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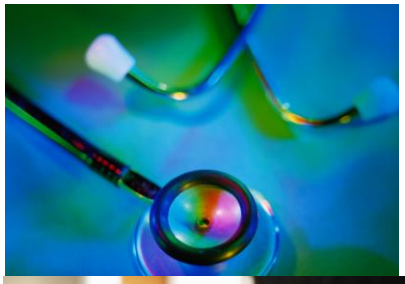
Family Medicine Clinic Day 2020

Saturday, January 18, 2020

Pan Pacific Toronto

(formerly Westin Prince Hotel)



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PROGRAMME

Registration from	07:30	Continental Breakfast and Exhibit Viewing	
	08:00	Opening Remarks	
Plenary Session [Ballroom]	**08:05**	**Common Things Family Physicians refer to Hematologists**	**Dr. Yulia Lin**
	08:35	**Overactive Bladder**	**Dr. David Hajek**
	09:05	Question & Answer Period	
Break	09:15	Coffee Break and Exhibit Viewing	
Seminars	09:45 - 10:45, repeated 10:50 – 11:50 **Session 1 and Session 2**		
Buffet Lunch	11:50 – 12:25		
Plenary Sessions [Ballroom]	**12:25**	**Ontario Health Teams**	**Stacey Daub**
	12:30	**Neuro Emergencies: Vertigo and Back Pain**	**Dr. Walter Himmel & Dr. Anton Helman**
	13:30	Question & Answer Period	
Break	13:40	Refreshment Break and Exhibit Viewing	
Seminars	14:10 – 15:10, repeated 15:15 – 16:15 **Session 3 and Session 4** *(see next page)*		
Programme ends	16:15		

MORNING SEMINARS

Session 1 *(*09:45 - 10:45*)*, and **Session 2** *(*10:50 – 11:50 *)*

[North York South Room]	A	Mainstreaming Genetics in Family Practice	Dr. Lea Velsher
[Don Mills Room]	B	Buprenorphine/Naloxone in Primary Care	Dr. Joel Bordman
[Ballroom]	C	Cardiology Update for the Family Physician	Dr. Darren Kagal
[Ontario Room]	D	Things that Shake – Shaking Palsy – Shaking Soup Spoon	Dr. Roy Baskind
[North York North Room]	E	An Update on Treatment Options for Allergies	Dr. David Hummel

AFTERNOON SEMINARS

Session 3 *(*14:10- 15:10*)*, and **Session 4** *(*15:15 - 16:15*)*

[Ontario Room]	F	Is There a Doctor in the Room? Management of Emergencies for the non-ER MD	Dr. Robyn Shafer
[Don Mills Room]	G	Paediatric Dermatology	Dr. Miriam Weinstein
[Ballroom]	H	Red Eye for the Family Doctor	Dr. Kathy Cao
[North York North]	I	Hot Topics in Child and Adolescent – case based discussion	Dr. Samantha Martin
[North York South]	J	Bowel and Bladder Dysfunction in Children	Dr. Ronik Kanani

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Westin Prince Hotel ~ Saturday, January 18, 2020

P R O G R A M M E

Registration from	07:30	Continental Breakfast and Exhibit Viewing
	08:00	Opening Remarks
Plenary Session	**08:05**	**Common Things Family Physicians Refer to Hematologists** **Dr. Yulia Lin** - The attendee will be able to prescribe evidence-based oral iron treatment - The attendee will be able to differentiate hemochromatosis from other causes of elevated ferritin - The attendee will be able to determine when thrombocytopenia requires investigation and treatment
	08:35	**Overactive Bladder** **Dr. David Hajek** - understand the diagnostic criteria for overactive bladder - Understand pharmacologic and non-pharmacologic strategies for managing OAB in the primary care setting - Understand when to refer to a urologist
	09:05	Question & Answer Period
Break	09:15	Coffee Break and Exhibit Viewing
Seminars	09:45 - 10:45, repeated 10:50 – 11:50 **Session 1 and Session 2**	
Buffet Lunch	11:50 – 12:25	
Plenary Session	**12:25**	**Ontario Health Teams** **Stacey Daub**
	12:30	**The Three Have to Master Neuro Emergencies: Vertigo, Back Pain and Stroke** **Dr. Walter Himmel & Dr. Anton Helman** - Learn how to distinguish peripheral vertigo from a brain stem stroke - Define precisely what cauda equine syndrome is and is not; and how to approach this diagnostic challenge - Describe the current approach to t-PA and embolectomy, the role of imaging and the role of time
	13:30	Question & Answer Period
Break	13:40	Refreshment Break and Exhibit Viewing
Seminars	14:10 – 15:10, repeated 15:15 – 16:15 **Session 3 and Session 4** *(see next page)*	
Programme ends	16:15	

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Westin Prince Hotel ~ Saturday, January 18, 2020

M O R N I N G S E M I N A R S

Session 1 *(*09:45 - 10:45*)*, and **Session 2** *(*10:50 – 11:50 *)*

A Mainstreaming Genetics in Family Practice — **Dr. Lea Velsher**
- Participants will be able to recognize indications for referral to clinical genetics
- Participants will be able to handle some common genetic testing in their practice
- Participants will be able to discuss the value of risks of direct to consumer genetic testing with patients

B Buprenorphine/Naloxone in Primary Care — **Dr. Joel Bordman**
- Discuss the role buprenorphine/naloxone can play in treating the patient with problematic opioid use
- Discuss the effectiveness of buprenorphine in chronic pain

C Cardiology Update for the Family Physician — **Dr. Darren Kagal**
- provide updates in the management of coronary disease – antiplatelets, anticoagulants
- Provide updates in the management of patients with CHF

D Things That Shake — **Dr. Roy Baskind**
- Assess and treat the shaking palsy
- Assess and treat the shaking soup spoon

E An Update on Treatment Options for Allergies — **Dr. David Hummel**
- compare the different antihistamines and their uses
- discuss allergen immunotherapy for allergic rhinitis
- discuss latest developments in food desensitization

A F T E R N O O N S E M I N A R S

Session 3 *(*14:10- 15:10*)*, and **Session 4** *(*15:15 - 16:15*)*

F Is There a Doctor On Board? A Practical Approach to Emergencies for the non-ED doc. — **Dr. Robyn Shafer**
- Assess the approach to a patient in medical distress
- Discuss the treatment of several common medical emergencies treated outside the ED
- Discuss specific challenges of responding to in-flight medical emergencies

G Paediatric Dermatology — **Dr. Miriam Weinstein**
- the learner will be able to distinguish, similar looking skin lesions based on history and morphology
- the learner will be able to initiate first line management for common paediatric dermatologic conditions

H Red Eye for the Family Doctor — **Dr. Kathy Cao**
- distinguish between different causes of red eyes
- determine when to treat and when to refer a patient with red eye
- recognize red flags and common red eye ocular emergencies

I Hot Topics in Child and Adolescent – case based discussion — **Dr. Samantha Martin**
- Discuss the core clinical feature of common eating disorders and highlight the DSM 5 criteria of the most common feeding and eating disorders in children and adolescents
- Discuss and develop and approach to the management of teenage moods and sexuality
- Recognize the important red flags when assessing patients with substance abuse and know when to refer to specialist care
- Provide resources for physicians, teens, children and their families

J Bowel and Bladder Dysfunction in Children — **Dr. Ronik Kanani**
- Describe the initial diagnostic approach for patients with voiding dysfunction and constipation
- Describe the approach to initial management of bowel and bladder dysfunction
- Discuss cases that are appropriate for primary care physicians to manage and when to refer to a specialist

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Faculty

Roy Baskind MD FRCPC
Neurologist, North York General Hospital
Lecturer, University of Toronto

Joel Bordman MD
Medical Director, Complex Pain Program
First Step Medical Clinic

.

Kathy Cao MD FRCSC
Ophthalmologist,
North York General Hospital

David Hajek MD FRCSC
Urologist, North York General Hospital

Anton Helman, MD CCFP CAC(EM) FCFP
Emergency Physician,
North York General Hospital
Education Innovation Lead at the Schwartz-Reisman Emergency Medicine Institute
Founder, Host and Chief Editor of Emergency Medicine Cases
Assistant Professor at the University of Toronto, Division of Emergency Medicine

Walter Himmel MD CCFP(EM)
Emergency Medicine Physician,
North York General Hospital

David Hummel MBChB FRCPC
Allergist, The Hospital for Sick Children
Assistant Professor, University of Toronto

Darren Kagal MD FRCSC
Cardiologist, North York General Hospital &
Sunnybrook Health Sciences Centre

Ronik Kanani MD FRCPC
Chief of Paediatrics
Co-Medical Director, Maternal,
Newborn & Paediatric Program
North York General Hospital

Yulia Lin MD FRCPC
Hematologist & Division Head, Transfusion Medicine & Tissue Bank
Sunnybrook Health Sciences Centre
Associate Professor, University of Toronto

Samantha Martin MD FRCPC
Paediatrician, North York General Hospital

Robyn Shafer MD CCFP(EM)
Emergency Physician,
North York General Hospital
ACLS Medical Director
Lecturer, DFCM, University of Toronto

Lea Velsher MD CM, FRCPC (pediatrics), FACMG, FCCMG (Clinical Genetics)
Physician lead, Genetics division,
North York General

Miriam Weinstein MD FRCPC
Paediatric Dermatologist,
North York General Hospital

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Faculty Disclosure Declaration

To ensure balance, independence, objectivity and scientific rigor of this continuing education program, all faculty & committee members have been requested to disclose any real or apparent conflict(s) of interest that may have a direct bearing on the subject matter of their presentation(s). This pertains to any financial relationships with pharmaceutical companies, manufacturers of commercial products or other corporations whose products or services are related to the subject matter of the presentation topic.

The following speakers responded with potential conflict(s) of interest:

Dr. Joel Bordman
Member of Advisory Board: Indivior
Member of Speakers Bureau: Indivior, sea courses, OCFP

Dr. Anton Helman
Received grant/honorarium from a for-profit or non-profit organization: Stipend from non-profit institute SREMI for educational podcast and website.

Dr. David Hummel
Member of Speakers Bureau: Aralez

Dr. Daren Kagal
Received payment from an organization: Bayer Inc.
Received grant/honorarium from a for-profit or non-profit organization: Bayer, Servier

Dr. Yulia Lin
Member of an advisory board: Pfizer, Amgen
Participating or have participated in clinical trial within past 2 years: Novartis, Octapharma

Dr. Lea Velsher
Received payment from an organization: Medcan Clinic

Dr. Miriam Weinstein
Member of Advisory Board: Pfizer, Amgen, Paladin Labs, J&J, Innomar Strategies, Unilever, Sanofi-Genzyme, Rx Briefcase
Received grant/honorarium from a for-profit or non-profit organization: La Roche Posay

No disclosures from committee members.

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SPONSORSHIP ACKNOWLEDGEMENT

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CONFERENCE INFORMATION

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FAMILY MEDICINE CME COMMITTEE

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Dahlia Balaban MD CCFP
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Rebecca Stoller MD CCFP FCFP
Stanley Teitelbaum MD CCFP FCFP
Keith Wong MD CCFP

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COMMON THINGS FAMILY PHYSICIANS REFER TO HEMATOLOGISTS

Yulia Lin MD FRCPC
Hematologist & Division Head, Transfusion Medicine & Tissue Bank
Sunnybrook Health Sciences Centre
Associate Professor, University of Toronto

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

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Common Things Family Physicians Refer to Hematologists

Y. Lin, Hematology & Transfusion, Sunnybrook Health Sciences Centre

NYGH Family Medicine Day 2020

Objectives

1. Prescribe evidence-based oral iron treatment
2. Differentiate hemochromatosis from other causes of elevated ferritin
3. Determine when thrombocytopenia requires investigation and treatment

Iron Deficiency Anemia

- Common: ~14% pregnant women, ~9-11% adolescent women, ~ 5% of women , ~1-2% men
- Symptoms: weakness, fatigue, irritability, restless legs, pica, cognition: worse attention, memory and speed, exercise: slower run times, mood: depression
- Diagnosis
    - Absolute iron deficiency: Ferritin < 30 mcg/L (92% sensitivity, 98% specificity). Ferritin is also an acute phase reactant so I use ferritin < 100 mcg/L with transferrin saturation < 20%.
    - Definitions do vary in different settings. For example, in congestive heart failure, iron deficiency has been defined as ferritin < 300 mcg/L with transferrin saturation < 20% and iron has been shown to improve functional status.
- Management: There are 2 key principles.
    1. Determine the cause of iron deficiency anemia (blood loss is the most important to rule out)
        - Increased loss: blood loss (GI, Gyne), blood donation
        - Increased requirements: rapid growth in infants and children, pregnancy, use of erythropoiesis stimulating agents (e.g. epoietin alfa, darbepoietin)
        - Decreased intake: iron-poor diet, vegetarian, vegan
        - Decreased absorption: celiac disease, gastrectomy, gastric bypass, gut resection, H. pylori, inflammatory bowel disease, drugs (antacids, proton pump inhibitors), foods (calcium, tannins, phytates)
    2. Iron supplementation:
        - Try oral iron salts first
            - Ferrous gluconate (35mg elemental / 300mg tablet)
            - Ferrous sulfate (60mg elemental / 300mg tablet)
            - Ferrous fumarate (100mg elemental / 300mg tablet)
            - Give once daily on an empty stomach with vitamin C 500mg
        - No evidence that oral heme iron, iron polysaccharide/complexes are more effective
        - If not tolerated, can decrease to every other day or change formulation
        - If not tolerated or ineffective or severe anemia, consider intravenous iron
- Recommended References: 1) Zeller MP, Verhovsek M. Five things to know about treating iron deficiency anemia. CMAJ 2017;189:E409; 2) Lopez A, Cacoub P, Macdougall IC, et al. Iron deficiency anaemia. Lancet 2016;387:907-16

Approach to elevated ferritin

- Ferritin is the intracellular storage molecule of iron; transferrin is the transport protein; transferrin saturation is normally ~30%
- Iron toxicity occurs when transferrin saturation rises and highly toxic non-transferrin bound iron appears in plasma with potential to cause free radical formation and lipid peroxidation

- First step is to distinguish between true iron overload vs reactive causes
    - True iron overload: hereditary hemochromatosis, secondary to blood transfusion, ineffective erythropoiesis (sideroblastic anemia, myelodysplastic syndromes), thalassemias
    - Reactive: infection, inflammation (including metabolic syndrome), autoimmune disease, malignancy
    - Cellular damage: liver diseases (liver necrosis, viral hepatitis, alcoholic and non-alcoholic steatohepatitis – fatty liver disease), chronic excess alcohol consumption
- Initial screen for elevated ferritin: CBC, ALT, ferritin, transferrin saturation
    - Transferrin saturation does not need to be done fasting
    - If ferritin > 300 mcg/L and TSAT > 50% in males; or ferritin > 200 mcg/L and TSAT > 40% in women, molecular testing for hereditary hemochromatosis (if no other reasons for iron overload as listed above)
    - If elevated ferritin with normal TSAT, then consider reactive and cellular damage causes
- For patients with iron overload, refer to hematology / gastroenterology
- For patients with ferritin > 1000 mcg/L and/or abnormal LFTS, refer to gastroenterology
- For patients with reactive and cellular damage causes, manage as per diagnosis
- Recommended References: 1) Cullis JO et al. Investigation and management of a raised serum ferritin. Br J Haematol 2018;181:331-340; 2) Fitzsimons EJ et al. Diagnosis and therapy of genetic haemochromatosis (review and 2017 update). Br J Haematol 2018;181:293-303.

<u>Approach to thrombocytopenia</u>

- Bleeding consequences typically do not occur until platelet count < 30 x 10^9/L (unless trauma, surgery or antiplatelet/anticoagulant medications)
- Differential diagnosis
    - Ensure no platelet clumping (artifact) - repeat in citrate tube
    - Decreased production: infections, toxins (alcohol, chemo, radiation, drugs), nutritional (B12 deficiency), infiltration (malignancy hematologic, solid tumour, granulomatous disease), primary bone marrow disorder (myelodysplastic syndrome, aplastic anemia), congenital
    - Splenic sequestration or hypersplenism: congestive (liver, cardiac), infectious (bacterial, viral, parasite), infiltrative (malignancy, amyloid, sarcoid), inflammatory, storage disease (Gaucher's), hemolytic anemia
    - Increased destruction
        - Immune mediated: ITP, drugs (heparin, quinidine, antibiotics, anticonvulsants), secondary ITP (lymphoma, autoimmune, infection HIV, HCV)
        - Non-immune mediated: thrombotic microangiopathies, vasculitis, bleeding
- Approach
    - History: drugs (especially new with onset of thrombocytopenia), recent infection, alcohol, transfusion, HIV risk factors, autoimmune symptoms, B symptoms
    - Physical: examine for lymphadenopathy, liver and spleen
    - Labs: CBC, blood film, ALT, LDH, bilirubin, B12
- When to refer?
    - If recent new drug, then stop or change drug, and repeat plt count in 2-3 weeks
    - If recent infection, then repeat plt count in 4-6 weeks
    - If progressive drop in plt count to less than 100 x 109/L, or associated anemia, leukopenia, lymphocytosis, atypical cirulating cells, lymphadenopathy, then refer to hematology
- Recommended Reference: Cooper N, Ghanima W. Immune thrombocytopenia. NEJM 2019;381:945-955

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OVERACTIVE BLADDER

David Hajek MD FRCSC
Urologist, North York General Hospital

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NEURO EMERGENCIES: VERTIGO AND BACK PAIN

Anton Helman, MD CCFP CAC(EM) FCFP
Emergency Physician, North York General Hospital
Education Innovation Lead at the Schwartz-Reisman Emergency Medicine Institute
Founder, Host and Chief Editor of Emergency Medicine Cases
Assistant Professor at the University of Toronto, Division of Emergency Medicine

Walter Himmel MD CCFP(EM)
Emergency Medicine Physician,
North York General Hospital

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BACK PAIN

Walter Himmel MD

Although the vast majority of non-traumatic back pain seen in the ED is nonspecific, a small number (<5%) include significant disease such as osteoporotic fractures, cancer, infection, hematomas, and spinal cord compression syndromes.

These are the ones you cannot miss. To complicate the matter, the current issues of drug-seeking behaviors, the politicalization of analgesics, and MRI-seeking behaviors make assessments challenging. Furthermore, the many guidelines aimed at office-based practitioners may not be entirely helpful in an emergency environment.

Ruling out the serious causes requires an organized approach to the differential diagnosis, the history, the physical, and risk assessments. Furthermore, much of what is taught reflects the classical syndromes and not the real world situation in which a partial syndrome is present and has not yet blown into a full-fledged disaster (but soon will).

Step 1:
Do not discuss narcotic prescriptions, MRI's, radiologists, choosing wisely, or the possible inappropriate use of the ED until you have completed a full assessment. This visit will probably never be 10 minutes.

Step 2:
Back pain comes in one of three categories. Each requires a series of questions and examinations to evaluate.

(a) Non-specific back pain and discogenic pain (sciatica): can be managed with conservative treatment and good advice. To remain in this category, the sciatica must be unilateral with no sphincter involvement and no bilateral symptoms involving the saddle area or both legs below the knees.

(b) Emergent back pain issues: These include spinal cord compression, cauda equina syndrome, infection (diskitis, osteomyelitis, epidural abscess), fractures, and cancer. These need to be suspected and usually definitively managed immediately.

(c) Visceral causes of back pain: This wide group includes pulmonary embolism, pneumonia, aortic disease, MI's, gi disorders, psoas abscesses, renal colic, pyelonephritis, etc.

Step 3:
History: The Red Flags

(a) General Red Flags:

- Age < 18 or > 50
- Persisting back pain > 6 weeks or pain that is progressing in severity or is spreading to new anatomical areas
- Severe central back pain – midline and nocturnal pain is worrisome
- Unrelenting pain not relieved with rest

(b)Cancer Flags:

- History of cancer previously at any time is the most useful one
- Less significant but still worth considering: older age, unexplained weight loss, failure to improve, constant pain, B symptoms

(c) Infection Flags: (Epidural Abscess, Diskitis, Osteomyelitis):

- Fever, chills, sweats
- IVDU
- Previous back surgery
- Immunosuppression (includes diabetes, malnutrition, alcoholism, steroid use, and old age)
- Bacterial infection such as pyelonephritis, sepsis, endocarditis, diverticulitis, and even minor skin infections.

