

Rap #15, 1/17 Regions Rap Overview (Rheumatology)

Saturday, February 11 2017, 9:40 AM

Rap #15, 1/17 Regions Rap Overview (Rheumatology)

RA (EM Docs 10/12/16, Authored by Samantha Berman & Joshua Bucher) – Reviewed by Matt Bogan

- Complications of the disease make it the most common rheumatic disease requiring ICU admission
- Admission to the hospital follows either an infection or a disease flare. Typical disease presentation includes severe joint pain with symmetric synovial joint involvement.
- **Diagnostics:**
 - Rheumatoid arthritis is a **CLINICAL** diagnosis in the emergency department.
 - ESR, CRP, and Rheumatoid factor lack sensitivity and specificity and may be elevated in several other disease states. Therefore they are **low yield** in the ED.
- **ED Treatment of Acute Flares:**
 - NSAIDs are first line for a trial period following a diagnosis of RA. These **do not prevent joint destruction**, and no particular agent has superior efficacy. It is permissible to trial one for 4 weeks at high doses and if that one does not alleviate symptoms, you can switch to a different class of NSAIDs for another 4 weeks.
 - Steroids can be used should NSAIDs fail. Low dose daily with a taper.
 - i.e. Prednisone: 5-10 mg PO daily with a 4 week slow taper
 - Disease modifying anti-rheumatic drugs (DMARDs) are the definitive treatment and the mainstay of RA therapy.
 - ** The ED doc will encounter adverse effects of DMARDs in patients who have been both recently started on them and who have been on them for decades**
- **Adverse Effects of Common DMARDs:**
 - **Patients taking DMARDs are immunocompromised and are thus prone to severe infection and end organ dysfunction.**
 - **MTX: Nausea, vomiting, diarrhea, stomatitis, bone marrow suppression, liver toxicity, pneumonitis, AKI.**
 - **Sulfasalazine:** GI upset, rash, allergic reactions, headache, alopecia, **G6PD deficiency hemolytic anemia, liver, renal and pulmonary toxicity, bone marrow suppression, Stevens-Johnson syndrome.**
 - **Leflunomide: Hepatotoxicity.**
 - **Hydroxychloroquine:** GI upset, photosensitivity, rash, reduced peripheral and night vision, tinnitus, CNS disturbances, **ataxia, irritability, and hepatotoxicity.**
 - **Biologics: Major side effect profiles** of the biologics include **increased risk of severe infection from immunosuppression including tuberculosis, as well as bone marrow suppression, hepatotoxicity, anaphylaxis and GI distress.**
 - **Pregnancy: all the above meds are Class X except certolizumab.
 - Many vaccines are ineffective while a patient is on DMARDs. Tdap is safe, but the MMR and zoster vaccines should not be given to patients taking anti-TNF meds!
- **Complications of RA:**

- **Pulmonary**
 - **Interstitial pulmonary fibrosis** can occur as a result of chronic inflammatory changes to lung interstitium. Can result in Pulmonary hypertension. Symptoms are usually slowly progressive with cough and exertional dyspnea as presenting symptoms.
- **Cardiovascular**
 - Accelerated coronary atherosclerosis (RR 3.0 of developing atherosclerosis in RA). Fibrosis of the myocardium also leads to acute heart failure, cardiomyopathy, conduction disturbances, pericarditis, and tamponade.
- **Vascular**
 - **Catastrophic Antiphospholipid Syndrome** is a rare, rapidly progressive vaso-occlusive process involving the simultaneous venous and arterial thrombosis leading to multiorgan failure from pulmonary embolus, renal failure (main organ system involved), stroke, MI, **ultimately progressing to DIC**.
- **Musculoskeletal**
 - **Septic arthritis** is a **CAN'T MISS DIAGNOSIS** in rheumatoid arthritis.
 - **Atlanto-axial subluxation** results from long-standing disease. d/t unstable ligaments/joint erosion.
 - **Difficult Intubation Alert!** Neck and TMJ immobility and severely restricted range of motion may make direct laryngoscopy very difficult.
- **Hematological**
 - **Felty's syndrome** is a tetrad of neutropenia, leukopenia, splenomegaly, and recurrent bacterial infections.
- **Renal**
 - **Renal complications are a major source of morbidity and mortality.** Complications include acute nephritis syndrome, renal vein thrombosis, rhabdomyolysis, and fulminant renal failure.
- **GI**
 - The most common GI complication is hemorrhage secondary to drug therapy side effects, bowel ischemia, ulcers, or vasculitis. Other more rare complications are cholecystitis, diverticulitis, bowel edema from recurrent inflammation, abdominal angina, strictures, stenosis, and bowel obstruction.
- Evaluation

