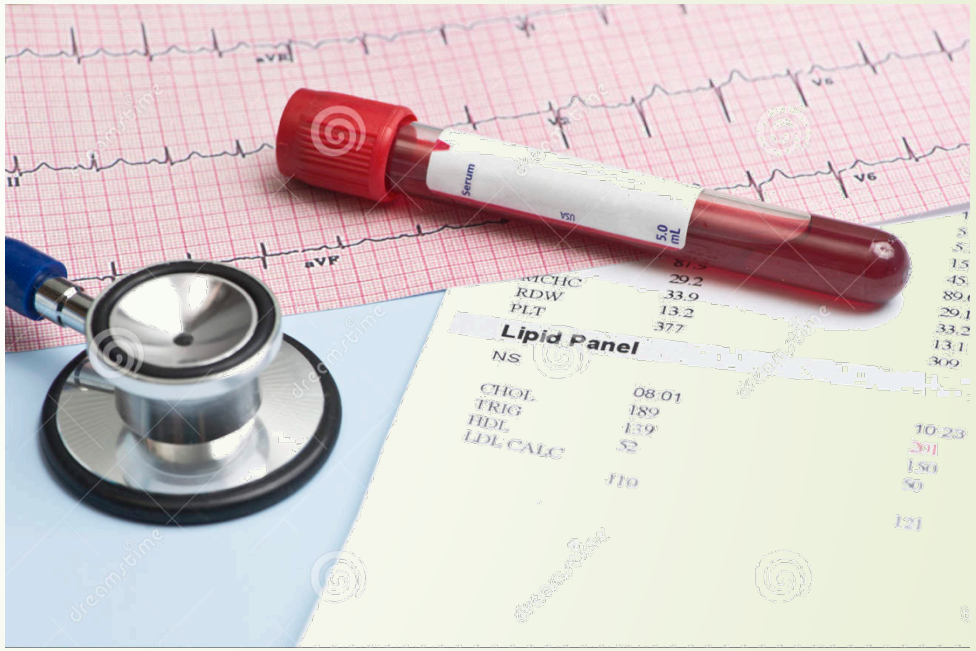
- Nutrition
- Activity
- Medication





Lipid panel

- LDL
- HDL
- Triglycerides



Is there more??

- C-reactive protein CRP
- Homocysteine
- Apolipoprotein levels A-1
  - More accurate predictive outcomes than LDL
  - Lipoprotein (a) small LDL particles considered more risk for CHD

Nutrition

- Eat less beef and pork : 1 time a week
- Eat more cold water fish : 2 times a week
- Eat more chicken and turkey : skinless
- Eat 40 to 50G soy protein a day
- Drink non fat or 1% fat milk
- Use polyunsaturated oil products (safflower) : monounsaturated oils (olive)
- Eat oat bran cereal
- Eat nuts
- Take omega 3 fish oil : omega 3 fatty acids

ASCVD RISK FACTOR MODIFICATIONS ALGORITHM

DYSLIPIDEMIA

LIFESTYLE THERAPY (Including Medically Assisted Weight Loss)

LIPID PANEL: Assess ASCVD Risk

STATIN THERAPY
If TG > 500 mg/dL, fibrates, Rx-grade omega-3 fatty acids, niacin

If statin-intolerant

Try alternate statin, lower statin dose or frequency, or add nonstatin LDL-C- lowering therapies

Repeat lipid panel; assess adequacy, tolerance of therapy

Intensify therapies to attain goals according to risk levels

RISK LEVELS	HIGH	VERY HIGH	EXTREME
	DESIRABLE LEVELS	DESIRABLE LEVELS	DESIRABLE LEVELS
LDL-C (mg/dL)	<100	<70	<55
Non-HDL-C (mg/dL)	<130	<100	<80
TG (mg/dL)	<150	<150	<150
Apo B (mg/dL)	<90	<80	<70

RISK LEVELS:
- **HIGH:** DM but no other major risk and/or age <40
- **VERY HIGH:** DM + major ASCVD risk(s) (HTN, Fam Hx, low HDL-C, smoking, CKD3,4)*
- **EXTREME:** DM plus established clinical CVD

IF NOT AT DESIRABLE LEVELS: Intensify lifestyle therapy (weight loss, physical activity, dietary changes) and glycemic control; consider additional therapy