(d)Fracture Flags:

- Trauma
- Old age
- Prolonged steroids
- Presence of contusion or abrasions

(e)Cauda Equina / Spinal Cord Compression Flags:

- Lower back pain and bilateral sciatica – a disaster waiting to happen
- Saddle anesthesia or aberration of sensation
- Sphincter dysfunction
- Urinary hesitancy, retention, or incontinence. Retention of > 100 cc may be preceded by hesitancy or an odd feeling with urination.
- Rectal Incontinence
- Bilateral weakness
- Gait disturbance / ataxia

Step 4:

Examination (preferably all of the following)

- General Appearance

- Strength
- Sensation
- Saddle area sensation
- Reflexes
- Tone
- Babinski
- Heel and toe walking
- Gait: ataxia is a significant finding for spinal cord compression
- Percussion for point/localized tenderness – especially midline
- Post-void residual (if any concerns)
- Rectal tone (if concerns for non-minor back pain)

Classical presentations of serious disease are often absent (at least initially). Bladder and bowel symptoms, perineal anesthesia or hypoesthesia, and weakness may be understated by the patient. Therefore, the above areas must be examined even in the absence of specific symptoms. This is particularly true for sensation of the saddle area and feet, and the Babinski's.

The Specific Syndromes

Cauda Equina Syndrome:
The definitive syndrome consists of: (1) Sphincter dysfunction AND (2)sensory changes in the saddle or perianal area.

Lower limb weakness may or may not be present. Patients with cauda equina may have no weakness, may have preserved reflexes, and may be able to walk. The failure to realize this occasionally leads to delayed imaging, delayed surgery, and poor outcomes for all.

Cauda Equina Syndrome may have three classical patterns of appearance and the failure to recognize this may lead to a missed diagnosis. The three patterns are:

(i) Acute presentation with rapid sensory loss and retention as the first symptom.

(ii) A less acute onset after a lengthy period of back pain (months or years) with or without sciatica.

(iii) Very gradual onset of numbness and sphincter dysfunction with minimal back pain.

Cauda equina syndrome may not present classically.

Here is a frightening concept. CES may present with the full picture (CES-retention [CES-R]) or a partial picture (CES-incomplete [CES-I]) without retention.

Complete lesions have painless urinary retention with overflow incontinence. Consider a post-void residual of >100 as abnormal. However,In the incomplete picture (CES-I), the patient complains of urinary difficulty, altered urinary sensation, poor stream, urgency or the need to strain but no established retention or overflow incontinence. The sensory defects may be unilateral or only part of the saddle. This patient may return the next day with the full syndrome. You might be blamed for missing it

These patients need an MRI before they progress to the complete picture. This view emphasizes the value of an early diagnosis and aims to prevent impending disasters for the patient and the health care team. An awareness of this incomplete syndrome combined with an informed discussion and an MRI is the ideal management.

Therefore, patients who present with a new onset of urinary symptoms in the context of lumbar back pain or sciatica need MRI imaging (Bell et al, Balasubramanian et al). "Patients with back pain and new neurologic findings (other than a monoradiculopathy consistent with sciatica) should undergo emergent MRI (Singleton, Edlow)."

WHO TO IMAGE WITH MRI AND WHEN

1. Urinary retention and back pain – MRI < 24 hrs (assuming NO saddle or saddle or bilateral sensory changes.)
2. Urinary retention and bilateral saddle or perianal sensory changes – MRI < 6 hrs
3. Odd urinary sensations (but not > 150 cc retention) AND bilateral sensory findings - MRI soon ? - 6-12 hours MAXIMUM.
4. Retention but NO bilateral sensory findings and NO rectal tone abnormalities and NO back pain and NO bilateral sciatica – can defer MRI --- this is the group with retention but NO other neuro issues (except for simple one-sided sciatica) – this group may not be imaged or imaging may be deferred. BUT be sure there are NO bilateral sensory findings (saddle) and NO significant back pain and NO signs of upper motor lesions in the leg exam.

Spinal Epidural Abscess (SEA)

- The triad consists of back pain, fever, and neurologic defecits. However, the classical triad is only seen in 8-37% of the cases. Often only parts of the syndrome present.
- Back pain: 70%-90%
- Fever: 50%-70% (therefore, must ask about and consider chills and sweats as a risk factor)
- Neurological deficits: about 1/3
- Laboratory test are very helpful with SEA
- ESR > 20 has a sensitivity of >95%-98% and usually the ESR far higher
- CRP elevated almost always – sensitivity 90%
- [For neoplasm: sensitivity of ESR > 20 about 75%]
- Blood culture positive ~ 60%

- Back pain with risk factors and an elevated ESR>20 is easy justification for an MRI.

MRI

The investigation for suspected CES, Spinal Cord Compression (disc, cancer or infection), and SEA is an MRI. CES- incomplete needs an MRI. Severe back pain with localized tenderness and fever (or even chills, sweatiness, and subjective fever) needs laboratory work (ESR) and certainly an MRI if the ESR is elevated or a reasonable clinical suspicion is present.

The threshold for an MRI should be low. To defer the investigation only when the full clinical picture is present will lead to missed cases and missed opportunities. There is no doubt that when these potentially disastrous events are considered, there will be a high number of negative investigations. It is generally advised to get an MRI of the entire spine when a SEA or metastatic cancer are suspected due to the high prevalence of skip lesions. This knowledge is necessary to help negotiations with radiologists.

Patients with back pain and new neurological findings, other than those of typical sciatica, need a MRI urgently. Several papers in the British Journal of Neurosurgery suggested that all patients with new onset urinary symptoms in the context of lumbar back or sciatica receive an urgent MRI. This is a lot of people.

1. Darouiche RO. Spinal Epidural Abscess. NEJM 2006;355(19):2912-2012-20.
2. Tompkins M et al. Spinal Epidural Abscess. The Journal of Emergency Medicine 2010;39(3):384-389.
3. Grewal S et al. Epidural Abscess. Br J Anaesth 2006;96:292-302.
4. Downie A et al. Red Flags to screen for malignancy and fracture in patients with low back pain. BMJ 2013;347:f795.
5. Hipp A et al. Clinical Assessments of Low Back Pain. Annals of Emergency Medicine 2006;47(3):283-285.
6. Edlow J. Managing Nontraumatic Acute Back Pain. Annals of Emergency Medicine 2015;66(2):148-153.
7. Singleton J,Edlow J. Acute Nontraumatic Back Pain. Emerg Med Clin N Am. 34:743-757.
8. Lavy C et al. Cauda Equina Syndrome. BMJ 2009;338:881-884.
9. Dugas A et al. Diagnosis of Spinal Cord Compression in Nontrauma Patients in the Emergency Department. Academic Emergency Medicine 2011;18:719-725.
10. Pope J et al. Avoiding Misdiagnosis in Patients with Neurological Emergencies. Emergency Medicine International 2012;Article ID 949275.
11. Bell A et al. Cauda equine syndrome – What is the correlation between clinical assessments and MRI scanning? Brit Jn of NeuroSX 2007;21(2):201-203.
12. Balasubramanian K et al. Reliablity of clinical assessment in diagnosing cauda equina syndrome. Brit Jn of NeuroSx 2010;24(4):383-386.
13. Domen P et al. Predictive value of clinical characteristics in patients with suspected cauda equina syndrome. Euro Jn Of Neurology 2009;16:416-419.

Family Medicine Clinic Day 2020

DIZZINESS AND VERTIGO

Walter Himmel MD

There is only one essential challenge in the world of dizziness and vertigo: Don't miss a stroke and don't miss a posterior circulation (vertebral/basilar artery) TIA.

TIA's from the posterior circulation have a higher incidence of early stroke than do TIA's from the carotids.

Dizzy patients make up about 3% of patients visiting the ED. The number of patients who return with a stroke is highly variable depending on the study. The most benign studies suggests that <.5% return within 30 days with a diagnosis of cerebrovascular disease. With vertiginous patients, higher rates of 3% are quoted. With very high risk, older patients, one study suggested up to 25% have a cerebrovascular cause.

THE IMPORTANT DISEASES

Only a few matter in the ED:

- Benign Paroxysmal Postitional Vertigo – the commonest cause of true vertigo.
- Central Positional Vertigo
- Vestibular Migraine – likely, the second commonest cause of recurring vertigo.
- Benign Recurring Vertigo (this is probably unrecognized migraine)
- Meniere's Disease
- Posterior circulation TIA – this is the one we hate to miss in the ED. These patients are discharged feeling well and come back stroked. These TIA's are 12 times commoner in the 90 days before vertebrobasilar strokes than are TIA's before carotid artery strokes. (Lancet Neurology 2013:989)
- Vestibular neuritis

- Brainstem or cerebellar infarct. Vestibular neuritis and infarcts are often hard to distinguish from one another.

DISEASES	TIMING	TRIGGER	BENIGN/SERIOUS
BPPV	< 1 minute	Movement	Benign
CPV (Central PV)	1 minute or more	Movement	Serious (central)
Vestibular Migraine (common)	Minutes to hours – usually < 24 hrs	Spontaneous	Benign
Benign recurring vertigo (many are probably vestibular migraine)	Minutes to hours – usually < 24 hrs	Spontaneous	Benign
Meniere's Disease	Hours - < 24 hrs	Spontaneous	Benign
TIA: posterior circulation	Minutes (usually) to hours	Spontaneous	Serious (central) Older: vascular Younger: PFO, cervical artery dissection
Vestibular neuritis (neuronits, labyrinthitis)	Days	Spontaneous	Mimics stroke
Brainstem and cerebellar stroke	Days (usually)	Spontaneous	Serious and may mimic vestibular neuritis

THE FIVE IMPORTANT ASPECTS OF THE HISTORY

1. The Type of Dizziness (controversional according to some)
2. The Timing
3. The Trigger
4. Associated Features
5. Context

1. The Type of Dizziness

Dizziness – Traditionally, there are four types of dizziness and the ability to distinguish which is helpful in producing a differential diagnosis. Patients who use the word dizzy can use it to describe a wide variety of human experiences.

1. Vertigo: spinning or linear movement. Some feel that vertigo implies a peripheral problem. This is false. Vertigo can be central or peripheral. However, it usually implies a vestibular or brainstem problem.
2. Presyncope/syncope: this generally is attributed to non-vestibular and non-stroke diseases (e.g., vasovagal, orthostatic, cardiovascular, and rarely, neurologic).
3. Disequilibrium: this may be due to ataxia (neurologic) or to metabolic/toxic factors.
4. Nonspecific lightheadedness. This is multifactorial (including anxiety and general medical illness) and usually is not primarily vertiginous.

This breakdown into four types of dizziness has been a model for parsing the word “dizziness” for years. Recently, authors argue that the type isn’t important because patients are inconsistent and the types overlap. I believe that this view is overstated. Presyncope and vertigo are very different. However, patients usually have fractional elements of all but, usually, one or two types dominate. These authors also argue that to become overly focussed on one type of dizziness may lead to a premature diagnostic conclusion. This is true. Therefore, there is more

to a diagnosis than just the nature or the feel of the symptom. The triggers and the timing matters.

2. The Timing (Duration) of The Vertigo

1. The duration of vertigo in an essential part of the diagnosis. BPPV lasts for < 1 minute and CPV for mintes.
2. Benign recurring vertigo, vestibular migraines, and Meniere's disease lasts for hours and rarely > 24. TIA's last for minutes and possibly hours.
3. The acute vestibular syndrome is a syndrome of vertigo, nausea, vomiting, gait instability, and sensitivity to head movement. This syndrome has only two diseases of importance to the ED physician: vestibular neuritis and a stroke of either the cerebellum or brainsem. These conditions last > 24 hours.

3.The Trigger of The Vertigo

1. Tiggered by movement: BPPV and CPV.
2. Spontaneous: vestibular migraine, Meniere's disease, TIA, acute vestibular syndrome (vestibular neuritis and stroke).

Warnings and Pitfalls and Misconceptions:

Vestibular migraine, Meniere's disease, and TIA are often recurring. But, if you are seeing the patient for their first or second attack, you can't tell. Therefore, have a high suspicion TIA.

Acute vestibular syndrome last > 24 hours. But if you are seeing the patient in the ED, you can't predict how long the attack will last. Therefore, have a high suspicion of cerebrovascular disease. Moreover, not all strokes are symptomatic for 24 hours. Then next stroke may be.

All vertigo is made worse with movement. However, positional vertigo is called positional because it is only triggered by movement.

Even with positional vertigo, the patient will say that he or she is constantly "dizzy" whether they move or not. The history may be bruatally difficult to analyze. Specially, the "vertigo" will stop if the patient remains perfectly still for > one minute. However, the sense of unsteadiness of disequilibrium will persist. The important word in the history is "bed." These patients get a sudden triggering of vertigo when they roll over or lift their head up in bed.

4. **Associated Symptoms:**

- The D's:
- Diplopia
- Dysarthria
- Dysphagia
- Dysphonia (hoarseness)
- Dysmetria
- Dystaxia – giat disturbance is a big risk factor for a cerebrovascular diagnosis
- Dysgeusia: odd taste – seen in carotid artery dissection.
- Crossed sensory loss
- Weakness

Warnings and Pitfalls and Misconceptions:

It was once taught that pure vertigo without associated symptoms is never central. This is absolutely false. Pure vertigo may be the only symptom of a TIA or a stroke in as many as
10% to 20%.

Gait disturbance is a marker for serious vertigo. Unfortunately, vertiginous patients have a degree of impaired gait. It is said that "peripheral

vertigo"cause lots of vertigo but little gait disturbance and that "central vertigo" causes lots of gait disturbance and less vertigo. This is a nice story – but very difficult to use in practice.

5. Context

Older patients and vasculopaths clearly are at a higher risk for stroke. However, young people do get strokes. The common causes PFO's and cervical artery dissections. These are not as rare as once taught.

THE FIVE IMPORTANT ASPECTS OF THE PHYSICAL

1. General

- Assessment of CN's is important.
- This includes particularly muscle weakness
- Movement of uvula and tongue
- Sensation
- Long track signs and babinski.
- Cerebellar signs

2. Gait.

- Those who need help to walk don't go home.
- Should also assess for central ataxia.
- This is easily done by getting the patient to sit up arms folded on their chest
- Romberg and tandem gait.

3. Nystagmus

Jerk Nystagmus with a slow component and a rapid correction phase is frequently seen in vertigo. (Pendular nystagmus without a fast component is a feature of neurological disease or inborn).

Peripheral Nystagmus

- BPPV, Meniere's disease, and vestibular neuritis virtually always have nystagmus in the early phase of the illness.

- BPPV: the nystagmus is usually vertical-rotatory with a rotational element toward the soulder on the table. It is not purely vertical. The nystagmus, as with the vertigo, is triggered with movement.

- Vestibular Neuritis: the nystagmus is usually horizontal-rotatory with often a slight rotational element. It is not triggered. It is spontaneous.

- In peripheral nystagmus the fast component is always in the same direction regardless of where the patient looks. However, the nystagmus is always worse when looking in the direction of the fast component.

Central Nystagmus

- Central nystagmus may be purely horizontal or purely vertical or purely rotatory.
- It may mimic peripheral nystagmus
- Bidirectional or multi-directional nystagmus is virtually always central.
- Therefore, if you see multi-directional nystagmus, it is central. This includes MS, alcohol toxicity, and drugs such as dilantin. As well, vestibular migraine is a central vertigo.
- Purely vertical nystagmus, especiallyif down-beating, is central. (However, do recall that the nystagmus of BPPV is vertical-rotatory.)
- Therefore: the only absolutley central nystagmus is multi-directional or purely vertical and down-beating.

Warnings and Pitfalls and Misconceptions:

It is a dangerous myth to believe that unidirectional nysagmus rules out a central cause of vertigo. It does not. Although classically unidirectional nystagmus indicates peripheral vertigo, this is NOT always true. A stroke of the vestibular nuclei may produce unidirectional nystagmus. This patient may be sent home only to return with a stroke later. However, multidirectional nystagmus is always central.

4. Skew: refers to vertical misalignment of the eyes. This is always central.

5. HIT- the head impulse test will be discussed specifically in this seminar. The HINTS exam (nystagmus, skew, and HIT) refers to only patients with continuous dizziness with ongoing nystagmus. This is called the acute vestibular syndrome and is where the HINTS EXAM is relevant.

NORTH YORK GENERAL
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FAMILY MEDICINE CLINIC DAY 2020

MAINSTREAMING GENETICS IN FAMILY PRACTICE

Lea Velsher
MD CM, FRCPC (pediatrics), FACMG, FCCMG (Clinical Genetics)
Physician lead, Genetics division,
North York General Hospital

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

NORTH YORK GENERAL

Making a World of Difference

FAMILY MEDICINE CLINIC DAY 2020

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

Mainstreaming Genetics

FAMILY MEDICINE CLINIC DAY JANUARY 18, 2020

DR. LEA VELSHER

Genetics is a medical specialty

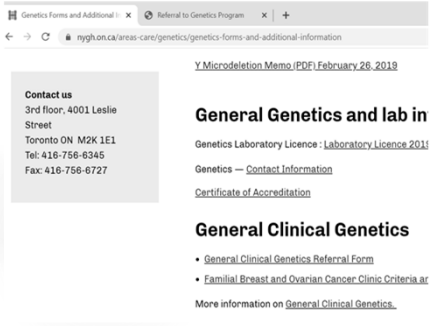
- Geneticists take a history and perform physical exams
- Tests are arranged as needed for the purpose of diagnosis and management
- Reviewing a personal history with a detailed 3-generation pedigree is a 'genetic test' and may be all that is needed to answer the medical question

Family doctors practice genetics all the time

- Genetic testing is expanding
- Genomics is becoming part of diagnosis, prognosis and management
- There is a significant lack of qualified geneticists and genetic counsellors in Canada (about 200 medical geneticists in the country)
- The family doctor will be called upon to do basic genetic tests for common conditions and to address patients' genetic concerns

Take home points

- For common tests - learn where and how to order, and how to read the report (we're glad to help)
- A variant of uncertain significance should not be used for medical management
- For most meaningful test results –test an affected relative
- When referring a patient, please include pertinent info (e.g.. consults, lab results, name of affected relative)

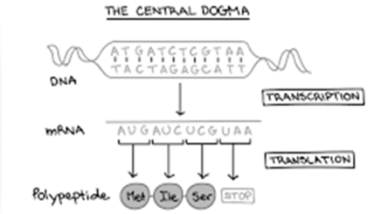


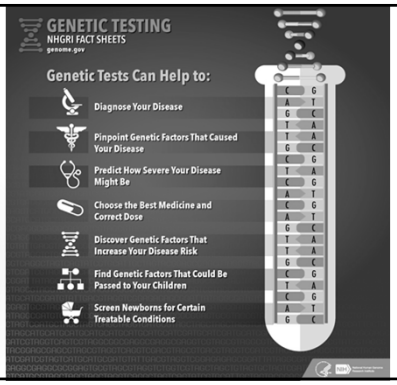
Medical Staff:
Dr. Ebba Alkhuzaini
Dr. Melanie Bedford
Dr. Marjan Nezarati
Dr. Lea Velsher

My contact info:
T: 416 756-6585
P: 416 756-6654
Fax: 46 756-6727
Lea.velsher@nygh.on.ca

We're on the NYGH website

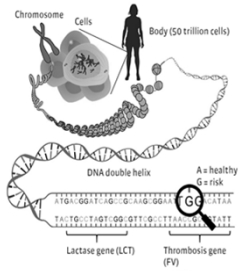
DNA to RNA to Protein





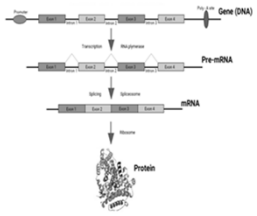
Types of Genetic Tests

- Karyotype – balanced or large unbalanced
- Chromosome microarray – unbalanced/ copy number variants (CNV)
- Targeted single mutation
- Targeted single gene
- Targeted gene panel

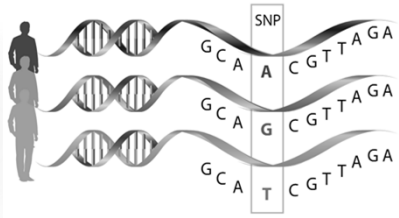


Types of Genetic Tests

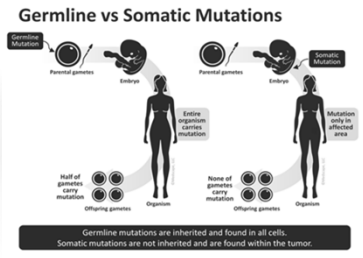
- 'Whole' Exome Sequencing
  - Need phenotype to filter the data
  - May miss CNV
  - May not as 'deep' as targeted testing
- Whole Genome Sequencing



Single Nucleotide Polymorphism ('snip')



Tissue vs. Somatic vs. Germline



Cancer is believed to be due to an accumulation of genetic mutations or chromosome anomalies in a cell

Mutations that happen after conception and that are not present in eggs or sperm are NOT inherited or transmitted to offspring

New areas of oncology involve testing tumours for mutations that may guide treatment – somatic testing

Recreational vs Proactive vs Diagnostic testing

- Ancestry – recreational
- 23ANDMe – recreational and proactive
- Expanded carrier screening preconception – Proactive
- Cancer gene panel testing in an unaffected person – Proactive
- Cancer gene testing in a person who meets provincial criteria – diagnostic

*The 23andMe PGS test uses qualitative genotyping to detect select clinically relevant variants in the genomic DNA of adults from saliva for the purpose of reporting and interpreting genetic health risks and reporting carrier status. It is not intended to diagnose any disease. Your ethnicity may affect the relevance of each report and how your genetic health risk results are interpreted. Each genetic health risk report describes if a person has variants associated with a higher risk of developing a disease, but does not describe a person's overall risk of developing the disease. The test is not intended to tell you anything about your current state of health, or to be used to make medical decisions, including whether or not you should take a medication, how much of a medication you should take, or determine any treatment. Our carrier status reports can be used to determine carrier status, but cannot determine if you have two copies of any genetic variant. These carrier reports are not intended to tell you anything about your risk for developing a disease in the future, the health of your fetus, or your newborn child's risk of developing a particular disease later in life. For certain conditions, we provide a single report that includes information on both carrier status and genetic health risk. **Warnings & Limitations:** The 23andMe PGS Genetic Health Risk Report for BRCA1/BRCA2 (Selected Variants) is indicated for reporting of the 185delAG and 5382insC variants in the BRCA1 gene and the 6174delT variant in the BRCA2 gene. The report describes if a woman is at increased risk of developing breast and ovarian cancer, and if a man is at increased risk of developing breast cancer or may be at increased risk of developing prostate cancer. The three variants included in this report are most common in people of Ashkenazi Jewish descent and do not represent the majority of BRCA1/BRCA2 variants in the general population. This report does not include variants in other genes linked to hereditary cancers and the absence of variants included in this report does not rule out the presence of other genetic variants that may impact

23andMe
The small print

Don't hesitate to call us in Genetics if you have questions about a case or a test.