o [Air Grade:](#)

Tier 1: BEEM Rater Scale	Score-choose only 1	Tier 2: Content accuracy	Score-choose only 1	Tier 3: Educational Utility	Score-choose only 1	Tier 4: EBM	Score-choose only 1	Tier 5: Referenced	Score-choose only 1
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Your Score	2		6		5		5		7

SLE (EM Docs 10/13/16, authored by Rebecca Kaufman & Kevin Reed) – Reviewed by Lauren Webb

- Lupus – chronic inflammatory disease of unknown cause with multiorgan involvement
- Women > Men, genetic predisposition
- Classic Triad: fever, joint pain and rash
- Rheumatologic (90%)
 - Polyarthralgias and myalgia
 - Symmetric
 - MCP and PIP
 - Treated frequently with steroids
 - **Increased risk of AVN**
- Dermatologic (50%)
 - Classic rash – malar rash
 - Maculopapular
 - First sign or w/ flairs
 - Discoid Lupus Erythematosus
 - Raised plaques on face, head, neck
 - w/ or w/o systemic disease
 - Mucous membrane ulcerations
 - Aphthous ulcers
 - EMERGENCY
 - Vasculitic lesions
 - Tx: CCB, topical nitrate, IV prostaglandin + aspirin and heparin + steroids
 - Prompt steroid use decreases risk of surgical intervention
- Renal (50%)
 - Lupus nephritis

- Persistent proteinuria ☹ mild to ESRD
- EMERGENCY
 - Occurs more with Diffuse Proliferative Lupus Nephritis
 - Hypertension, peripheral edema, cardiac compromise (tamponade or HF)
 - ACEI
 - Aggressive BP mgmt w/ CCB and BB to goal of <130 mmHg
- Neurologic (up to 50%)
 - Seizures, cognitive impairment after 10 years of disease, peripheral neuropathy
 - More susceptible to stroke do to vasculitis
 - Dural sinus thrombosis due to hypercoagulability – be suspicious with HA presentation
 - Transverse myelitis or spinal artery thrombosis – rapid onset
- Cardiac (50%)
 - Endocarditis, pericarditis, myocarditis, MI
 - Libman-Sacks Endocarditis = sterile endocardial inflammation with valvular vegetations
 - Have low threshold for observation
- Pulmonary
 - Pleuritis w/wo effusion is common
 - MANY life threatening pulmonary complications
 - Focus on ruling out reversible processes and cardiopulmonary support
- Gastrointestinal
 - Dysphagia ☹ esophageal dysmotility
 - Intestinal pseudo-obstruction, SBP,
 - Lupus enteritis and serositis
 - Vasculitis of GI tract vessels is potential EMERGENCY
 - Mortality rate of SLE patient presenting with surgical abdomen ~50%
- Hematologic
 - Thrombocytopenia, hemolytic anemia, neutropenia, **TTP**
 - Catastrophic Antiphospholipid Syndrome (CAPS)
 - Precipitated by infection, surgery, trauma, pregnancy, OCP
 - MGMT: STEROIDS, ANTICOAG, PLASMAPHERESIS/PLASMA EXCHANGE
- Pregnancy
 - At higher risk for everything
 - Switch warfarin to heparin (or LMWH)
- Summary:
 - Always worth a consult
 - Steroids
 - _____ might be caused by SLE
 - Anything a normal person is at risk for, SLE patient is at higher risk for ...especially in pregnancy
 - You are going to order a lot of labs and imaging whether you like it or not
 - No such thing as low risk chest pain in SLE patient