TO LOWER LDL-C:	Intensify statin, add ezetimibe, PCSK9i, colesevelam, or niacin
TO LOWER Non-HDL-C, TG:	Intensify statin and/or add Rx-grade OM3 fatty acid, fibrate, and/or niacin
TO LOWER Apo B, LDL-P:	Intensify statin and/or add ezetimibe, PCSK9i, colesevelam, and/or niacin
TO LOWER LDL-C in FH:**	Statin + PCSK9i

Assess adequacy & tolerance of therapy with focused laboratory evaluations and patient follow-up

* EVEN MORE INTENSIVE THERAPY MIGHT BE WARRANTED ** FAMILIAL HYPERCHOLESTEROLEMIA

HYPERTENSION

GOAL: SYSTOLIC <130, DIASTOLIC <80 mm Hg

ACEi or ARB

For initial blood pressure >150/100 mm Hg:
DUAL THERAPY

ACEi or ARB + Calcium Channel Blocker ✓ / ß-blocker ✓ / Thiazide ✓

If not at goal (2–3 months)

Add calcium channel blocker, ß-blocker or thiazide diuretic

If not at goal (2–3 months)

Add next agent from the above group, repeat

If not at goal (2–3 months)

Additional choices (α-blockers, central agents, vasodilators, aldosterone antagonist)

Achievement of target blood pressure is critical

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Medications

- Fish Oil
- Statins
- Combination therapy

Fatigue

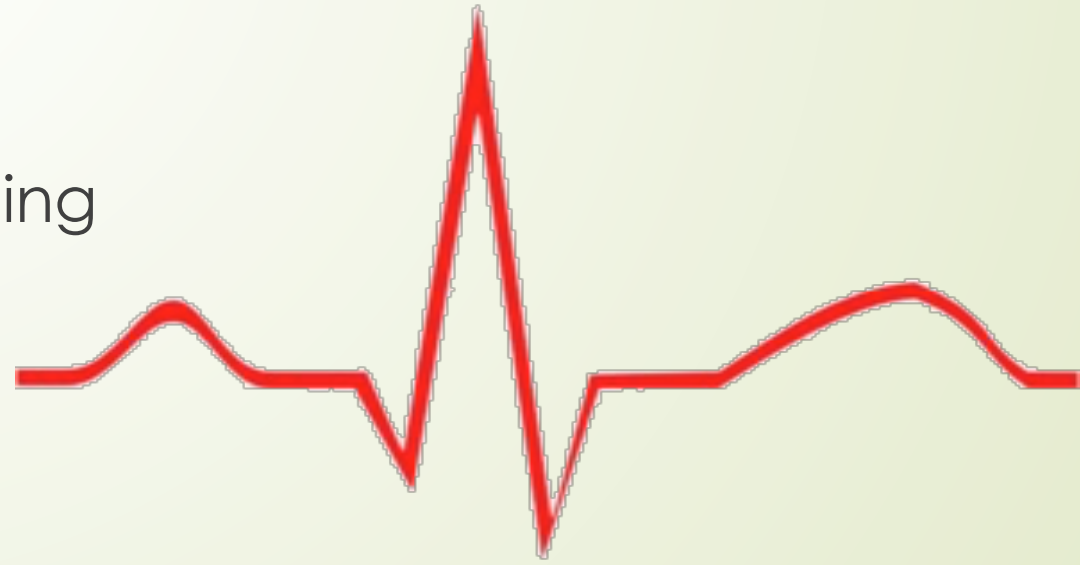
- Chief complaint
  - Lethargy, lack of energy, hypersomnolence
  - If weakness , evaluate for cause
  - Screen for depression
    - Duration
    - Recent stressful life events
    - Sleep and work patterns
    - Weight changes
    - Medication history
    - Diet history
    - Compete review of systems

Work up

- Physical exam
- Lymph nodes, joints, skin
- Base laboratory testing on findings
- No million dollar work up initially

Laboratory and diagnostic testing Age and gender appropriate

- Ekg
- Cbc w/diff
- UA
- Thyroid panel
- Pregnacy testing
- Appropriate cancer screening