Genetics notes for Family Medicine Clinic Day – January 18, 2020

Genetic tests abound. The understanding of how our gene variations cause and/or influence disease is increasing. The ease of testing is going up, as the cost is going down exponentially. You can't pick up a newspaper, search the Internet, or watch a program without some reference to DNA or genes.

There are not enough geneticists or genetic counsellors to deal with the growth of genetic testing and genomic information. Specialists are starting to arrange testing on their own, and to use the information to manage their patients. Family doctors will be doing this too.

Family doctors have always used heredity to help assess risk and management for patients. For example, the man whose father died of a heart attack at 40 is considered at higher cardiovascular risk than one with no similar history. The woman whose mother died of breast cancer at the age 40 will be offered more screening than the woman with no family history of this disease.

Over the next decade, family doctors will be ordering more genetic tests and using genomic information more than ever before. Doing a throat swab in the office is microbiology. Doing a pregnancy test in the office is endocrinology. Ordering the test for hereditary hemochromatosis is genetics. All of these are now the purview of general practice.

Some resources that may be useful to you:
GEC-KO (Genetics Education Canada- Knowledge Organization https://geneticseducation.ca/
Gene Reviews http://genereviews/
On Line Mendelian Inheritance in Man (OMIM) https://www.ncbi.nlm.nih.gov/omim
Unique – rare chromosome disorders: https://www.rarechromo.org/
Genetics at North York General https://www.nygh.on.ca/areas-care/genetics

When to consider a referral to genetics:
General considerations:

- Unusual presentation of a common problem
- Known genetic diagnosis or condition in patient
- Features suspicious of a genetic condition
- Known mutation in the family
- Its best to test an affected relative FIRST if looking for a mutation that might be used for testing of at-risk family

Preconception

- Known genetic condition – in patient or close family
- Known or suspected X-linked condition in woman's family (may need to look beyond first degree relatives –e.g. affected males related through females)
- Significant birth defect in patient or close family
- Developmental delay or autism in patient or patient's child – do chromosome microarray and Fragile X on affected
- Mother on medications or exposed to teratogens – if questioning the risks

Genetic testing can take months to complete. A woman considering starting a family should be encouraged to get her genetic concerns addressed before she is pregnant.

We don't discourage people from having children. We encourage them to have information and to know their options.

Remember to advise all women of childbearing age that they should be on a multivitamin containing at least 0.4 mg of folic acid, starting at least a month before conception. Since 50% of pregnancies are unplanned, this is a good discussion to have with any woman who is sexually active.

<u>When is referral not likely to be helpful:</u>
If the genetic condition in the family is unclear – without a diagnosis, there's usually not much we can offer
Consanguinity – unless the couple has specific concerns or there are abnormalities in the family. The risk for recessive or multifactorial conditions is higher with consanguinity, but there is not much we do about it. The value in seeing genetics is greater if there is very close relationship (e.g. double first cousins or uncle/niece marriage)

<u>What can you do instead?</u> The primary doctor can do appropriate carrier screening (e.g. thalassemia testing on the couple) and arrange a good detailed anatomy scan.
The couple can explore expanded carrier screening, which they will have to pay for

Pregnancy

- In the same cases as above, if the concerns have not previously been addressed
- Positive first or second trimester screen
- High risk on NIPT
- Birth defect on ultrasound

When is referral not likely to be accepted:

- Woman wants NIPT but doesn't qualify for OHIP covered service
- The presence of a single 'soft sign' on ultrasound – e.g. choroid plexus cysts.
- The presence of intracardiac echogenic focus with CPC will likely be declined.

<u>What can you do instead?</u> The primary doctor should arrange prenatal screening if not already done. Also, look at the rest of fetal anatomy. If growth is good, hands are seen to open, and FTS is low risk – then likely not increased risk even if CPC and/or ICEF are present. Couple can pay for NIPT, if they wish.

Infancy:

- Small for gestational age
- Dysmorphic features
- Poor feeding/hypotonia
- Birth defect
- Developmental delay

Childhood:

- Short stature or tall with advanced bone age
- Developmental delay or intellectual disability
- Medical condition at a young age – e.g. non-insulin dependent diabetes

Adolescence:
- As above
- Delayed puberty or secondary amenorrhea

Adulthood:
- Close family with an adult-onset condition – e.g. cancer, neuropathy, Huntington
- Personal genetic disorder that was diagnosed in childhood – to give the adult updated and personalized information, as conversations in the past were likely primarily with parents
- Dysmorphic or delayed but without known diagnosis – it may help with management or with reproductive planning for the adult or his/her siblings

What referrals may be declined?
- High ferritin – if you are considering hereditary hemochromatosis, you can order the test without a genetics consultation. The requisition is on the NYGH website, in the Genetics section.
- Factor V Leiden or Prothrombin variant – Testing of healthy relatives of patients who carry these variants is no longer recommended.
- Relative of a person with a somatic mutation in a tumour.
- Patient wants 'the genetic test' to verify that he/she is healthy

We are always happy to answer questions you may have. If you are not sure if genetic referral is indicated, you can call or email and we'll be happy to discuss the case.

When you are referring a patient, please send us the pertinent information we need. It will save you and us a lot of time. For example:
- Pertinent records, consultation reports
- Pertinent laboratory reports
- Pertinent imaging results
- Other reports – e.g. EMG and nerve conduction if referring for neuropathy
- The name of the affected relative, if there is one, and the information about the gene or mutation that is being questioned, if there is a positive family history

Genetics NYGH contact information:

Dept. number: 416 756-6345
Fax number: 416 756-6727
Dr. Velsher: 416 756-6585
Lea.velsher@nygh.on.ca

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BUPRENORPHINE/NALOXONE IN PRIMARY CARE

Joel Bordman MD
Medical Director, Complex Pain Program
First Step Medical Clinic

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

NORTH YORK GENERAL

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FAMILY MEDICINE CLINIC DAY 2020

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

Buprenorphine in Primary Care

Dr. Joel Bordman, M.D.

2020 NYGH

Objectives

1. to review the role buprenorphine / naloxone can play in treating the patient with problematic opioid use
- 2.to review the effectiveness of buprenorphine in chronic pain

Faculty/Presenter Disclosure

- **Faculty:** *Dr. Bordman*
- **Relationships with commercial interests:**
  - Grants/Research Support: N/A
  - Speaker's Bureau: Indivior, Sea Courses, OCFP
  - Consultant: Indivior, OCFP, CMPA, Knight Pharma

TRIAD OF CHRONIC PAIN TREATMENT

Physical / Rehabilitative

Psychological

Medical
- Pharmacological
- Interventional

5

Disclosure of Commercial Support

- **This program has received no financial support from Pharma**

Potential for conflict(s) of interest:
- Indivior produces and distributes a product that will be discussed in this program:
  - Suboxone ® (Buprenorphine/Naloxone)
  - Sublocade ® (monthly sc injection of Buprenorphine)

Knight produces and distributes a product that may be discussed in this program:

Probuphine (q6month implant)

Problematic Opioid Use categories

- HIGH RISK
  - Multiple street drugs
  - i.v., snort,
- MEDIUM RISK
  - Chemical coping
  - Medical diagnosis
  - overuse
- LOW RISK
  - Uses as directed
  - Patient choice to discontinue
  - Compications (sleep apnea, etc)

- What if someone is "not doing well" on opioid therapy?

Differential Diagnosis of problematic opioid use

- Addiction
- Diversion

Jane, 46 year old long term patient of yours

- 3 years of treating her Carpal Tunnel Syndrome with Morphine CR 30mg po q12h along with adjuncts
- You return from maternity leave / extended absence.
- Your locum now has her on Morphine CR 120mg po q8h and Morphine IR 25mg tid PRN
- On your first day back, she is in one week early to refill her monthly prescription because "it wasn't enough"
- What are your thoughts?

DSM-V Substance Use and Addictive Disorders

- Mild 2-3
- Moderate 4-5
- Severe 6-11

- *has to cause clinically significant impairment / distress

What should health care providers do when faced with a difficult clinical scenario?

- Form a differential diagnosis

DSM-V Substance Use and Addictive Disorders

- Unsuccessful attempt to cut down
- Long periods spent obtaining drug or recovering
- Neglecting other life activities
- Use despite ongoing health consequences
- craving
- Consequences of use
- Repeated use in hazardous situations
- Repeated use despite interpersonal harm
- Tolerance
- Withdrawal
- Use for longer than was intended

Addiction definition

- Addiction is a primary, chronic, neurobiologic disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations…….

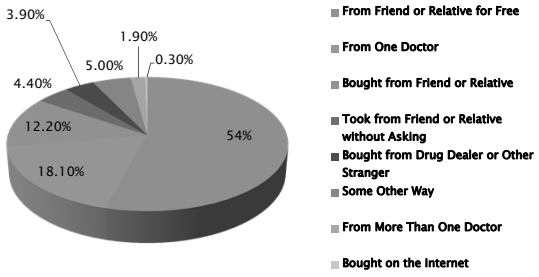
Who diverts their opioids?

Addiction Definition

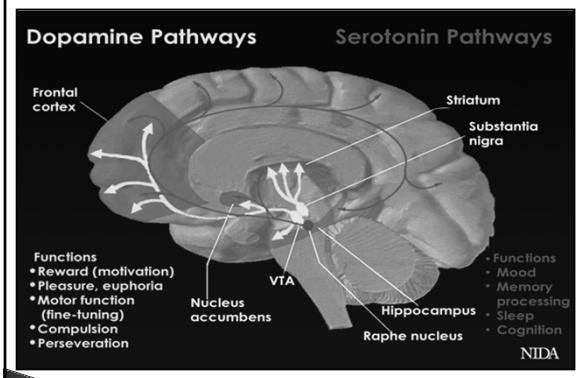
It is characterized by behaviours that include one or more of the following:

1. Impaired Control over drug use
2. Compulsive use
3. Continued use despite harm
4. Cravings

Source Where Pain Relievers Were Obtained From for Most Recent Nonmedical Use (NSDUH)



Other includes sources "wrote fake prescription," "from Doctor's Office/Clinic/Hospital/Pharmacy" and "some other way"
SAMHSA, Center for Behavioral Health Statistics and Quality, (the Office of Applied Studies), National Survey on Drug Use and Health, 2010-2011



Guidance Statement # 7

- Treatment Agreements
- The benefits of treatment agreements are Limited by low quality evidence with equivocal effects on opioid misuse.
- However, it may be useful in structuring the process of informed consent around opioid use, clarifying expectations for both patient and physician, in providing clarity regarding the nature of an hope your trial endpoints, goals and strategy in the event of a failed trial

Problematic Opioid Use DDX

- What's going on at the opioid receptors?:
  - Opioid induced hyperalgesia

Problematic Opioid Use DDX

- What's going on at the opioid receptors?:
- Term to try and avoid using in 2020:
  - Pseudo-addiction

OIH, 1870

- "I have much reason to suspect that a reliance upon hypodermic morphia only ended in that curious state of perpetuated pain" (Albutt, 1870; Practitioner 3, 327-330)

Psychological / Psychiatric causes

- Confusion / dementia/ delirium
- Chemical coping
- Personality traits / disorders
  - Self medicate for:
    - Depression
    - Anxiety
    - PTSD

Problematic Opioid Use DDX

- What's going on at the opioid receptors?:
  - Opioid induced hyperalgesia
  - Opioid unresponsiveness
  - Tolerance/Withdrawal mediated pain

Problematic Opioid Use DDX

- Other Psychological Issues:
- Organic brain pathology
  - Confusion around schedules
  - Especially when combined benzodiazepine use

Problematic Opioid Use DDX

- Other Psychological Issues:
- Personality Disorders
  - Cluster B
  - Narcissistic, Hystrionic, Borderline
  - Impulsive, Entitled

What are our options for Jane?

- What not to do:
- Cut her off
- Rapidly taper without her consent

Problematic Opioid Use DDX

- Other Psychological Issues:
- Chemical Coping
  - Medication taking is on 'border' of being appropriate
  - Medication is central to pain relief
  - "Relief-aholic"

What are our options for Jane?

- What if portion control, opioid rotation, slow taper, etc don't work?

Problematic Opioid Use DDX

- Some Psychological Issues:
  - Self medicate for:
    - Depression
    - Anxiety
    - PTSD

Buprenorphine/Naloxone : A Confusing Combination

- Buprenorphine
  - Partial mu agonist
  - Kappa antagonist
- Naloxone
  - Mu antagonist

HOW Buprenorphine/Naloxone WORKS

Buprenorphine/Naloxone

Recommended: Taken as Directed by Your Doctor Under the Tongue

NOT Recommended: Misused by injecting

Buprenorphine	Naloxone

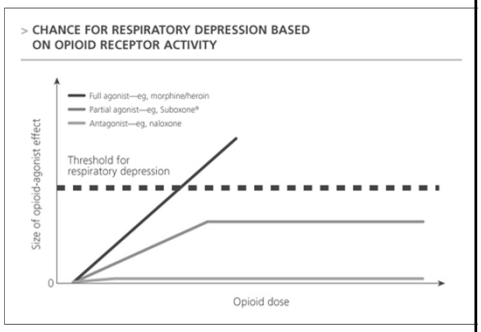
Buprenorphine/Naloxone **acts like buprenorphine alone.**

When Buprenorphine/Naloxone is taken under the tongue, as directed, the naloxone is silent… it has no effect.

Buprenorphine	Naloxone

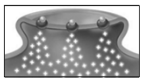
Buprenorphine/Naloxone **acts like naloxone.**

Naloxone will cause withdrawal symptoms for opioid-dependent people who have heroin or methadone (full agonists) in their bodies at the time of injection.

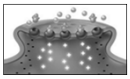


BUPRENORPHINE: A PARTIAL μ OPIOID RECEPTOR AGONIST

- Partial μ opioid agonist
  - Kappa receptor antagonist
- Less dopamine release
  - Heroin, oxycodone produce maximum dopamine release
  - Buprenorphine produces less dopamine release



Heroin, Oxycodone etc (Full agonist)



Buprenorphine (Partial agonist)

Red balls = μ opioid receptors
Yellow balls = heroin
Green shapes = buprenorphine

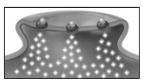
Johnson RE, et al. *Drug Alcohol Depend,* 2003.

Many ways to induce

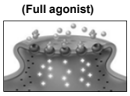
- Office induction
- Hospital induction
- Home induction
- Micro-induction

BUPRENORPHINE: A PARTIAL μ OPIOID RECEPTOR AGONIST

- High affinity for μ receptor
  - Can displace full agonist opioids, such as heroin
  - Dissociates slowly from the receptors
- Low intrinsic activity
  - Ceiling on agonist effects



Heroin, Oxycodone etc (Full agonist)



Buprenorphine (Partial agonist)

Red balls = μ opioid receptors
Yellow balls = heroin
Green shapes = buprenorphine

Johnson RE, et al. *Drug Alcohol Depend,* 2003.

Easiest home induction technique

- Wait until feeling "unwell" (12 hours after a long acting medication?)
- (History is important)
- 2mg q1h until feel well (maximum 16mg on day 1)
- Day 2: start at day 1 dose and increase from there to maximum 24mg

Tips around induction time

- Don't stop benzodiazepines
- Don't stop anti-depressants
- No operating machinery or driving
- Family member to check in on them
- Try and avoid the "Friday at 4pm" induction

Buprenorphine in Chronic pain

- Sublingual burprenorphine is effective in the treatment of chronic pain syndrome. Herbert L. Malinoff, et al. American Journal of Therapeutics 12, 379-384 (2005)
- Conversion from High-Dose Full Opioid Agonists to Sublingual Buprenorphine reduces Pain Scores and Improves QoL for Chronic Pain Patients. Daitch, et al, Pain Medicine 2014
- Buprenorphine - an attractive opioid with underutilized potential in treatment of chronic pain. Khanna, J of Pain Research 2015:8 859-870

Micro-induction

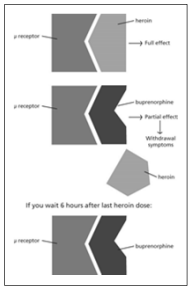
- To be considered in patients who are:
- rotating from methadone,
- fentanyl (Rx or street),
- very high dose opioids,
- patients we are worried about decompensating health with possible opioid withdrawal

What are we really treating?

Chronic Pain
vs.
Suffering

ACTIVITY OF BUPRENORPHINE DEPENDS ON CONDITIONS AT THE MU RECEPTOR

- In absence of full agonist (heroin), buprenorphine binds to receptors and causes reinforcing effect
  - "Feeling normal"
- If full agonist (heroin) is present, buprenorphine displaces agonist and causes withdrawal symptoms
  - Wait until patient is experiencing withdrawal symptoms to avoid precipitating withdrawal



Center for Substance Abuse Treatment. DHHS. 2004.

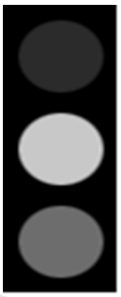
2 possible reasons for scars:

- Tribal leader successfully meditates through annual ritual customs
- Man tortured while rebel forces take over village

2 sentences to patients…

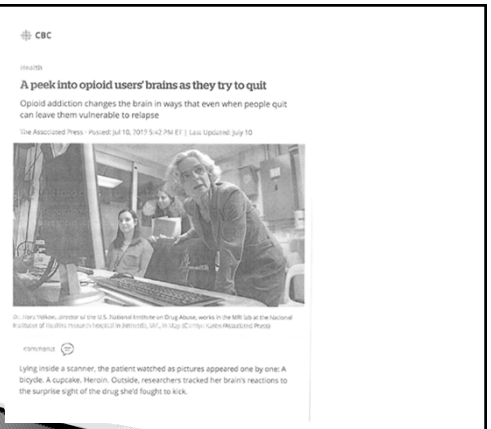
- You have chronic pain and I'm going to prescribe you pain killers
- You have ***chronic suffering*** and ….
  - I'm going to prescribe you a pill that will…
  - *Temporarily dissociate* you from your suffering…
  - And you will eventually develope tolerance ….
  - And you will get less and less benefit from these pills and you will require higher and higher doses….