- **Evaluation**

o [Air Grade:](#)

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Your Score	3		7		6		7		7

HOP Killers (Hypotension, Oxygen, pH) (R.E.B.E.L. EM, All authored by Salim Rezaie)

Part 1 (09/26/16) - Reviewed by Priya Sury

- Hypotension
- **Basic Strategies** for avoiding peri- and intubation hypotension:
 - 2 proximal peripheral IVs
 - IO if unable to get PIVs for RSI
 - 1-2L of crystalloid wide open
 - Aim for SBP> 140 mmHg
- **Intervention 1: Sedatives Low and Paralytics High**
 - Induction agents can drop BP in sock
 - Benzos and Propofol decrease sympathetic tone
 - Paralytics are cardiac output dependent and take longer to work in shock
 - Shock is powerful anesthetic
 - Ketamine is induction agent of choice in shock
 - Sympathetic surge and pain control
 - Dose 0.25-0.5 mg/kg may be all that is needed in a shock state
 - Rocuronium should be paralytic of choice
 - Longer safe apnea time
 - 1.6 mg/kg
 - Higher doses may be needed due to peripheral vasoconstriction.
- **Intervention 2a: Push Dose Pressors**
 - Prevents intubation delay.
 - improves hemodynamics during peri-intubation (Paschal AR et al 2015 article).
 - Epi is push dose pressor of choice (alpha and beta agonist).
 - Instructions for mixing and dosing push dose epinephrine.
- **Intervention 2b: Peripheral Pressors**

- Vasopressin through proximal PIV is unlikely to cause tissue injury
 - Peripheral pressors can reduce time to achieve hemodynamic stability (Loubani et. Al 2015 study)
 - Overall are safe, low risk of extravasation but does require vigilant evaluation of the extremity.
- **Intervention 3: Awake Intubation**
 - Endogenous catecholamines maintained in awake patients (Moiser JM et al 2015)
 - Further discussed with instructions [here](#) and [here](#)

Rapid Sequence Awake Intubation via @emcrit

EZ-Atomizer



Spray 10cc of
4% Lidocaine
into Oropharynx

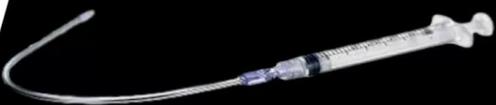
↓

Tongue Depressor



Apply at Least 2 - 4%
Topical Lidocaine to
Posterior Tongue

MADgic Device



Spray 5cc of 4% Lidocaine
Just Past Vocal Cords

↓

Intubate w/ ETT



@srrezaie

- Evaluation

o [Air Grade:](#)

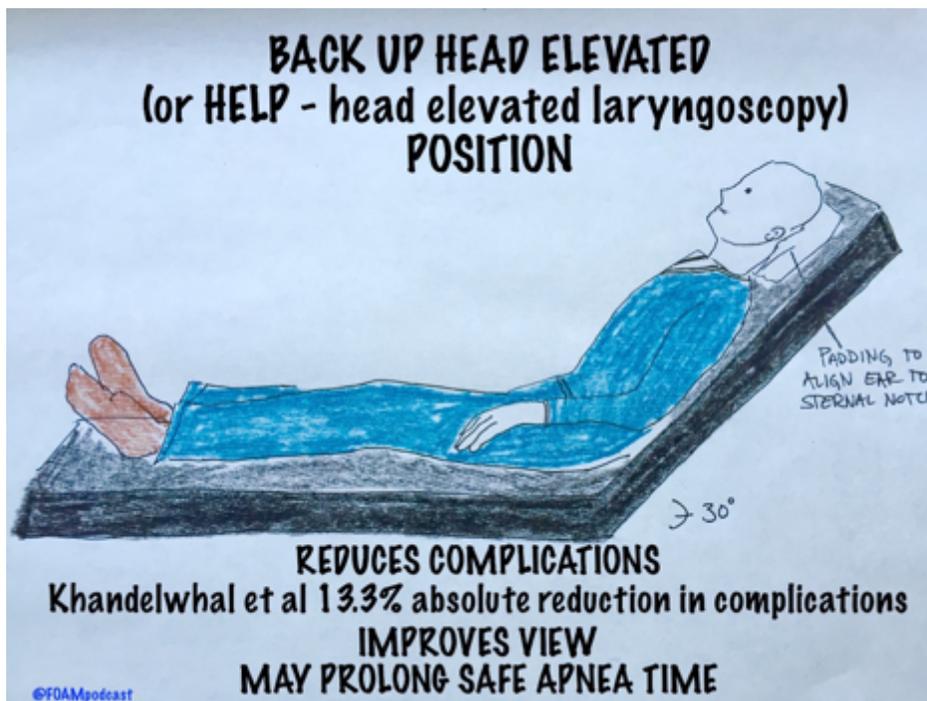
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Part 2 (09/29/16) - Reviewed by David Benjamin