Second level investigation

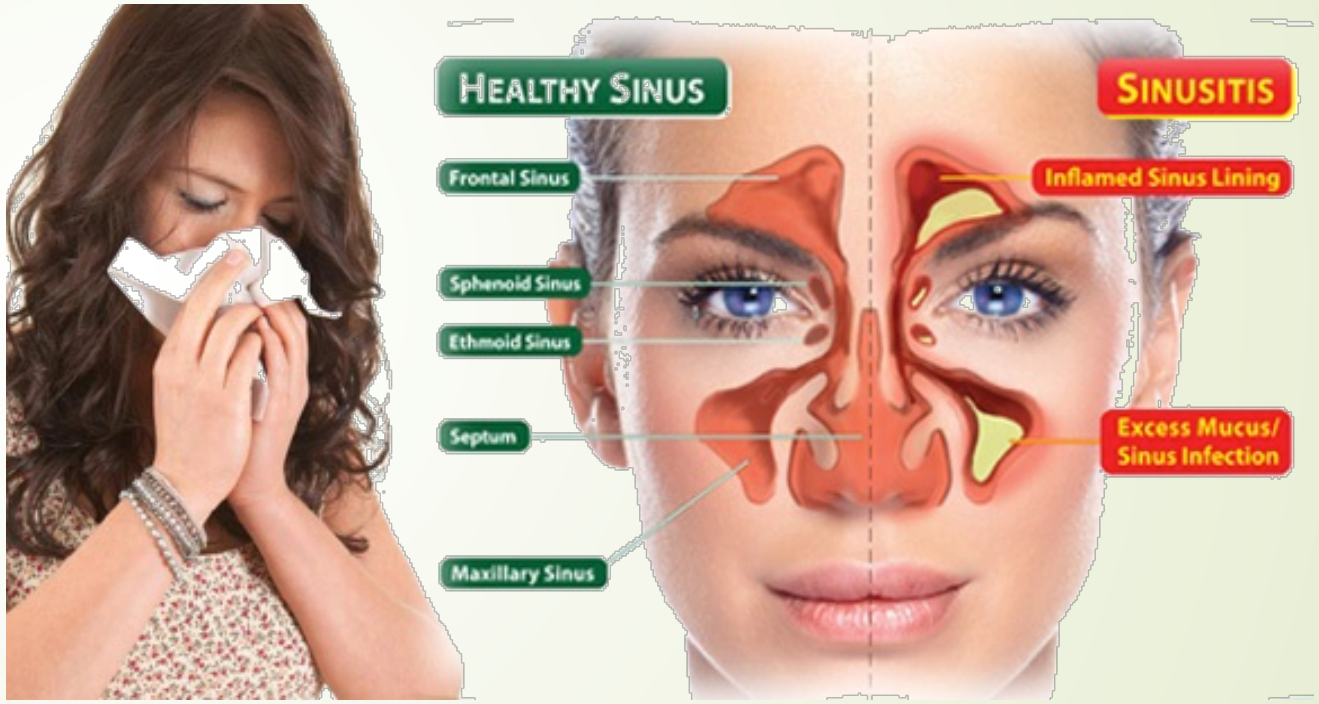
- Chest x-ray
- Serologies
  - ANA, rheumatoid factor and sub type and titers
  - HIV
  - PPD
  - Lyme titers
  - Hepatitis C antibodies
  - STI screening

Treatment

- Patient needs follow up appointment to address the findings
- Anemia
- Hypothyroidism
- Depression

Sinusitis and URI

- Sinusitis
- Pharyngitis
- Otitis
- Bronchitis



Sinusitis

- Viral infection accounts for 90% of reported cases
- Strep, H flu, and M Catharrhalis
  - Acute : symptoms lasting 4 weeks
  - Subacute: symptoms lasting 4 to 12 weeks
  - Recurrent: more than 4 episodes per year lasting at least 7 days
  - Chronic: persists for 3 months or more

Common cold and rhinitis

- Viral and Upper respiratory infection
- Allergic rhinitis
- Rebound rhinitis
- Vasomotor rhinitis
  - Common in 50-70 decades of life
  - Pregnancy

Diagnosis of sinusitis

- CBC w/diff
  - Eosinophils : allergy
  - Neutrophils : bacteria
  - Study the nasal secretions
- Culture of nasal secretions
  - Indicated when bacterium as resistant to convention treatment

Imaging studies

Medication therapy

- Steroid nasal sprays
- Oral steroids
- Antihistamines
- Antihistamine-decongestant combinations
- Mast cell-stabilizing agents
- Leukotriene inhibitors
- Anticholinergic agents
- Immunotherapy
- Guaifenesin :high doses

Antibiotics

- Amoxicillen 875mg PO BID for 10 days
- Amoxicillen-clavulanate 875/125mg PO BID for 5-7 days
- Cefuroxime (Ceftin) 250mg PO BID for 10 days
- Doxycycline 100mg PO BID for 5-7 days
- Levofloxacin 500 -750 mg once daily for 10-14 days

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