Buprenorphine/Naloxone Sublingual Tablets Dosing Summary



- >24 mg/day
- 16 mg/day to 24 mg/day
- ≤16 mg/day

1. SUBOXONE Product Monograph. Scarborough, ON: Reckitt Benckiser Pharmaceuticals Limited, April 2011.



CBC

Health

A peek into opioid users' brains as they try to quit

Opioid addiction changes the brain in ways that even when people quit can leave them vulnerable to relapse

The Associated Press · Posted: Jul 10, 2017 5:42 PM ET | Last Updated: July 10

Dr. Nora Volkow, director of the U.S. National Institute on Drug Abuse, works in the MRI lab at the National Institute of Health's research facility in Bethesda, Md., in May. (Cynthia Johnson/Associated Press)

comments

Lying inside a scanner, the patient watched as pictures appeared one by one: A bicycle. A cupcake. Heroin. Outside, researchers tracked her brain's reactions to the surprise sight of the drug she'd fought to kick.

Options once someone stabilizes on Buprenorphine/ Naloxone

- 1 month sc injection
- 6 month implant

Prescribing Buprenorphine/ Naloxone:

- What about 'take home' doses vs observed doses?
- How long should someone be on it?
- What about split dosing (BID-TID)?
- What about some PRN dosing?

U.S. Surgeon General

- As challenging as this crisis may appear, we can overcome the opioid epidemic in America.
- **But we can only do so if we remember that, in the battle against addiction, *compassion* is our most powerful weapon. It's what allows us to stop judging and start helping.**
- Ultimately, compassion is what will enable us to come together to save lives, strengthen our communities and end the opioid epidemic.

DR. VIVEK H. MURTHY, U.S. SURGEON GENERAL, October 2016

Safety comparison

- Diversion: Patients who use methadone non-medically have higher hospitalization rates, greater ICU utilization rates, and considerably worse medical outcomes when compared with patients who use buprenorphine non-medically
- Benzodiazepines: non-medical use of benzodiazepines with methadone is associated with higher rates of hospitalization, greater ICU utilization rates and considerably worse medical outcomes when compared to nonmedical use of benzodiazepines with buprenorphine

- *1.Lee S, Medical outcomes associated with nonmedical use of methadone and buprenorphine, J Emerg Med 2013*
- *2. Lee,SC et al, 2014*

- Be kind, for everyone you meet is fighting a harder battle.

Plato

PEARLS…

- If someone is displaying signs of addiction, the biggest way we can HELP them, is to accept this as a possible diagnosis and explore treatments

Thank you!

@joelbordman

- The good physician treats the disease;
- the great physician treats the patient who has the disease.

Sir William Osler

NORTH YORK GENERAL

Making a World of Difference

FAMILY MEDICINE CLINIC DAY 2020

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

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CARDIOLOGY UPDATE FOR THE FAMILY PHYSICIAN

Darren Kagal MD FRCSC
Cardiologist
North York General Hospital & Sunnybrook Health Sciences Centre

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

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Congestive Heart Failure Management UPDATES

Dr. Darren Kagal

January 18th, 2020
Adult Cardiology & Interventional Cardiac Electrophysiology
North York General Hospital &
Sunnybrook Health Sciences Centre

Objectives

- Discuss pharmaco and nonpharmaco management of CHF
- Novel therapies
- Discuss indications for implantable cardiac devices in the management of CHF

CHF Subtypes

- CHF with reduced EF (<40%) (HFReF)
- CHF with preserved LV function (HFPeF) LVEF>50%
- CHF with mid-range EF. HFmEF LVEF 41-49%.

Treatment

All
- Prevention. Control of risk factors
- Life style
- Treat etiologic cause / aggravating factors
- Drug therapy
- Personal care. Team work

Selected patients
- Revascularization if ischemia causes HF
- ICD (Implantable Cardiac Defibrillator)
- Cardiac resynchronization
- Ventricular assist devices
- Heart transplant

Lifestyle Management

- Diet
  - Well balanced diet
    - Consider careful weight loss
  - Salt
    - <2,000 mg per day
    - <1500 mg per day if hypertensive
    - Avoid salt-rich foods
- Fluids
  - <1.5 – 2L per day
- Alcohol
  - Limit to less than one beverage per day

Lifestyle Management

- Exercise
  - Daily activities
  - Walking
  - Avoid over-exertion
  - Increase amount of activity slowly
  - Symptom-limited
  - Consider referral to Cardiac Rehabilitation

Lifestyle Management

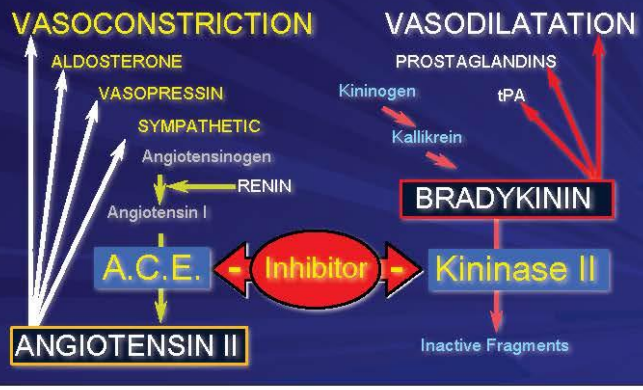
- Self monitoring
  - Report following
    - Change in breathing (SOB, orthopnea, PND)
    - Worsening fatigue
    - Weight gain (1 Kg in 2-3 days)
    - Edema –any increase
    - Side effects from medications
    - Pulse
      - ?slow, fast, irregular

- CHF with reduced LV systolic function

Treatment
Pharmacologic Therapy

- Diuretics- relieve congestion
- RAS inhibition
- Beta Blockers
- Mineralocortocoid receptor blockers
- *** Novel therapies- ENTRESTO, IVABRADINE (LANCORA), DAPAGLIFLOZIN
- Digitalis
- Other

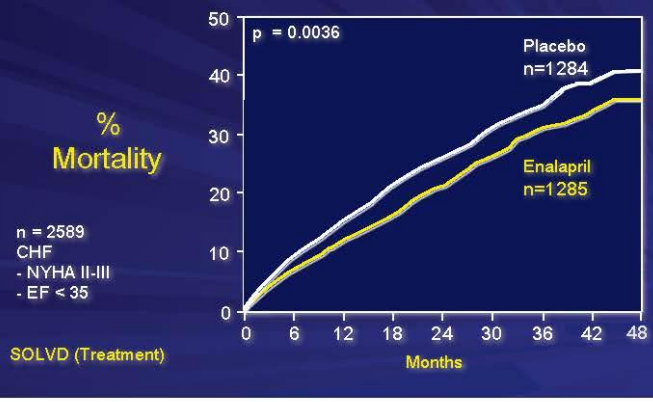
ACE-i. Mechanism of Action



ACE-I. Clinical Effects

- Improve symptoms
- Reduce remodelling / progression
- Reduce hospitalization
- Improve survival

ACE-i



Supplemental Table S3. Evidence-based heart failure medications and doses in the management of patients with heart failure with reduced ejection fraction

Drug	Start Dose	Target Dose
ACE Inhibitors		
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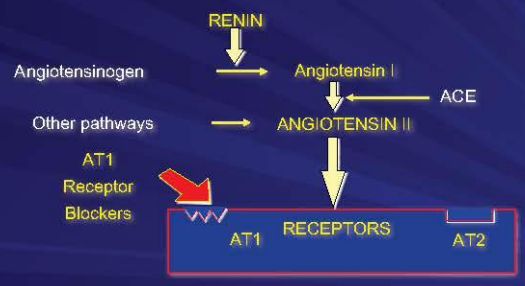
Enalapril	1.25-2.5 mg BID	10 mg BID
Lisinopril	2.5-5 mg OD	20-35 mg OD
Perindopril	2-4 mg OD	4-8 mg OD
Ramipril	1.25-2.5 mg BID	5 mg BID
Trandolapril	1-2 mg OD	4 mg OD

Angiotensin II Receptor Blockers (ARB)



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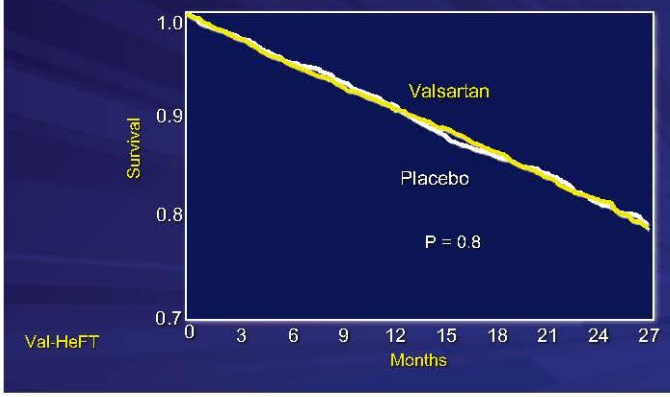
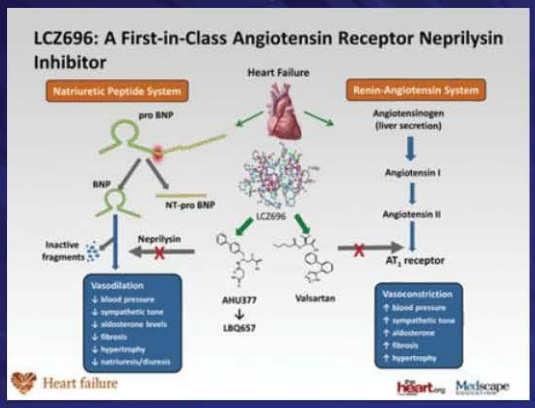


ARBs		
Candesartan	4 mg OD	32 mg OD
Valsartan	40 mg BID	160 mg BID

ENTRESTO LCZ696

- PARADIGM-HF Trial
- LCZ696 =
  - Sacubutril (Neprilysin inhibitor) + Valsartan (ARB)
- 8442 patients NYHA 2-4, EF<40% randomized to LCZ696 vs. Enalapril 10mg bid.



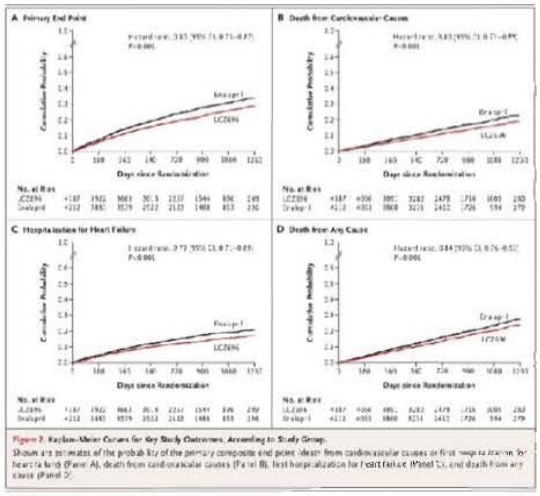
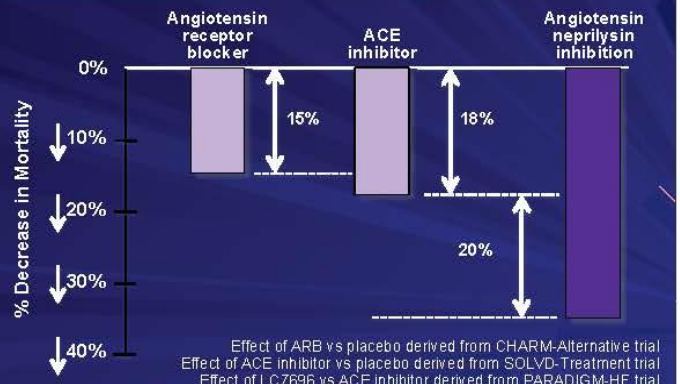


Figure 2. Kaplan–Meier Curves for Key Study Outcomes, According to Study Group.
Shown are estimates of the probability of the primary composite end point (death from cardiovascular causes or first hospitalization for heart failure [Panel A]), death from cardiovascular causes (Panel B), first hospitalization for heart failure (Panel C), and death from any cause (Panel D).

Table 3. Adverse Events during Randomized Treatment.*

Event	LCZ696 (N=4187)	Enalapril (N=4212)	P Value
	no. (%)		
Hypotension			
Symptomatic	588 (14.0)	388 (9.2)	<0.001
Symptomatic with systolic blood pressure <90 mm Hg	112 (2.7)	59 (1.4)	<0.001
Elevated serum creatinine			
≥2.5 mg/dl	139 (3.3)	188 (4.5)	0.007
≥3.0 mg/dl	63 (1.5)	83 (2.0)	0.10
Elevated serum potassium			
>5.5 mmol/liter	674 (16.1)	727 (17.3)	0.15
>6.0 mmol/liter	181 (4.3)	236 (5.6)	0.007
Cough	474 (11.3)	601 (14.3)	<0.001
Angioedema†			
No treatment or use of antihistamines only	10 (0.2)	5 (0.1)	0.19
Use of catecholamines or glucocorticoids without hospitalization	6 (0.1)	4 (0.1)	0.52
Hospitalization without airway compromise	3 (0.1)	1 (<0.1)	0.31
Airway compromise	0	0	—

Angiotensin Neprilysin Inhibition With LCZ696 Doubles Effect on Cardiovascular Death of Current Inhibitors of the Renin-Angiotensin System



Effect of ARB vs placebo derived from CHARM-Alternative trial
Effect of ACE inhibitor vs placebo derived from SOLVD-Treatment trial
Effect of LCZ696 vs ACE inhibitor derived from PARADIGM-HF trial

DOSAGE FORM/ STRENGTH

ENTRESTO™ (sacubitril/valsartan) film-coated tablets:

- 24.3mg sacubitril/ 25.7mg valsartan
  - Equivalent to 40mg valsartan monotherapy
- 48.6mg sacubitril/ 51.4mg valsartan
  - Equivalent to 80mg valsartan monotherapy
  - Equivalent to 100mg of LCZ696 in the Paradigm HF study
- 97.2mg sacubitril/ 102.8mg valsartan
  - Equivalent to 160mg valsartan monotherapy
  - Equivalent to 200mg of LCZ696 in the Paradigm HF study

ENTRESTO™ Product Monograph, October 2nd, 2015; Gu et al., J Clin Pharmacol 2010; 50: 401. McMurray et al., NEJM 2014; 371:993.

22
MEDVENT0026

WARNINGS AND PRECAUTIONS

- **Pregnancy** (*Serious Warning and Precaution*)
  - When used in pregnancy angiotensin receptor (AT1) blockers (ARB) can cause injury to or even death of the developing fetus. When pregnancy is detected, sacubitril/valsartan should be discontinued as soon as possible.
- **Co-administration with ACEi**
  - sacubitril/valsartan must not be administered with an ACEi due to the risk of angioedema. Sacubitril/valsartan must not be initiated until at least 36 hours have elapsed following discontinuation of ACEi therapy. If treatment with sacubitril/valsartan is stopped, ACEi therapy must not be initiated until 36 hours after the last dose of sacubitril/valsartan.
- **Co-administration with ARB**
  - sacubitril/valsartan should not be co-administered with any other drug formulation containing an ARB, due to the angiotensin II receptor blocking activity of sacubitril/valsartan by its valsartan moiety.

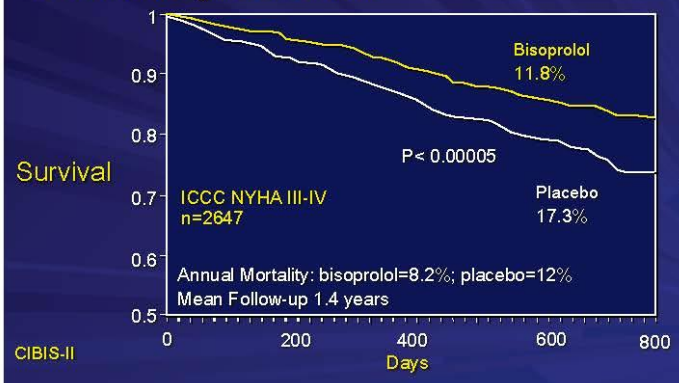
23
MEDVENT0026

ENTRESTO™ Product Monograph, October 2nd, 2015

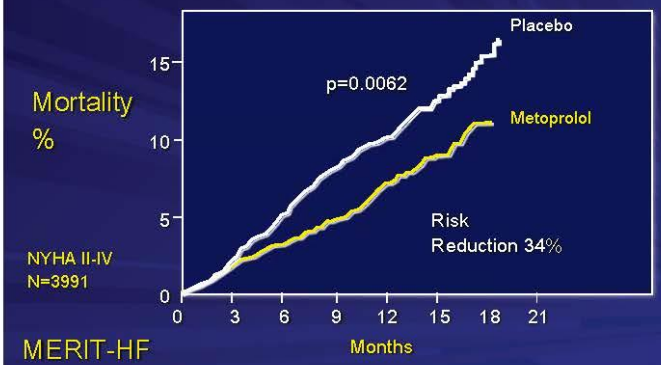
ß-Adrenergic Blockers Mechanism of action

- Decreased Neurohormonal activation
- Decreased HR
- Antiischemic
- Antihypertensive
- Antiarrhythmic
- Antioxidant, Antiproliferative

ß-Adrenergic Blockers



ß-Adrenergic Blockers



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Ramipril	1.25-2.5 mg BID	5 mg BID
Trandolapril	1-2 mg OD	4 mg OD
Beta-blockers		
Bisoprolol	1.25 mg OD	10 mg OD
Carvedilol	3.125 mg BID	25 mg BID*
Metoprolol CR/XL**	12.5-25 mg OD	200 mg OD
ARBs		
Candesartan	4 mg OD	32 mg OD
Valsartan	40 mg BID	160 mg BID
Aldosterone Antagonists		
Spironolactone	12.5 mg OD	50 mg OD
Eplerenone	25 mg OD	50 mg OD
Vasodilatators		
Hydralazine	37.5 mg TID	75 mg TID
Isorbide dinitrate	20 mg TID	40 mg TID

* 50 mg BID if weight is >85 kg

Aldosterone Inhibitors

Spironolactone → ALDOSTERONE

Competitive antagonist of the aldosterone receptor (myocardium, arterial walls, kidney)

- Retention Na^+ → Edema
- Retention H_2O
- Excretion K^+ → Arrhythmias
- Excretion Mg^{2+}

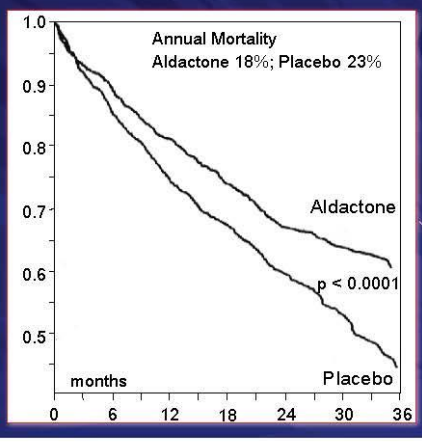
- Collagen deposition → Fibrosis
  - myocardium
  - vessels

Spironolactone

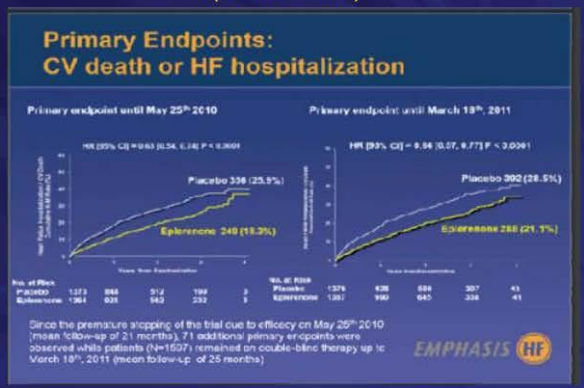
Survival

N = 1663
NYHA III-IV
Mean follow-up 2 y

RALES



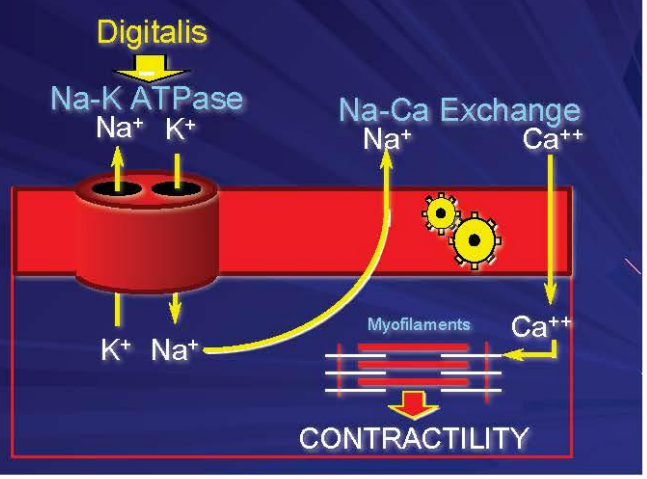
Eplerenone (INSPRA)