• **Oxygen**

- o NO DESAT (“Nasal Oxygen During Efforts Securing A Tube”)
- o **3 Interventions:**
 1. Start with: NC @ 15 L/min, NRB @ 15 L/min
 - o If SpO2 < 95% ☹ think shunt (PNA, pulmonary edema, atelectasis, ARDS, etc)
 - o Need PEEP
 - o Add PEEP valve (patient breaths on own), jaw thrust
 - o “Apneic CPAP Recruitment”
 - o No references for this technique
 2. DSI with ketamine
 - o Procedural sedation for pre-oxygenation
 - o Reference: Weingart 2015 article
 - o Observation study, ~150 patients
 - o SpO2 **89.9% -> 98.8%**, no complications
 3. Back Up Head Elevated (BUHE)
 - o Reference: Khandelwal 2016 article (Anesthesia)
 - o Retrospective study, 528 patients
 - o Primary Outcome: Complications (> 3 attempts, > 10 min, Hypoxia < 90%, aspiration, failed intubation)

- Results: Complications **22.6%** (supine) vs. **9.3%** (BUHE)



- [CORE EM Video](#)

• Evaluation

- [Air Grade:](#)

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Part 3 (10/03/16) - Reviewed by Brad Hansen

- pH (Academia)
 - If the patient is acidotic, avoid intubation if at all possible, consider NIPPV while correcting cause of acidosis
 - Bicarbonate Therapy:

- o Forsythe et al reviewed bicarb in lactic acidosis
 - o Argues against use because metabolized to CO2 and could worsen acidosis if unable to blow off CO2 ☹ cardiac dysrhythmia
 - o 18 animal studies: bicarb will ↑ serum pH, ↓ intracellular pH
 - o 2 human studies: bicarb will ↑ serum pH w/o improving hemodynamics or catecholamine responsiveness
 - o Bottom line: No data to support use
- o Ventilator-Assisted Pre-Oxygenation (VAPOX)
 - o If intubation necessary then maintaining spontaneous respirations is critical for maintaining acid base balance (respiratory alkalosis)
 - o Brief apnea can cause worsening acidosis and arrhythmia
 - o Place patient on NC 15 LPM
 - o Vent to SIMV+PS
 - o AC-CMV can cause barotrauma in tachypnea because every breath is full TV
 - o 6 vent setting changed 3 different times:
 - o Before induction
 - o RR 0, TV 550, FIO2 100%, PS 5-10, PEEP 5, IF 30
 - o Place BiPAP mask on patient connected to ventilator
 - o Monitor ET CO2 and maintain or lower that number
 - o Induction
 - o Jaw thrust
 - o RR 12, TV 550, FIO2 100%, PS 5-10, PEEP 5, IF 30
 - o Intubation
 - o Attach ventilator
 - o RR 30, TV 550, FIO2 100%, PS 5-10, PEEP 5, IF 60

• Evaluation

- o [Air Grade:](#)

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Edited by Zlata Vlodayer, Brian Hahn, Matt Bogan and Joe Walter