Supplemental Table S3. Evidence-based heart failure medications and doses in the management of patients with heart failure with reduced ejection fraction

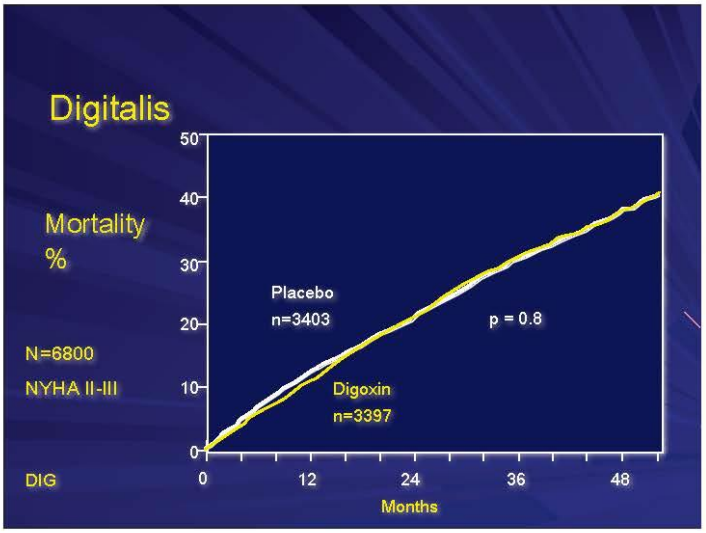
Drug	Start Dose	Target Dose
ACE Inhibitors		
Captopril	6.25-12.5 mg TID	25-50 mg TID
Enalapril	1.25-2.5 mg BID	10 mg BID
Lisinopril	2.5-5 mg OD	20-35 mg OD
Perindopril	2-4 mg OD	4-8 mg OD
Ramipril	1.25-2.5 mg BID	5 mg BID
Trandolapril	1-2 mg OD	4 mg OD
Beta-blockers		
Bisoprolol	1.25 mg OD	10 mg OD
Carvedilol	3.125 mg BID	25 mg BID*
Metoprolol CR/XL**	12.5-25 mg OD	200 mg OD
ARBs		
Candesartan	4 mg OD	32 mg OD
Valsartan	40 mg BID	160 mg BID
Aldosterone Antagonists		
Spironolactone	12.5 mg OD	50 mg OD
Eplerenone	25 mg OD	50 mg OD
Vasodilatators		
Hydralazine	37.5 mg TID	75 mg TID
Isorbide dinitrate	20 mg TID	40 mg TID

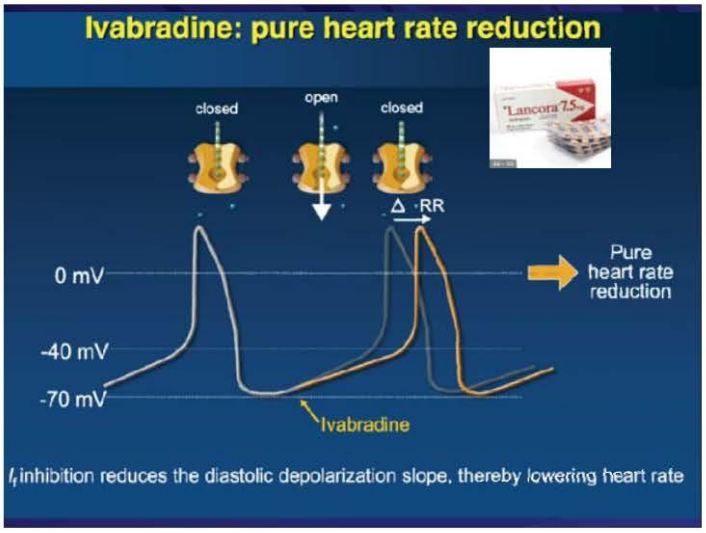
* 50 mg BID if weight is >85 kg

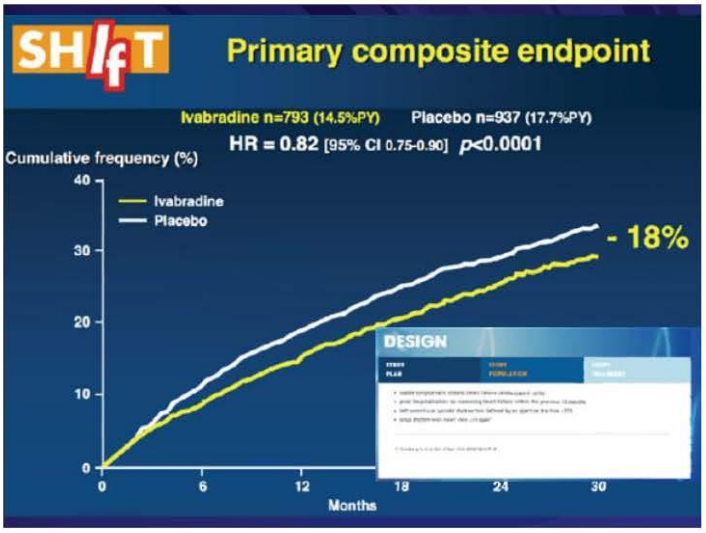


Digitalis. Clinical Effects

- Improve symptoms
- Modest reduction in hospitalization
- Does not improve survival
- Consider for Afib rate control in patients with CHF
- Avoid in patients with renal insufficiency



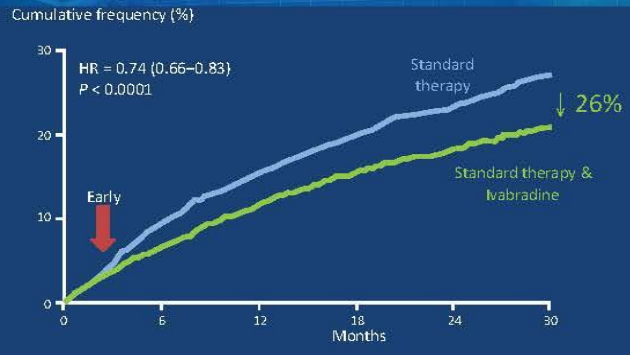




SHIFT Effect of ivabradine on outcomes

Endpoints	Hazard ratio	95% CI	*p* value
Primary composite endpoint	0.82	[0.75;0.90]	*p*<0.0001
All-cause death	0.90	[0.80;1.02]	*p*=0.092
Death from HF	0.74	[0.58;0.94]	*p*=0.014
Hospitalisation for any cause	0.89	[0.82;0.96]	*p*=0.003
Hospitalisation for CV reason	0.85	[0.78;0.92]	*p*=0.0002
CV death/hospitalisation for HF or non-fatal MI	0.82	[0.74;0.89]	*p*<0.0001

HF hospitalization benefits



➢ The curves for ivabradine and placebo begin to diverge at 3 months, and the difference is statistically significant at 6 months

Swedberg, Lancet, 2010; 376; 875-885.

Subgroup analysis

➢ Patients with baseline heart rate ≥ 75 bpm

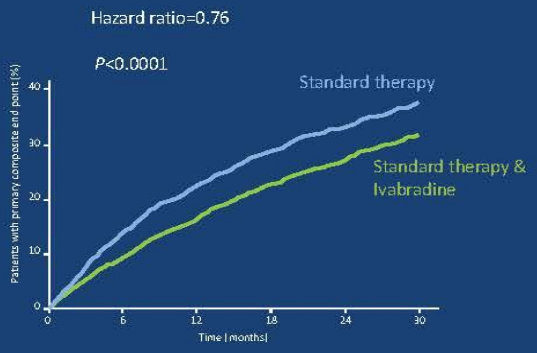
- 63% of the Shift patients (N = 4150)

Post-hoc analysis

➢ Requested by European Medicines Agency

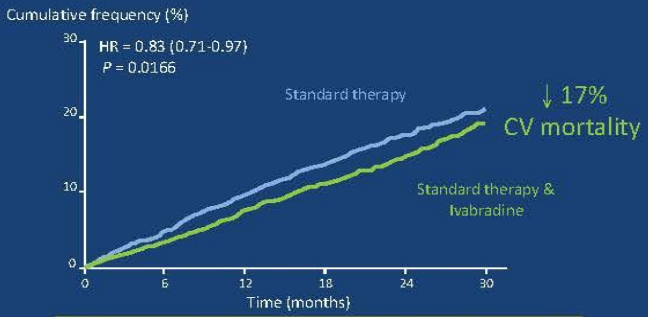
➢ Ivabradine was approved in Europe and indicated for HF patient with a heart rate ≥ 75 bpm based on this analysis

Effect of ivabradine on primary outcome
CV death or hospitalization for HF



Böhm M, Borer J, Ford I, et al. *Clin Res Cardiol*. 2013;102(1):11-22.

Mortality benefits in patients with high heart rate (≥75bpm)



All-cause mortality ➢ 17% reduction, (p<0.0109)

HF mortality ➢ 39% reduction, (p<0.0006)

Böhm, Clin Res Cardiol. 2013; 102; 11-22.

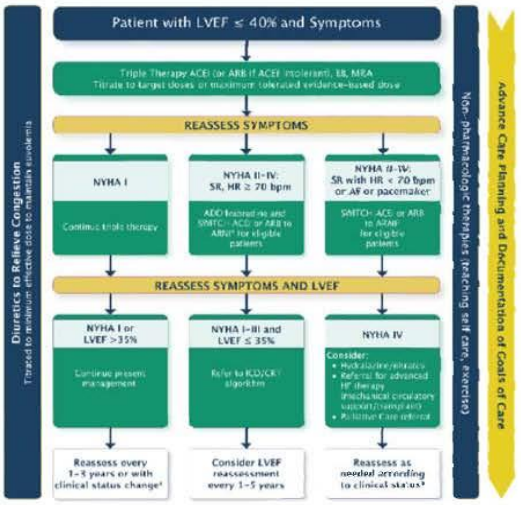
The higher the heart rate at baseline, the greater the benefits

Ivabradine significantly reduces major risks associated with heart failure

➢ Patients with baseline heart rate ≥ 70, 75 and 77 bpm

	Significant reduction		
	≥ 70 bpm	≥ 75 bpm	≥ 77 bpm
Primary endpoints			
CV death or hospital admission for worsening HF	18%	24%	25%
Mortality endpoints			
All-cause mortality	-	17%	19%
Cardiovascular mortality	-	17%	19%
Death from HF	26%	39%	39%
Other endpoints			
All-cause hospital admission	11%	18%	18%
Any CV hospital admission	15%	21%	21%
Hospital admission for worsening of HF	26%	30%	31%

Swedberg, Lancet 2010; 376; 875-885.
Böhm, Clin Res Cardiol. 2013; 102; 11-22.
Internal data. Servier.



DAPA-HF Trial

- DAPAGLIFLOZIN
  - SGLT2 inhibitor (sodium-glucose cotransporter)
  - Studies with other SGLT2 inh demonstrated favourable outcomes with regard to reduced cardiac mortality, CHF, etc
    - ie EMPA-REG trial

DAPA-HF Trial

- 4744 patients with NYHA 2-4
- HFREF (LVEF <40%)
- Diabetes not necessary
- Randomized:
  - Dapagliflozin 10mg daily vs Placebo
- Primary outcome:
  - Composite: worsening HF/hospitalization or cardiovascular death

Table 1. Characteristics of the Patients at Baseline.*

Characteristic	Dapagliflozin (N = 2373)	Placebo (N = 2371)
Age — yr	66.2 ± 11.0	66.3 ± 10.8
Female sex — no. (%)	569 (24.0)	557 (23.5)
Body-mass index†	28.3 ± 6.0	28.1 ± 6.3
Race — no. (%)‡		
White	1612 (70.9)	1671 (73.5)
Black	121 (5.3)	104 (4.6)
Asian	552 (24.3)	564 (24.8)
Other	37 (1.6)	32 (1.4)
Region — no. (%)		
North America	441 (18.6)	442 (18.6)
South America	401 (16.9)	415 (17.5)
Europe	1044 (44.0)	1040 (43.9)
Asia–Pacific	487 (20.5)	474 (20.0)
NYHA functional class before — no. (%)		
II	1665 (70.2)	1692 (71.4)
III	687 (29.0)	651 (27.5)
IV	20 (0.8)	28 (1.2)
Heart rate — beats/min§	71.5 ± 11.6	71.8 ± 11.8
Systolic blood pressure — mm Hg	122.0 ± 16.2	121.5 ± 16.1
Left ventricular ejection fraction — %	31.2 ± 5.7	30.9 ± 5.8
Median NT-proBNP (IQR) — pg/ml	1428 (1017–2055)	1446 (1037–2066)
Principal cause of heart failure — no. (%)		
Ischemic	1301 (55.5)	1358 (57.5)
Nonischemic	857 (36.5)	830 (35.1)
Unknown	190 (8.1)	179 (7.6)
Medical history — no. (%)		
Hospitalization for heart failure	1124 (47.4)	1127 (47.5)
Atrial fibrillation	1126 (47.4)	1107 (46.7)
Diabetes mellitus¶	993 (41.8)	990 (41.8)
Estimated GFR		
Mean — ml/min/1.73 m²	65.8 ± 15.6	65.9 ± 15.5
Ratio of <60 ml/min/1.73 m² — no./total no. (%)	982/2372 (41.4)	1044/2371 (44.1)
Device therapy — no. (%)		
Implantable cardioverter–defibrillator‖	477 (20.1)	435 (18.3)
Cardiac resynchronization therapy‖	190 (8.0)	164 (6.9)

Table 1. (Continued.)

Characteristic	Dapagliflozin (N = 2373)	Placebo (N = 2371)
Heart failure medication — no. (%)		
Diuretic	2216 (93.4)	2217 (93.5)
ACE inhibitor	1332 (56.1)	1329 (56.1)
ARB	675 (28.4)	632 (26.7)
Sacubitril–valsartan	250 (10.5)	258 (10.9)
Beta-blocker	2278 (96.0)	2280 (96.2)
Mineralocorticoid receptor antagonist	1696 (71.5)	1674 (70.6)
Digitalis	445 (18.8)	442 (18.6)
Glucose-lowering medication — no./total no. (%)**		
Biguanide	504/993 (50.8)	512/990 (51.7)
Sulfonylurea	228/993 (23.0)	210/990 (21.2)
DPP-4 inhibitor	161/993 (16.2)	149/990 (15.1)
GLP-1 receptor agonist	11/993 (1.1)	10/990 (1.0)
Insulin	274/993 (27.6)	266/990 (26.9)

Table 2. Primary and Secondary Cardiovascular Outcomes and Adverse Events of Special Interest.*

Variable	Dapagliflozin (N = 2373)		Placebo (N = 2371)		Hazard or Rate Ratio or Difference (95% CI)	P Value
	patients	events/100 patient-yr	events	events/100 patient-yr		
Efficacy outcomes						
Primary composite outcome — no. (%)	386 (16.3)	11.0	502 (21.2)	15.4	0.74 (0.65 to 0.85)	<0.001
Hospitalization or an urgent visit for heart failure	237 (10.0)	7.1	326 (13.7)	10.1	0.70 (0.59 to 0.83)	NA
Hospitalization for heart failure	193 (8.1)	5.5	245 (10.3)	7.5	0.73 (0.61 to 0.87)	NA
Urgent heart failure visit	119 (5.0)	3.3	159 (6.7)	4.7	0.73 (0.58 to 0.90)	NA
Cardiovascular death	227 (9.6)	6.5	273 (11.5)	7.9	0.82 (0.69 to 0.98)	NA
Secondary outcomes						
Cardiovascular death or heart-failure hospitalization — no. (%)	382 (16.1)	11.4	490 (20.7)	15.2	0.75 (0.65 to 0.85)	<0.001
Total no. of hospitalizations for heart failure and cardiovascular death‖	507	—	742	—	0.73 (0.65 to 0.84)	<0.001
Change in KCCQ total symptom score at 8 mo¶	6.1 ± 0.6	—	3.1 ± 0.7	—	1.19 (1.11 to 1.26)	<0.001
Worsening renal function — no. (%)**	28 (1.2)	0.8	36 (1.6)	1.2	0.71 (0.44 to 1.16)	NA
Death from any cause — no. (%)	276 (11.6)	7.8	329 (13.9)	9.5	0.83 (0.71 to 0.97)	NA
Safety outcomes						
Discontinuation due to adverse event — no./total no. (%)	131/2368 (5.5)	—	155/2368 (6.5)	—	—	0.19
Acroeccentric of interest — no./total no. (%)						
Volume depletion	170/2368 (7.2)	—	162/2368 (6.8)	—	—	0.61
Renal adverse event	153/2368 (6.5)	—	179/2368 (7.6)	—	—	0.16
Fracture	49/2368 (2.1)	—	50/2368 (2.1)	—	—	1.00
Amputation	11/2368 (0.5)	—	11/2368 (0.5)	—	—	1.00
Major hypoglycemia††	4/2368 (0.2)	—	8/2368 (0.3)	—	—	NA
Ischemic ketoacidosis††	1/2368 (0.1)	—	0	—	—	NA
Fournier's gangrene	0	—	1/2368 (<0.1)	—	—	NA

Laboratory and other measures						
Change from baseline to 8 mo‖‖						
Glycated hemoglobin — %§§	−0.3 ± 1.14	—	0.04 ± 1.29	—	−0.24 (−0.34 to −0.13)	<0.001
Creatinine — mg/dl	0.07 ± 0.24	—	0.04 ± 0.25	—	0.02 (0.01 to 0.03)	<0.001
Hematocrit — %	2.31 ± 3.98	—	−0.19 ± 3.8	—	2.41 (2.21 to 2.62)	<0.001
NT-proBNP — pg/ml	−196 ± 1187	—	101 ± 1264	—	−330 (−457 to −158)	<0.001
Weight — kg	−0.84 ± 3.86	—	0.18 ± 4.09	—	−0.81 (−1.11 to −0.62)	<0.001
Systolic blood pressure — mm Hg	−1.02 ± 14.92	—	−0.38 ± 15.27	—	−1.27 (−2.09 to −0.45)	0.002

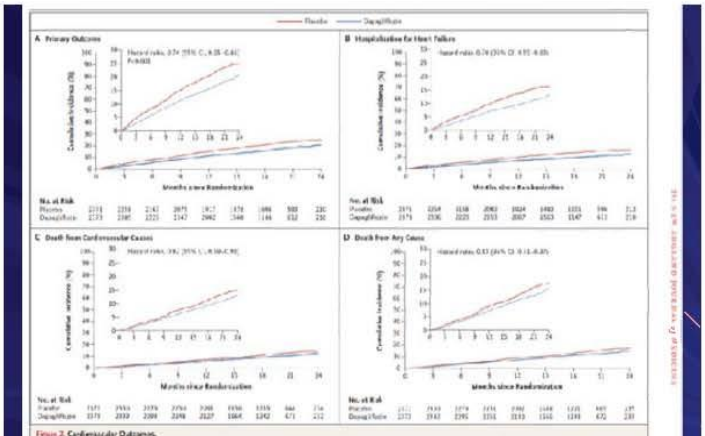
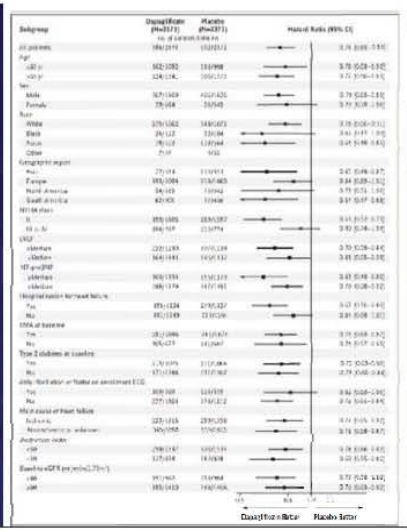


Figure 2. Cardiovascular Outcomes.



Other **Treatments**
Iron Supplementation

- Anemia- prevalent in CHF patients
  - ~34%
- CONFIRM-HF
  - 304 patients, LVEF < 35%
  - Iron deficiency ie. Ferritin <100 mg/dL
  - RCT → Ferric Carboxylamtose iv

CONFIRM-HF

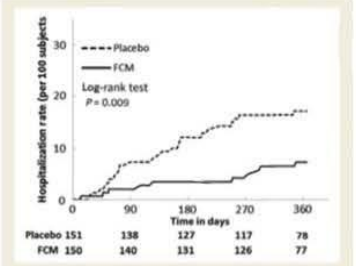


Figure 4 Time to first hospitalization due to worsening heart failure. The time to first hospitalization due to worsening heart failure was estimated using the Kaplan–Meier method, on the full-analysis set. Subjects were censored at their death, study completion, or withdrawal date.

Other Drugs

- Omega 3 Fatty acids
  - GISSI-HF ** Mortality benefit
  - HR 0.91 [95.5% CI 0.833-0.998], p=0.041)

RECOMMENDATION

38. We suggest n-3 PUFA therapy at a dose of 1 g/d be considered for reduction in morbidity and cardiovascular mortality in patients with HFrEF (Weak Recommendation; Moderate-Quality Evidence).

Values and preferences. Although there is an effect of fish oils on important HF outcomes, this recommendation also considers the modest effect size and issues surrounding the lack of standardization of commercial preparations in Canada.

Implantable Cardiac Defibrillators

Implantable Cardiac Defibrillators

- Indications:
  - PRIMARY prophylaxis
  - SECONDARY prophylaxis

Primary Prophylaxis Indications

RECOMMENDATION

51. We recommend consideration of primary ICD therapy in patients with:
    i. Ischemic cardiomyopathy, NYHA class II-III, EF ≤ 35%, measured at least 1 month post MI, and at least 3 months post coronary revascularization procedure (Strong Recommendation; High-Quality Evidence); or
    ii. Ischemic cardiomyopathy, NYHA class I, and an EF ≤ 30% at least 1 month post MI, and at least 3 months post coronary revascularization procedure (Strong Recommendation; High-Quality Evidence); or
    iii. Nonischemic cardiomyopathy, NYHA class II-III, EF ≤ 35%, measured at least 3 months after titration and optimization of GDMT (Strong Recommendation; High-Quality Evidence).
52. We recommend against ICD implantation in patients with NYHA class IV symptoms who are not expected to improve with any further therapy and who are not candidates for cardiac transplantation or mechanical circulatory support (MCS) (Strong Recommendation; Moderate-Quality Evidence).

Heart failure with preserved LVEF

- Use similar lifestyle modifications
- No good evidence for Acel, Beta blockers,etc.
- Treat underlying:
  - Hypertension
  - Obesity
  - Fluid retention -> diuretics
- Spironolactone -reduce CHF hospitalization
  - TOPCAT - reduced hospitalizations, not mortality

PARAGON HF Trial

- ?Benefit of ARNI (Angiotensin Neprolysin Inhibition) in patients with HFPEF

PARAGON-HF Trial

- 4822 patients with HFPEF (LVEF >45%)
- NYHA II-IV
- Randomized to:
  - Sucubitril/Valsartan Target dose 97/103mg bid Versus
  - Valsartan 160mg bid
- Primary outcome:
  - Total hospitalization for CHF, death from cardiovascular causes.

Table 1. Characteristics of the Patients at Baseline.*

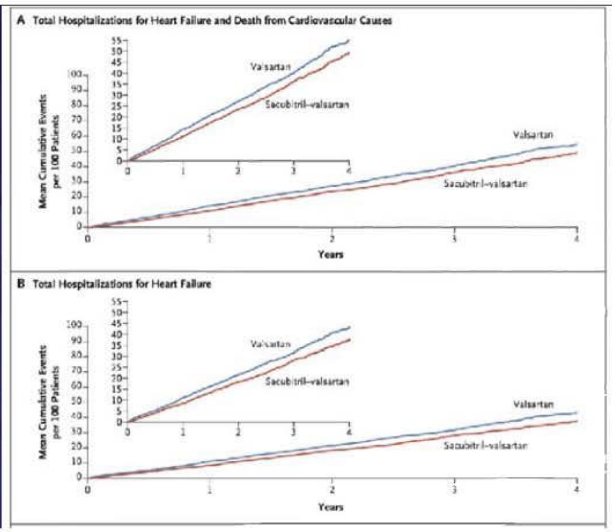
Characteristic	Sacubitril–Valsartan (N = 2407)	Valsartan (N = 2389)
Age — yr	72.7±8.1	72.8±8.1
Female sex — no. (%)	1241 (51.6)	1234 (51.8)
Race — no. (%)†		
White	1962 (81.6)	1944 (81.4)
Black	52 (2.2)	58 (2.3)
Asian	297 (12.3)	316 (13.2)
Other	95 (4.0)	81 (3.4)
Geographic region — no. (%)		
North America	288 (12.0)	271 (11.3)
Latin America	191 (7.9)	179 (7.5)
Western Europe	639 (29.0)	591 (28.3)
Central Europe	856 (35.6)	859 (36.0)
Asia-Pacific or other	373 (13.3)	389 (16.3)
Systolic blood pressure — mm Hg‡	130.5±15.6	130.6±15.3
Heart rate — beats/min‡	70.6±12.3	70.3±12.2
Body mass index§	30.1±4.9	30.3±5.1
Serum creatinine — mg/dl‡	1.1±0.3	1.1±0.3
Estimated GFR — ml/min/1.73 m²	63±16	63±16
Clinical features of heart failure		
Ischemic cause — no. (%)	895 (37.4)	824 (34.5)
Left ventricular ejection fraction — %	57.6±7.3	57.5±8.8
Median NT-proBNP (interquartile range) — pg/ml	904 (473–1394)	913 (453–1623)
NYHA functional class at randomization — no. (%)‡		
I	73 (3.1)	64 (2.7)
II	1846 (77.1)	1844 (77.3)
III	458 (19.0)	474 (19.8)
IV	9 (0.3)	11 (0.5)
Missing data	2 (0.1)	0
Medical history — no. (%)		
Hypertension	2304 (95.7)	2288 (95.4)
Diabetes	1049 (43.5)	1016 (42.5)
Atrial fibrillation or flutter	775 (32.2)	777 (32.5)
Stroke	298 (12.1)	242 (10.1)
Hospitalization for heart failure	1126 (47.2)	1171 (49.3)
Myocardial infarction	561 (23.3)	522 (21.9)

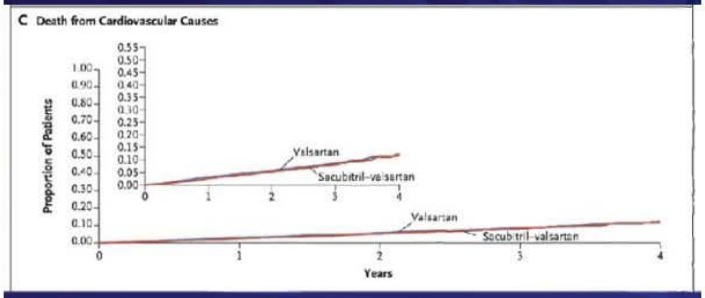
Table 1. (Continued.)

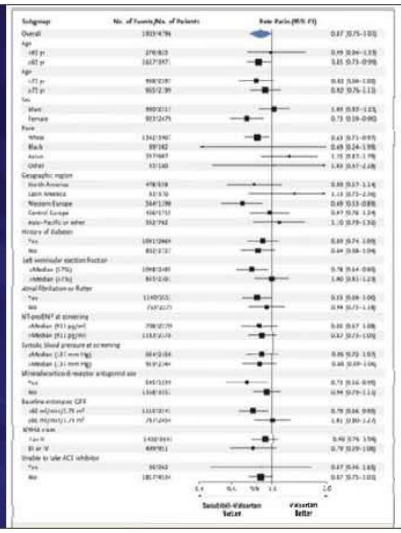
Characteristic	Sacubitril–Valsartan (N = 2407)	Valsartan (N = 2389)
Treatment — no. (%)		
Diuretic agent at randomization	2294 (95.3)	2291 (95.9)
ACE inhibitor or ARB at screening	2074 (86.2)	2065 (86.4)
Mineralocorticoid-receptor antagonist at randomization	592 (24.6)	647 (27.1)
Beta-blocker at randomization	1922 (79.9)	1899 (79.5)

Table 2. Primary and Secondary Outcomes.*

Outcome	Sacubitril–Valsartan (N = 2407)	Valsartan (N = 2389)	Ratio or Difference (95% CI)
Primary composite outcome and components			
Total hospitalizations for heart failure and death from cardiovascular causes†			RR, 0.87 (0.75–1.01)
Total no. of events	894	1009	
Rate per 100 patient-yr	12.8	14.6	
Total no. of hospitalizations for heart failure	690	797	RR, 0.85 (0.72–1.00)
Death from cardiovascular causes — no. (%)	204 (8.5)	212 (8.9)	HR, 0.95 (0.79–1.16)
Secondary outcomes			
Change in NYHA class from baseline to 8 mo — no./total no. (%)			OR, 1.45 (1.13–1.86)
Improved	347/2316 (15.0)	289/2302 (12.6)	
Unchanged	1767/2316 (76.3)	1792/2302 (77.8)	
Worsened	202/2316 (8.7)	221/2302 (9.6)	
Change in KCCQ clinical summary score at 8 mo‡	−1.6±0.4	−2.6±0.4	Difference, 1.0 (0.0–2.1)
Renal composite outcome — no. (%)§	33 (1.4)	64 (2.7)	HR, 0.50 (0.33–0.77)
Death from any cause — no. (%)	342 (14.2)	349 (14.6)	HR, 0.97 (0.84–1.13)







PARAGON-HF

- Why was there no significant benefit with ARNI?
  - ?Perhaps only beneficial in patients with reduced LVEF
  - ?Works better in patients with higher levels of BNP
  - ?Perhaps there is benefit with the control arm (?Valsartan)

Case 1

- 64F presents with SOBOE, diagnosed with CHF (elevated JVP, crackles)
  - BNP 2000
  - Creatinine 84
  - ECG: Atrial fibrillation with heart rate of 148 bpm
  - Echo: Severe LV systolic dysfunction
    - LVEF 27%. No significant valvular abnormalities.

Case 1

- A. Start beta blocker, Entresto, Spironolactone, Ramipril, Lasix, implant ICD STAT
- B. Cardiovert STAT, CRT, Heart transplant
- C. Patient may have tachycardia induced cardiomyopathy. Rate control with BB, consider TEE guided cardioversion

Case 2

- 64M with history of MI. Complains of SOBOE
- ECG: NSR. Anterior infarct pattern
- Echocardiogram: LVEF 26%. Anterior wall akinesis.
- ExMIBI- Fixed anterior defect. No reversible ischemia

Case 2

- A. Start Ace I, Beta blocker. Titrate up doses. MRA if still symptomatic. ICD STAT
- B. Titrate medical therapy as above. Repeat Echocardiogram in 2-3 months. If no improvement in LV systolic function- consider ICD primary prophylaxis.

Case 3

- 74M with ischemic cardiomyopathy
- LVEF 28% on Echocardiogram
- ECG: NSR. LBBB with QRS 155 msec
- NYHA III. Complains of SOBOE
- O/E BP 124/74 mmHg. HR 82bpm. JVP not elevated.
- Meds: Coversyl 8mg daily. Bisoprolol 10mg daily
  - Lasix 40mg daily. ASA 81mg. *Lipitor* 40mg
  - Aldactone 12.5mg daily.

Case 3

- What can we do to optimize this patient????

Case 3

- What can we do to optimize this patient????
  - Switch Coversyl to Entresto (Allow 2-3 days for Acel to wash out)
  - Start Ivabradine (HR> 70bpm)
  - Increase Aldactone if renal function stable
  - Consider ICD-CRT to improve V-V synchrony

Thank You!!!

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THINGS THAT SHAKE – SHAKING PALSY – SHAKING SOUP SPOON

Roy Baskind MD FRCPC
Neurologist, North York General Hospital
Lecturer, University of Toronto

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

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The Shaking Palsy and the Shaking Spoon

An update on tremors-- Essential tremor, Parkinson's disease, and friends

Roy Baskind MD FRCPC ABPN

Wherein the subject of shakes, liable to set the quivering patient and the physician of jittery knowledge both aquiver, is made firm. The vacillating diagnostician is steadied, the wavering therapeutist is made solid. Mouths agape, nobody moves as the wobbly is made certain; until you clap:

1) Tremor (in general)

a) An involuntary, oscillatory, rhythmic movement
b) As opposed to dancing, clonic movements, rigors/myoclonus, tics
c) Two axes diagnosis – *broad "academic" classification of all tremors*
    i) Clinical features
        (1) History – age at onset, temporal evolution, family history, EtOH
        (2) Tremor characteristics – body parts, activation conditions, frequency
        (3) Associated signs – systemic illness, neurologic signs, soft signs
        (4) Laboratory data – electrophysiological, structural and f(x) imaging
    ii) Etiology
        (1) Acquired
        (2) Genetically defined
        (3) Idiopathic
            (a) Familial
            (b) Sporadic

2) Essential Tremor

a) Diagnosis
    i) Academic
    ii) Practical -- the Baskind question (very sensitive, very specific)
b) ET, ET plus, or ET phone home?
c) To treat or not to treat, that is one of the questions

d) Pharmacotherapy
    i) Propranolol
    ii) Primidone (do not be afraid)
e) Ultrasound guided thalamotomy

3) Parkinson's disease

a) The bird's eye view
b) Mimics
    i) Vascular Parkinson's
    ii) Parkinson's plus
    iii) Medication induced
    iv) … and imaging
c) Exercise
    i) Cycling
    ii) Boxing
    iii) Dancing
    iv) LSVT BIG and PWR physiotherapy
d) Treatment targets
    i) Motor
        (1) Tremor
        (2) Rigidity
        (3) Bradykinesia
        (4) Gait
    ii) Non-motor
        (1) Mood
        (2) Sleep
            (a) Insomnia
            (b) Urination
            (c) Nocturnal motor symptoms
            (d) REM-sleep Behaviour Disorder
        (3) Constipation
        (4) Pain
        (5) Cognition

(6) Drug-side effects
(a) Dyskinesias vs. tremor
(b) Postural orthostatic hypotension
(c) Edema
(d) Impulse control disorders
(e) Dopamine dysregulation

e) Medications
i) Levodopa
(1) Myths and stigma
(2) And food
(3) And timing
ii) Duodopa
iii) Dopamine agonists
iv) Extenders (Entacapone, Stalevo, Azilect)
v) Apomorphine (Movapo)
vi) Rivastigmine, quetiapine, mirabegron, and other non-specific meds

f) Surgery

4) Other things that shake and are shaky

a) Vilify Abilify and other shaky drugs
b) The end of NPH

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AN UPDATE ON TREATMENT OPTIONS FOR ALLERGIES

David Hummel MBChB FRCPC
Allergist, The Hospital for Sick Children
Assistant Professor, University of Toronto

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

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An Update on Treatment Options for Allergic Diseases

David Hummel MD FRCPC

Disclosure of Presenter

I am on the speakers bureau for Astralez. This will not influence this lecture.

What is new and what is worth repeating?

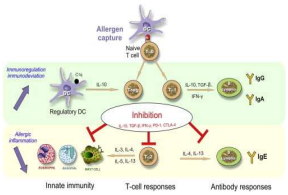
- Allergen Immunotherapy
  - Allergic Rhinitis
  - Allergic Conjunctivitis
  - Asthma
  - Hymenoptera venom allergy
  - Food Allergy Desensitization

Allergic Rhinitis Treatment 2020 Guidelines

Immunotherapy (IT) for Allergic Rhinitis

- Subcutaneous Immunotherapy (SCIT)
- Sublingual Immunotherapy Tablet (SLIT-T)

Noon and Freeman 1910



AG 32 year old gardener

- Itchy eyes and nose, sneezing and rhinorrhea at times throughout the year, worse in June.
- Uses Benadryl daily in the summer
- Seems to be getting worse after started dating someone with a cat.
- Examination normal.
- What next?

Rhinitis

Rhinitis is:

characterized by nasal congestion, rhinorrhea (anterior or posterior), sneezing and nasal itching

Allergic rhinitis

- Allergic
- Local allergic rhinitis
- AR often co-exists with asthma and constitutes an independent risk factor for asthma

Non- Allergic rhinitis

- Vasomotor Rhinitis:
  - Food-induced (gustatory)
  - Cold air-induced (skier's nose)
- Hormonal
- Atrophic
- Drug-induced: Aspirin, some vasodilators
- Occupational: (allergic or non-allergic)
- Infectious: Viral (acute), bacterial, fungal
- Chronic Rhinosinusitis with/without polyps

Images:
https://medlineplus.gov/ency/article/000813.htm
http://www.allbestvision.com/conditions/conjunctivitis.htm

Local Allergic Rhinitis

A clinical history of perennial and/or seasonal symptoms following allergen exposure

with
negative SPT / specific IgE antibodies

but
a positive nasal allergen provocation test (NAPT) to aeroallergens.

7

Elderly Patients and Rhinitis

- *Up to 30% of the elderly, and >40% moderate to severe*
- Allergic rhinitis is the most common
- Drug induced rhinitis:
  - Alpha-1 adrenergic antagonists,
  - ACE-inhibitors
  - beta-adrenergic inhibitors
  - phosphodiesterase inhibitors
- Cholinergic hyper reactivity: clear rhinorrhea and excessive rhinorrhea in > 70%
- Physiologic and structural changes: nasal dryness, intranasal crusting, epistaxis, ulceration and atrophy of the nasal mucosa.
  - Reduced body water content and less effective nasal mucociliary clearance
  - Failing nasal cartilage elasticity and tip support which can further interfere with nasal airflow.
  - epithelial atrophy

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Allergic Rhinitis

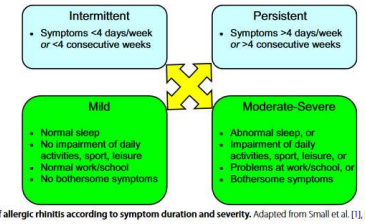
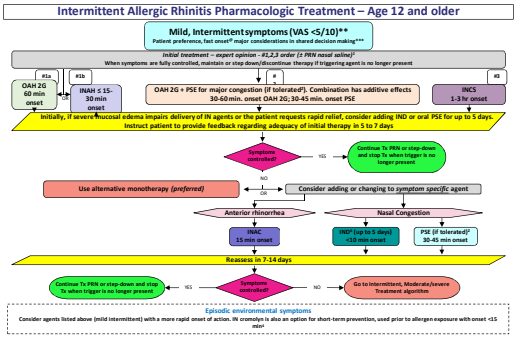


Fig. 1 Classification of allergic rhinitis according to symptom duration and severity. Adapted from Small et al. [1], Bousquet et al. [5]

9

Small et al. Allergy Asthma Clin Immunol 2018, 14(Suppl 2):51
Rhinitis 2020: A Practice Parameter Update 1 Dykewicz MS et all In press

Intermittent Allergic Rhinitis Pharmacologic Treatment – Age 12 and older



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In press

2nd and 3rd Generation Antihistamines

Fein et al. Allergy Asthma Clin Immunol (2019) 15:67
https://doi.org/10.1186/s13223-019-0375-9

Allergy, Asthma & Clinical Immunology

REVIEW Open Access

CSACI position statement: Newer generation H_1-antihistamines are safer than first-generation H_1-antihistamines and should be the first-line antihistamines for the treatment of allergic rhinitis and urticaria

Michael N. Fein[1], David A. Fischer[2,3*], Andrew W. O'Keefe[4] and Gord L. Sussman[5]

Canadian Society of Allergy and Clinical Immunology[1]
ARIA Allergic Rhinitis Guidelines[2]
International Urticaria Guidelines[3]

ALL recommend the use of ***Second Generation Antihistamines ONLY***

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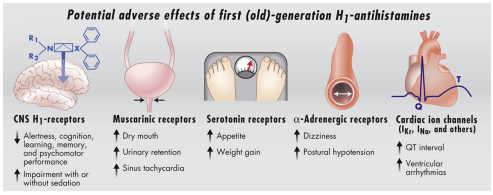
1st Generation Antihistamines are No Longer Recommended



Anticholinergic side effects associated with higher risk of dementia > 70%
Alzheimer's Disease.

12

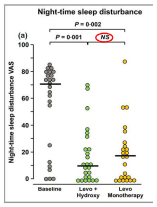
Sedating First Generation Antihistamines At Night Do Not Improve Sleep

- Many physicians combine a second-generation antihistamine (AH) in the morning with a sedating first-generation AH at night to enhance sleep
- Staevska et al. compared levocetirizine with or without nightly hydroxyzine

Treatments were equally effective in:

- *Decreasing symptoms*
- *Increasing quality of life*
- *Lack of nighttime disturbance*

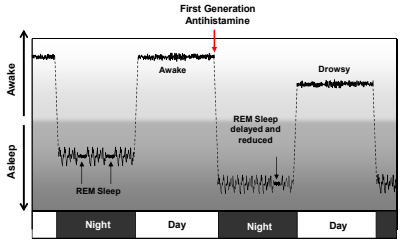
Hydroxyzine increased day-time somnolence



2nd generation antihistamine alone had equal improvements in urticaria symptoms and sleep but NO day time somnolence

Staevska M., et al. British Journal of Dermatology (2014) 171, pp148–154

Sedating Antihistamines Negatively Impact REM Sleep



Church M, Maurer M, et al. Allergy 2010; 65: 459-66

2nd and 3rd Generation Antihistamines

Generic Name	Brand	Prescription	OTC	$/30 tabs
Bilastine(2)	Blexten™	✓		?
Cetirizine(3)	Reactine®	✓	✓	?
Cetirizine	Generic			?
Desloratadine(3)	Aerius®		✓	?
Fexofenadine(3)	Allegra®		✓	?
Loratadine(2)	Claritin®		✓	?
Rupatadine(2)	Rupall™	✓		?

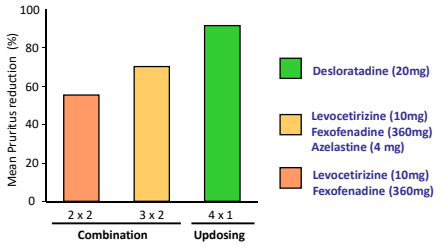
Bilastine, Rupatadine & Cetirizine - Product Monograph Comparison

Category	Bilastine[1]	Rupatadine[2]	Cetirizine[3]
INDICATIONS	≥ 12 years SAR, ≥18 CSU	≥2 years SAR, PAR, CSU	≥12 years SAR, PAR, CSU 2-12 years SAR & Hives
CONTRAINDICATIONS	History of QT prolongation and/or torsade de pointes	History of QT prolongation and/or torsade de pointes Use with CYP3A4 inhibitors Use with other QTc-prolonging drugs	Renal impairment: CrCl <10 ml/min
ONSET OF ACTION	1 hr	1-2 hrs	20-60 min
METABOLISM	Not metabolized	Metabolized by cytochrome P450 (CYP 3A4) Metabolites include desloratadine	Less extensively metabolized than other antihistamines 60% excreted unchanged
ORGAN DYSFUNCTIONS REQUIRING DOSE CHANGE	None	Not recommended patients with renal or hepatic impairment	Moderate hepatic or renal impairment: dose adjustment is required
SOMNOLENCE RATES (therapeutic dose)	SAR & CSU: 4.1%	AR: 8.8% CSU: 2.7%	AR & CSU, 10 mg: 9.6% AR & CSU, 20 mg: 23.9%
FOOD/JUICE	Grapefruit juice & food reduce bioavailability by ~25-30%	Grapefruit juice increases exposure by 3.5x	Food slows the absorption No affect on bioavailability (measured by AUC)

1. BLEXTEN Product Monograph 2018
2. Rupall Product Monograph 2017
3. Reactine Product Monograph 2016

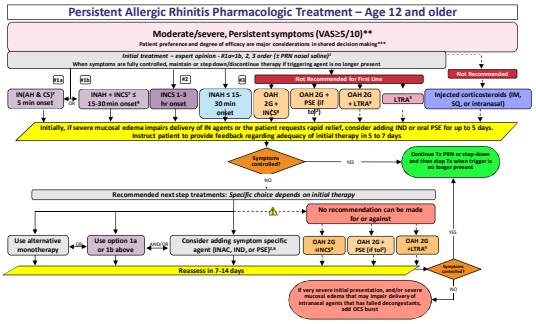
Combining Antihistamines vs. Updosing One AH

- 67 patients with chronic pruritus caused by skin disease or chronic pruritus of unknown origin
- Treatment: desloratadine, levocetirizine/fexofenadine or levocetirizine/fexofenadine/azelastine



Combination was not more effective than the high dosage monotherapy

Schulz et al., Hautarzt 2009



In press

Inhaled Nasal Corticosteroids (2)

- Intranasal corticosteroids as monotherapy
  -perennial and seasonal allergic rhinitis
- Intranasal decongestant added for up to 5 days of use for severe nasal mucosal edema
- Persistent nasal congestion unresponsive to an intranasal corticosteroid or to an intranasal corticosteroid/intranasal antihistamine combination - add intranasal decongestant for up to 4 weeks.
- Oral decongestant agents be used with caution

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Intranasal Corticosteroids

Generic	Trade name	Prescription	OTC	Cost $
Budesonide	Rhinocort Aq 60/100	✓		?
Budesonide	Rhinocort Turbuhaler	✓		?
Ciclesonide	Omnaris	✓		?
Fluticasone proprionate	Flonase	✓	✓	?
Fluticasone proprionate	Generic	✓		?
Fluticasone Furoate	Avamys	✓		?
Flunisonide	Nasacort	✓	✓	?
Beclomethasone	Beconase	✓		?
AzelastineHCL/Fluticasone proprionate	Dymista	✓		?

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When to Consider Allergen Immunotherapy SCIT/SLIT

1. Should be recommended if pharmacologic therapy for AR is not effective or is not tolerated
2. Patient is having side effects to medical therapy or does not wish to take medical therapy
3. Consideration by the patient and/or family physician of immunotherapy to treat AR

21

Allergens of Proven Efficacy in Double Blind Placebo Controlled Subcutaneous Immunotherapy Studies

Pollens
Cat
House dust mites
Hymenoptera venoms

Few data (though encouraging) are available for dog dander and mould allergens

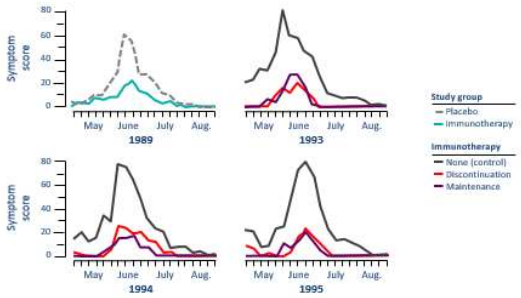
22

Subcutaneous Immunotherapy

- Aqueous year round
- Allergoid
  - Preseasonal trees, grass
  - Preseasonal ragweed

23

Long-term Clinical Efficacy of Grass-Pollen IT: Results



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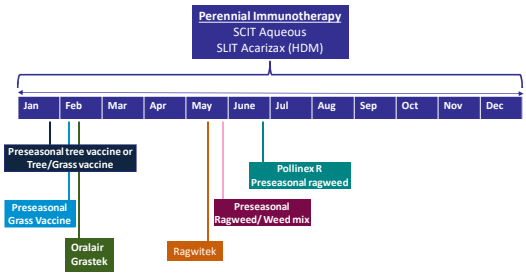
Durham SR, et al. N Engl J Med 1999;341:468-75

Immunotherapy SCIT/SLIT



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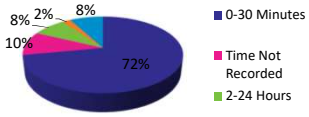
Administering Subcutaneous IT

26

Contraindications/Precautions for SCIT

- Severe or uncontrolled asthma
- Concomitant use of beta-blockers or ACE inhibitors
- Patients must wait 30 minutes post injection – SCIT



- Eosinophilic esophagitis - SLIT

27

SCIT = subcutaneous immunotherapy

Sublingual Immunotherapy

*The **SQ tree SLIT-tablet** is highly effective and well tolerated: Results from a randomized, double-blind, placebo-controlled phase III trial*
Biedermann, JACI., 143, March2019

28

SCIT vs. SLIT: Efficacy

	SCIT	SLIT
Efficacy shown in RCTs	+++	+++
Mechanism of action identified	+++	++
Standardized dosing in RCTs	++	+++
Disease-modifying	++	++

29

SCIT vs. SLIT-T: Safety

	SCIT	SLIT
Administration at home	-	+++
Risk anaphylaxis	+++	+
Local side effects	+	++
Use in pediatrics	+	++

30

Prior to the First Dose

- Physician must be present with appropriate resuscitation equipment
- Patients should be counselled that they may feel itching in the mouth or throat, swelling in and around the mouth, itching in the ears
  - These sensations typically self-resolve over 30 minutes
  - Over time, the sensations occur less frequently
- Proper oral examination should be completed
  - SLIT may be contraindicated in patients with severe inflammatory conditions in the oral cavity

31

Increased Risk for Anaphylaxis

- Poorly controlled asthma
- Multiple severe allergies
- High doses of allergen
- Use of betablockers
- Build-up phase
- Use of new vials
- Technical errors

- Millions of subcutaneous immunotherapy injections are administered annually. The risk of a fatal or near-fatal systemic reaction is extremely small, but not completely absent.
- Physicians prescribing or administering subcutaneous immunotherapy should be aware of these risks and institute appropriate procedures to minimize them.

32

Sublingual immunotherapy tablet for the treatment of house dust mite allergic rhinitis in Canada: an alternative to minimize treatment costs?

- The direct treatment costs for a 3-year treatment with SQ HDM SLIT-tablets were higher than for HDM SCIT for both provinces, Ontario and Quebec ($4732.12 and $4829.03 vs. $3434.51 and $2987.74). However, when adding the indirect costs to the model, total savings for the treatment with SQ HDM SLIT-tablets of $1833.00 for Ontario and $769.03 for Quebec were observed. Sensitivity analyses with varying HDM SCIT resource use, discount rates, titration and maintenance injections, nurse time, and number of injections per vial resulted in savings of SQ HDM SLIT-tablets over HDM SCIT in all scenarios analysed.

33

Ellis, A. *Allergy Asthma Clin Immunol* **15,** 27 (2019)

Contraindications to SLIT

- Eosinophilic esophagitis
- Uncontrolled asthma
- Starting too close to the allergy season
- Relative (see following slides):
  - Beta-blockers
  - ACE inhibitors

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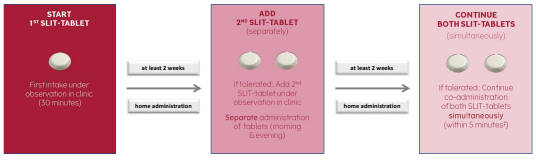
Co-administration of SQ SLIT-tablets*†[1]

Co-administration of SQ grass and ragweed SLIT-tablets was well-tolerated

- The trial had 3 periods, each of 2 weeks duration. The primary end point was the proportion of subjects with 1 or more local swelling events in each period
  - In period 1, subjects received **once-daily SQ grass SLIT-tablet**
  - In period 2, subjects received the **SQ ragweed SLIT-tablet every morning and SQ grass SLIT-tablet every evening**
  - In period 3, subjects received **once-daily grass and ragweed SLIT tablets within 5 minutes (simultaneous intake)**



*This regimen is based on clinical evaluation assessing the co-administration of the SQ grass SLIT-tablet and SQ ragweed SLIT-tablet. †This information is provided for guidance only and individual therapeutic management decisions should be based on the clinical judgement of the responsible physician. ‡After 1 minute sublingual holding time. SLIT, sublingual immunotherapy; SQ, standardized quality; ragweed SLIT-tablet, ragweed sublingual immunotherapy tablet.

1. Maloney J et al. *J Allergy Clin Immunol.* 2016;138:111-8.

35

Immunotherapy Conclusions

- AR is common
- The first line treatment is intranasal corticosteroids
- SCIT is effective in the treatment of AR
- SLIT is a new, effective treatment option in AR
  - Demonstrated safety
  - Suitable for pediatric use
  - Administered at home

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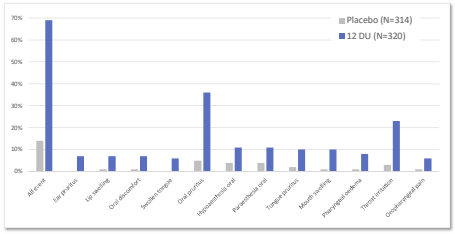
Most Frequently Reported AEs

Proportion of subjects reporting treatment related AEs (safety analysis set)



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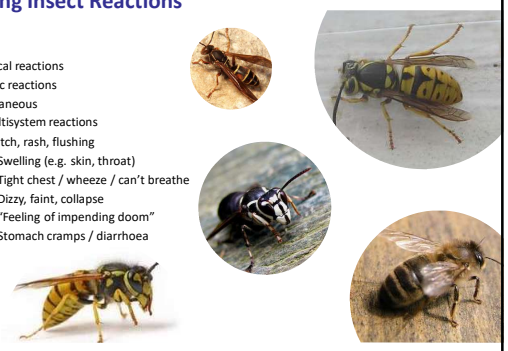
Stinging Insect Reactions

- Local
- Large local reactions
- Systemic reactions
  - Cutaneous
  - Multisystem reactions
    - Itch, rash, flushing
    - Swelling (e.g. skin, throat)
    - Tight chest / wheeze / can't breathe
    - Dizzy, faint, collapse
    - "Feeling of impending doom"
    - Stomach cramps / diarrhoea



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Risk of Reactions

Local
- 1-3%

Large local reactions
- 4-10%

Cutaneous systemic reactions
- <16 years 4-10% of another similar reaction
- <3% of more severe reaction
- <1% of a life threatening reaction
- >16 years – 3% of more severe reaction

Systemic reactions
- 30 - 60%

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Treatment: Insect Venoms

- **What we treat with**
  - Honey bee, Yellow jacket, White faced hornet, Yellow hornet, Wasp
  - Mixed vespids
- **Venom Immunotherapy**
  - Patients who have had a systemic insect sting reaction, who have a positive skin or in vitro test response
  - 3-5 years
  - Life-long for some
  - Mastocytosis

40

Testing Not Indicated

- Large local insect bites
- Family history of insect sting anaphylaxis

- Why not test everyone?
  - +ve skin test results for venom IgE are present in more than 20% of healthy adults
  - 5% to 15% of those with such asymptomatic sensitization will have a systemic reaction to a subsequent sting, and most will lose the sensitivity over time.

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Food Allergy

- Current treatment

- Absolute avoidance
- Read Labels
- Carry Epipen autoinjector

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3 Main Approaches

Sublingual Immunotherapy	No commercial studies currently
Epicutaneous Immunotherapy	Currently in Phase 3 ?2020
Oral Immunotherapy	Finished Phase 3 ?2020

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Epicutaneous Immunotherapy

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http://www.jefferies.com/CMSFiles/Jefferies.com/files/DBV%20Technologies.pdf

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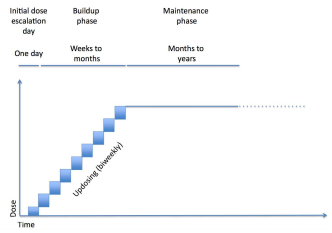
VOLUME 5, NUMBER 2



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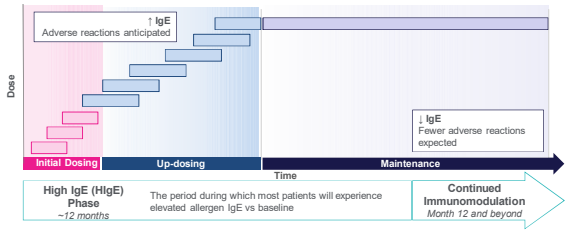

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Efficacy

- OIT is routinely over 80-90% successful in desensitizing patients
- Multiple types of foods
- Both in private practice and clinical trials – all with different protocols

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The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

AR101 Oral Immunotherapy for Peanut Allergy

The PALISADE Group of Clinical Investigators*

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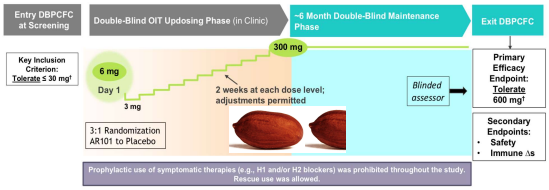
November 18, 2018, at NEJM.org



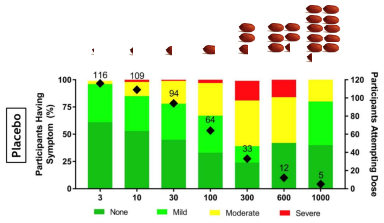
http://www.aimmune.com/wp-content/uploads/2018/03/AAAAI-WAO-2018-Efficacy-and-Safety-of-AR101-in-Peanut-Allergy-Results-from-a-Phase-3-Randomized-Double-Blind-Placebo-Controlled-Trial-PALISADE.pdf

Completer Efficacy: Percent of Patients Tolerating Each Dose in Exit DBPCFC[1]

	300 mg	600 mg	1000 mg
AR101 (n=296)	96.3%	84.5%	63.2%
Placebo (n=116)	8.6%	4.3%	2.6%
95% CI difference	(78.0–97.3%)	(69.7–90.6%)	(49.9–71.3%)
p-value	p<0.00001	p<0.00001	p<0.00001

[1] Ages 4–17

https://www.businesswire.com/news/home/20180220005722/en/Aimmune-Therapeutics%E2%80%99-Pivotal-Phase-3-PALISADE-Trial



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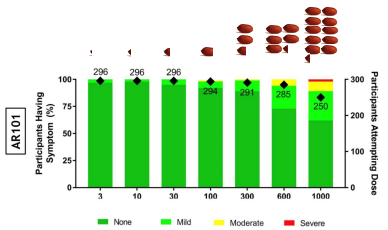

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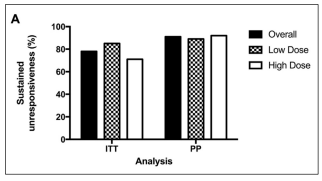
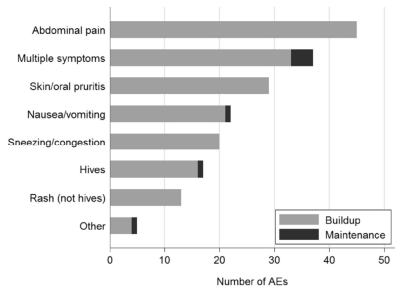
Early oral immunotherapy in peanut-allergic preschool children is safe and highly effective

Brian P. Vickery, MD,[a] Jelena P. Berglund, PhD,[b] Caitlin M. Burk, BA,[a] Jason P. Fine, PhD,[a] Edwin H. Kim, MD, MHS,[a] Jung In Kim, MS,[a] Corinne A. Keet, MD, PhD,[a] Michael Kulis, PhD,[a] Kelly G. Orgel, BS,[a] Rishu Guo, MD, PhD,[a] Pamela H. Steele, CPNP,[a] Yamini V. Virkud, MD, MPH,[a] Ping Ye, PhD,[a] Benjamin L. Wright, MD,[a] Robert A. Wood, MD,[a] and A. Wesley Burks, MD[a]
Chapel Hill and Durham, NC; Baltimore, Md; Boston, Mass; and Scottsdale, Ariz.



(J Allergy Clin Immunol 2017;139:173-81.)



(J Allergy Clin Immunol 2017;139:173-81.)

EAACI Guidelines on Allergen Immunotherapy: IgE-mediated Food Allergy

Authors:

[1]Giovanni B. Pajno*, [2]Montserrat Fernandez-Rivas*, [1,3]Stefania Arasi, [4]Graham Roberts, [5]Cezmi A. Akdis, [6]Montserrat Alvaro-Lozano, [7]Kirsten Beyer, [8]Carsten Bindslev-Jensen, [9]Wesley Burks, [10]Motohiro Ebisawa, [11]Philippe Eigenmann, [12]Edward Knol, [13]Kari C. Nadeau, [14]Lars K. Poulsen, [15]Ronald van Ree, [16]Alexandra F. Santos, [16]George du Toit, [17]Sangeeta Dhami, [18]Ulugbek Nurmatov, [19]Yanne Boloh, [20]Mika Makela, [5]Liam O'Mahony [21]Nikolaos Papadopoulos, [22]Cansin Sackesen, [23]Ioana Agache, [24]Elizabeth Angier, [25]Susanne Halken, [26,27]Marek Jutel, [3]Susanne Lau, [28,29]Oliver Pfaar, [30]Dermot Ryan, [31]Gunter Sturm, [32]Eva-Maria Varga, [33]Roy Gerth van Wijk, [30]Aziz Sheikh, and [34]Antonella Muraro, on behalf of EAACI Allergen Immunotherapy Guidelines Group

* Denotes equal contribution

ALLERGY. 2017 SEP 27. DOI: 10.1111/ALL.13319

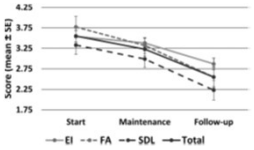
1 **Box 11a.** Recommendations on efficacy of OIT in children with peanut allergy

Recommendations	Evidence level	Grade of recommendation	Strength of recommendation	Other considerations
OIT is recommended as a treatment option to increase the threshold of reaction while on treatment in children with peanut allergy	I	A	Strong recommendation based on convincing evidence for effect from high quality RCTs	Risk of adverse reactions to be considered

ALLERGY. 2017 SEP 27. DOI: 10.1111/ALL.13319

Changes in HRQoL Throughout the Whole Process of OIT

Changes in the FAQLQ-PF scores[1]



Significant differences were found for FA, SDL, and total score between start and maintenance and for all domains from maintenance to follow-up.

- Prospective study of 175 subjects undergoing OIT matched with age- and sex-matched food-allergic children (n=48) not doing OIT[2]
- Authors' concluded HRQoL food-allergic children improved significantly upon reaching OIT maintenance, with additional improvement 6 months later[1]
- Improvements in QoL reflect a recent 2-year longitudinal study (open-label TAKE-AWAY peanut OIT) that reported generic QoL improved after 2 years of peanut OIT (at 5000 mg/day)[2]

EI, emotional impact; FA, food anxiety; FAQLQ-PF, Food Allergy Quality of Life Questionnaire-Parental Form; HRQoL, health-related quality of life; OIT, oral immunotherapy; QoL, quality of life; SDL, social and dietary limitations.
1. Jepsen-Rybb N et al. J Allergy Clin Immunol Pract. 2020;7(2):629-636.e2. 2. Nurmatov-Tirri E. Pediatr Allergy Immunol. 2019;30(6):608-615.

Efficacy and Safety of Sesame Oral Immunotherapy—A Real-World, Single-Center Study

- ***What is already known about this topic?*** Sesame avoidance, the only current treatment for sesame allergy, is becoming harder to perform with the increasing presence of sesame in Western diet. Oral immunotherapy is effective in desensitizing milk, peanut, and egg allergy.
- ***What does this article add to our knowledge?*** Sesame oral immunotherapy is highly effective, desensitizing more than 88% of allergic patients, and is associated with immunologic markers of desensitization. Adverse reactions, with some requiring epinephrine, occur during build-up, but their rate declines significantly during maintenance.
- ***How does this study impact current management guidelines?*** The promising results of this study could be used to drive further prospective randomized controlled studies that would eventually enable the inclusion of sesame in formal recommendations for oral immunotherapy.

Liat Nachshon *JACI PRACT NOV/DEC 2019*

Mindset Change: Equipping Families to Successfully Navigate Food Allergy Therapy

- Extensive education and discussion are central to *creating the required mindset*

Understanding the nature of treatment

- Intentional ingestion that is *physician-endorsed and supported*
- Elective
- Non-curative
- Possibly lifelong
- Often discontinued

Understanding the nature of the associated risk

- Reactions will occur routinely at home
- Some reactions may be severe
- Risk is daily and remains even during long-term maintenance
- Training will ensure families are well-prepared to respond to a reaction at home

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IS THERE A DOCTOR IN THE ROOM
MANAGEMENT OF EMERGENCIES FOR THE NON-ER MD

Robyn Shafer MD CCFP(EM)
Emergency Physician, North York General Hospital
ACLS Medical Director
Lecturer, DFCM, University of Toronto

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

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Is there a doctor on board?!

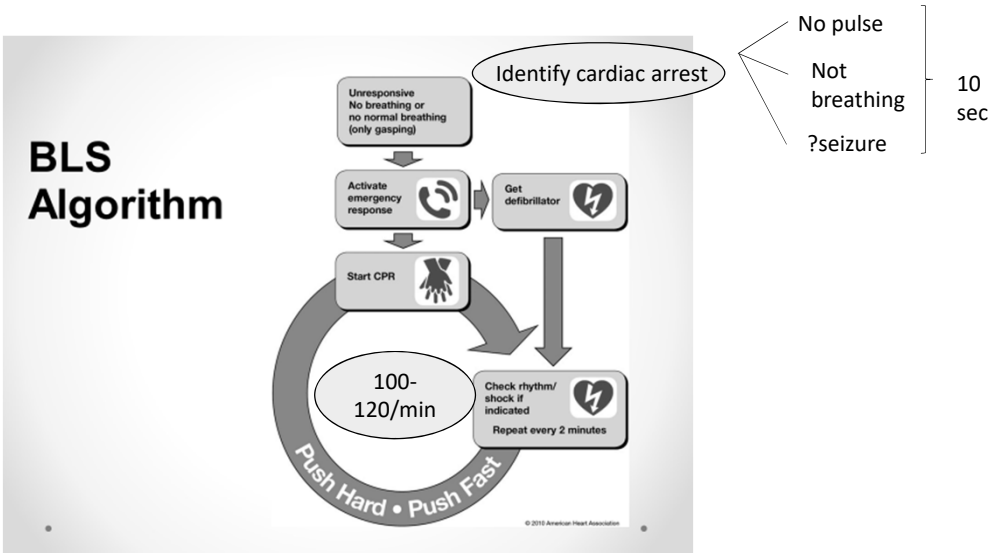
Robyn Shafer, MD, CCFP(EM)

Tips for in-flight medical emergencies

- Normal O2 sat at high altitude: 90%
- Ask for medical kit, oxygen, AED early
- Keep open communication with flight attendants, pilot and ground-based telemedicine support

Approach to the unresponsive patient

- C- circulation
  - -pulse check and CPR if needed
  - Call for AED if no pulse, defibrillate if needed
- A- airway (head tilt chin lift or jaw thrust)
- B-Breathing
  - Rescue breathing or BVM
  - Supplemental O2
  - Meds e.g. bronchodilators



Anaphylaxis is highly likely when any 1 of the following 3 criteria is fulfilled following exposure to an allergen:

1	**Acute onset of an illness** (minutes to several hours) **with involvement of the skin, mucosal tissue, or both** (e.g. generalized hives, pruritis or flushing, swollen lips-tongue-uvula) **and at least 1 of the following**: **a.** Respiratory compromise (e.g. dyspnea, wheeze-bronchospasm, stridor, reduced PEF†, hypoxemia) **b.** Reduced BP‡ or associated symptoms of end-organ dysfunction (e.g. hypotonia [collapse], syncope, incontinence)
2	**2 or more of the following that occur rapidly after exposure to a <u>likely</u> allergen for that patient** (minutes to several hours): **a.** Involvement of the skin-mucosal tissue (e.g. generalized hives, itch-flush, swollen lips-tongue-uvula) **b.** Respiratory compromise (e.g. dyspnea, wheeze-bronchospasm, stridor, reduced PEF, hypoxemia) **c.** Reduced BP or associated symptoms (e.g. hypotonia [collapse], syncope, incontinence) **d.** Persistent gastrointestinal symptoms (e.g. painful abdominal cramps, vomiting)
3	**Reduced BP after exposure to a <u>known</u> allergen for that patient** (minutes to several hours): **a.** Infants and children: Low systolic BP (age-specific) or greater than 30% decrease in systolic BP§ **b.** Adults: Systolic BP of less than 90mmHg or greater than 30% from that person's baseline

National Institute of Allergy and Infectious Disease and the Food Allergy and Anaphylaxis Network

Seizures

- Assess C-A-B
  - May only be able to once stop seizing
- Active seizing:
  - Lay patient on side
  - Remove any obstacles
  - If lasts longer than 5 minutes, initiate treatment
    - Lorazepam 0.1mg/kg; midazolam 0.2mg/kg; diazepam 0.3mg/kg IM
    - ?consider sublingual Lorazepam

Chest Pain

- ASA saves lives
  - -proven in many trials to reduce mortality
  - ONLY contraindication is anaphylaxis to ASA

Questions?

robyn.shafer@utoronto.ca

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PAEDIATRIC DERMATOLOGY

Miriam Weinstein MD FRCPC
Paediatric Dermatologist,
North York General Hospital

Pan Pacific Toronto, Toronto, ON
Saturday, January 18, 2020

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Paediatric Dermatology

Miriam Weinstein MD FRCPC

NAIL LESIONS

Disclosures

- 2013-2015: I have received honoraria or consulting fees from:
  - Pediapharm: Honoraria
  - Galderma: Honorarium
  - Johnson & Johnson: Ad Board, Consultant Honorarium
  - Valeant: Ad Board, Consultant
  - Valeo: Ad Board, Honorarium, Consultant
  - Tribute: Ad Board, Honorarium, Consultant
  - La Roche Posay: Ad Board, Consultant, Honorarium
  - Pierre Fabre: Ad Board, Consultant
- I will discuss off-label use of medications

Onychomadesis

- Transverse break in nail with distal sloughing
  - Nail separates from matrix
  - Remains adherent to nail bed
- Usually post-illness
- Many recent case series:
  - post Coxsackie virus
- Can be some or all of nails
- New nail grows in normally

Int J Dermatol. 2015 Sep;54(9):1039-44; Br J Dermatol. 2015 Mar;172(3):592-6

Objectives

The learner will be able to:

1. Distinguish common, similar-looking skin lesions based on history and morphology
2. Initiate first-line management for common paediatric dermatologic conditions

Trachyonychia

- "20 nail dystrophy"
- Longitudinal ridging of nails
- Loss of luster
- Can affect 1-20 nails
- Can last years but often improves
- May have association with other skin disease
  - E.g. Alopecia, Psoriasis, AD

Pediatr Dermatol. 2015 Mar-Apr;32(2):198-200

Nail Psoriasis

- Can be seen in ~ 30-40% of pts with psoriasis
- Can be only feature of psoriasis
- Fingernails > toenails
- Pits, onycholysis, “oil spot” change
- Treatment of isolated nail psoriasis:
  - Potent topical steroid
  - Potent topical retinoid
  - Calcipotriol/calcipotriene
  - Systemic therapy

Management-Onychomycosis

- Always send culture if planning treatment!
- Oral anti-fungal agents
  - Off-label
  - Often need 6-12 weeks
  - Dosing similar to tinea capitis
- Topical (also off-label in kids)
  - Cyclopirox olamine nail lacquer nightly up to 1 year
  - Efinaconazole gel nightly for months
  - Low side effect profile

Paronychia

- Swollen, red, painful
- May express pus under proximal nail fold
- Acute:
  - Staph aureus or GABHS following trauma
  - HSV “whitlow”
- Chronic:
  - Candida
    - May be secondary
    - Primary problem may be contact dermatitis

ECZEMA AND COMPLICATIONS

Onychomycosis

- Rare in childhood
  - If prepubertal: often there is a household contact
  - Toenails usually
  - Usually tinea pedis as well
- Distal subungual variant: T. rubrum
  - Subungual hyperkeratosis, onycholysis
- White superficial variant: T.mentagrophytes

Eczema Herpeticum

- HSV infection of underlying eczema
- Can be recurrent
- Spreads rapidly
- Often superinfected with bacteria
- “Punched out” erosions & vesicles
  - On background of dermatitis
  - Monomorphous
- Patient may have systemic symptoms

Eczema Herpeticum: Management

- High index of suspicion for diagnosis
- Confirm with viral culture/PCR from lesion
- If unwell, <1 year, poor fluid intake:
  - Admit and treat with IV acyclovir
- If well, good fluid intake, good follow-up
  - Oral acyclovir for 10 days
- Add antibiotics if necessary
- Saline compresses help wound-healing

SCALP ERUPTIONS

Scabies

- Acute eruption
- Significant pruritus
- Polymorphous eruption:
  - Dermatitis
  - Papules and pustules
  - Acute eruption
  - Palms/soles, webs, axillae, areola, umbilicus

Tinea Capitis: Epidemiology

- Most common in pre-pubertal children
- More common in African Americans
- ***T. Tonsurans major agent in North America***
  - Anthropophilic (human reservoir)
  - Easily transmitted from person-to-person
- ***M. Canis*** is second most common
  - Zoophilic (cats and dogs are reservoirs)
  - More inflammatory
- **Always Send Culture!!!**

Treatment of Scabies: Patients and Close Contacts

- Permethrin 5% cream most effective
- Infants: treat whole body
- Older kids & Adults: treat from neck down
- Leave on overnight and wash in am
- Re-treat 1 week later
- Low side-effect profile
- May require topical steroids for itch
- Launder clothes/linen from last 3 days

Tinea Capitis Clinical Manifestations

- **Non-inflammatory**
  - Scaly patch
  - Patchy or no alopecia
  - "black dot" tinea
  - "gray patch" tinea
  - Mild increase in dandruff
  - Non-tender adenopathy
- **Inflammatory**
  - Pustules
  - Alopecia
  - Crusting
  - Erythema
  - Kerion:
    - Tender, boggy,oozing
  - tender adenopathy
  - scarring

Tinea Capitis
Differential Diagnosis

- Seborrheic Dermatitis
- Atopic dermatitis
- Alopecia Areata
- Psoriasis
- Bacterial Folliculitis
- Trichotillomania

Alopecia or scale with adenopathy is highly predictive of Tinea Capitis

Hubbard TW (1999). Arch Pediatr Adolesc Med. 153(11):1150-3.

Tinea Capitis:
Management

- Usually requires oral therapy
  - M. canis more resistant, needs longer therapy
  - Terbinafine, itraconazole, fluconazole
    - "off-label" but data supports use in t. capitis
- Terbinafine (2-8 weeks of therapy)
  - <20kg: 62.5mg/day
  - 20-40kg: 125mg/day
  - >40kg: 250mg/day
  - Side effects:
    - ↑liver enzymes, taste alteration, drug interactions, ↓ pmns
    - Company recommends pre-treatment liver enzymes

Tinea Capitis
Management

- Therapy to treat tinea capitis
- Treat complications
  - Secondary bacterial infection
  - Severe kerion
- Management to reduce spread
  - ?Use of regular antifungal spore-inhibiting shampoo
  - No sharing of hair-care products, hats, linen
  - Evaluate & culture contacts +/- antifungal shampoo

Roberts B, Friedlander S (2005). Pediatr Ann Mar;34(3):191-200

Seborrheic dermatitis

- Greasy or dry scale
- Yellow to white
- Usually diffuse through scalp
- "dandruff"
- May affect brows, perinasal area as well
- Caused by
  - Superficial yeast (malassezia furfur)
  - Inflammation
- Management:
  - Anti-dandruff shampoos (these are anti-fungal treatments)
  - 1% hydrocortisone in antifungal cream BID for facial flares

Tinea Capitis
Management

- Should always send culture!
  - Many causes of non-fungal scalp disease
  - M. canis may need longer therapy
- Treatment is oral therapy
- Comparison of griseofulvin and terbinafine
  - Large multicenter RCT
  - Terbinafine from 5-8mg/kg/day OR
  - Griseofulvin 10-20mg/kg/day
  - Tonsurans: terbinafine superior (mycologic, clinical)
  - Microsporum: griseofulvin superior (mycologic, clinical)

Elewski et al (2008) J am Acad Dermatol, 59(1); 41-54.

Scalp Psoriasis

- Chronic, recurrent
- Little or no pruritus
- May have psoriasis elsewhere
- Discrete plaques to widespread
- Thick scale-can shed and look like dandruff
- Hair is normal
- Management:
  - Tar-based and/or
  - anti-inflammatory shampoos and leave on treatments (e.g. Cortisone lotion BID prn)

VESICULAR ERUPTIONS

Impetigo: Treatment

- Local infection:
  - Fucidic acid or mupirocin tid x 7-10 days
- Recurrent infection
  - Check for nasal carriage
    - 2-4 days of mupirocin TID can treat MSSA
    - Can recolonize
- Widespread infection or complicated
  - Oral antibiotics
    - E.g., cephalexin good choice as it covers staph and strep

Impetigo

Nonbullous

- 70% of cases
- Staph aureus or GABHS
- Can't differentiate
- Common in summer
- Tiny pustule that quickly gets "honey-crust"

Bullous impetigo

- Infants and young children
- More common in summer
- Caused by Staph aureus *toxins*
- Flaccid transparent bullae

HSV Infections in Children

- Herpetic stomatitis
- Herpetic whitlow
- Often recurrent
- May be systemically unwell (with 1st)
- Morphology:
  - Tense vesicles
  - Erythematous base
  - grouped

Bullous Impetigo

- Bullous impetigo is localized
  - Toxin-induced bulla(e) secondary to Staph Aureus
  - Bacteria AND toxin in local lesion
  - Can get multi-focal bullous impetigo
  - Management as for non-bullous impetigo
    - Could use narrower Abx spectrum for Staph Aureus

HSV Infections in Children

- Swab base of vesicle for culture, PCR
  - Electron microscopy or DFA available in some places
- Mild:
  - Compresses
  - Analgesics
- Moderate-severe:
  - Acyclovir started early may help
    - Topical may help
    - Oral if more severe
      - Ensure drinking well

Herpes Zoster in Children

- Often preceded by radicular pain
- Postherpetic neuralgia is rare in kids
- Treatment is supportive
  - Wound care and analgesics
  - Routine antivirals not recommended
  - Treat: immune-compromised, eye involvement
- Thoracic and ophthalmic nerves most common
- Nasal tip zoster means nasociliary nerve involved
  - Associated with: Keratitis, scleritis, conjunctivitis
  - Needs ophthalmology assessment and treatment

Hand-Foot-Mouth Disease New Manifestations

- Newer eruptions may be caused by serotype A6
  - "classic HFM" most commonly caused by A16 (CVA16): N America
  - "classic HFM" most commonly caused by EV 71: Asia
- Onychomadesis more common with A6
- Work up:
  - PCR and/or culture
  - NP swab, viral skin swab, stool
- Self-limited
- Supportive management

Pediatrics June 2013; 132(1): *e149-e157*

Enterovirus: Hand-foot-mouth

- Enanthem:
  - Vesicles rupture leaving erosions on red base
  - buccal mucosa, tongue, palate, uvula, tonsils
  - Painful causing anorexia and dehydration
- Exanthem:
  - Gray-white vesiculopustules
  - +/- erythema
  - Palms, soles, dorsal hands & feet, buttocks, perineum

PAPULOSQUAMOUS ERUPTIONS

Hand-Foot-Mouth Disease New Manifestations

- Compared to "classic" HFM
  - More fulminant eruption
  - More extensive
- Different morphologies:
  - Vesicular>papular> petechial
- 2 Vesicular patterns
  - Can produce an eczema coxsackium in pts with eczema
    - Can look like eczema herpeticum
  - Widespread vesicular eruption beyond palms and soles

Pediatrics June 2013; 132(1): e149-e157

Tinea Versicolor

- M. furfur
  - Commensal yeast can become pathogenic
- Common in teens in sebaceous areas
- Trunk, proximal extremities
  - Thin, scaly, papules
  - Hyper or hypopigmented; not erythematous
- Treatment
  - Selenium sulfide shampoo (to all area x 15 minutes)
  - Topical antifungals,
  - Oral antifungals (widespread or recurrent)

Tinea Corporis and its variants:
Clinical presentation

- Caused by dermatophytes
- Scaly, red plaques with central clearing
- Often have active border or leading edge
- +/- pruritus
- Diagnosis: Clinical or scale for KOH/C & S
- Differential Dx:
  - Psoriasis
  - Nummular eczema
  - Pityriasis rosea

Pityriasis Rosea: Treatment

- Usually not needed
- Exceptions:
  - Symptomatic (pruritic)
  - Darker-skin patients more likely to hyperpigment
- If need treatment:
  - Usually topical cortisones
  - Erythromycin has been effective

Topical treatment for tinea corporis

- **Azoles:**
  - ketaconazole (Nizoral)
  - Miconazole (Micatin)
  - Clotrimazole (Canestan)
- **Allylamines:**
  - Terbinafine (Lamisil)
- **Ciclopirox Olamine** (Loprox)
- **Polyenes:**
  - Nystatin: good for candida but NOT dermatophytes

Pityriasis Rosea

- Acute, self-limiting scaly eruption
- Can last up to 12 weeks
- Thought to be viral
- Trunk and extremities
- Oval papule with characteristic scale
  - Starts as single, large papule: Herald patch
  - Other papules develop
  - Classic presentation: "Christmas tree" pattern

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RED EYE FOR THE FAMILY DOCTOR

Kathy Cao MD FRCSC
Ophthalmologist,
North York General Hospital

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HOT TOPICS IN CHILD AND ADOLESCENT CASE BASED DISCUSSION

Samantha Martin MD FRCPC
Paediatrician, North York General Hospital

Notes not available at time of printing.

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BOWEL AND BLADDER DYSFUNCTION IN CHILDREN

Ronik Kanani MD FRCPC
Chief of Paediatrics
Co-Medical Director, Maternal,
Newborn & Paediatric Program
North York General Hospital

Notes not available at time of printing.

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