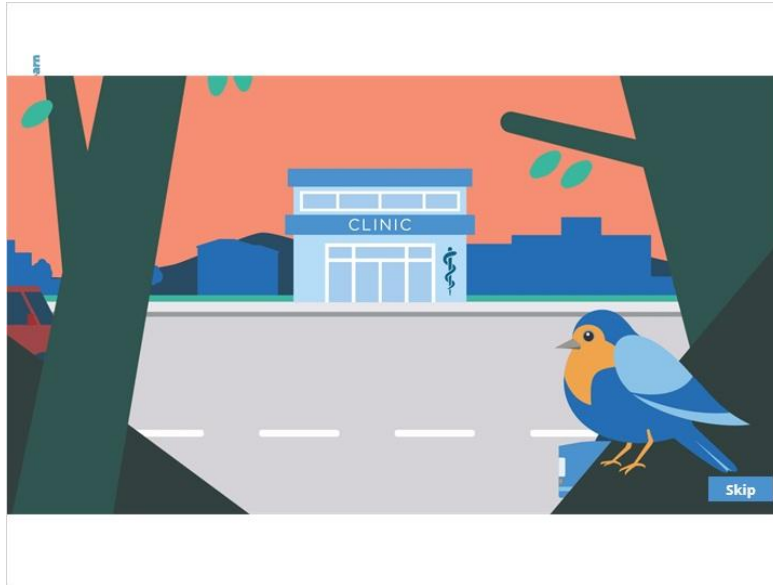


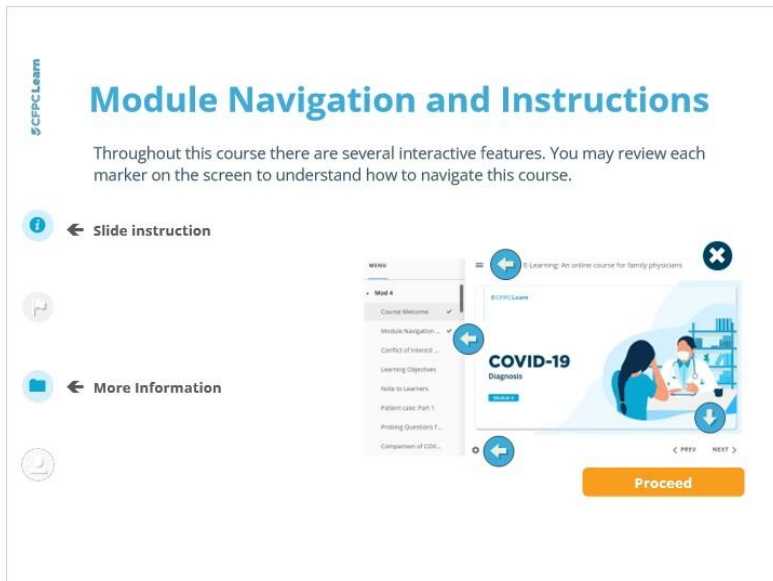
Case 49 Algae Epione

1. Conflicts

1.1 Intro Video



1.2 Module Navigation and Instructions



1.3 Learning Objectives

CFPC Learn

1

2

3

4

Learning Objectives

At the end of this module participants should be able to:

1. Identify key factors/findings in family medicine to help establish common clinical diagnoses.
2. Evaluate best evidence/guidance and practice tools to determine preferred treatment options for patients.
3. Synthesize patient preference, evidence and experience to formulate comprehensive plans for patient cases.

 Approximately 15 minutes to complete each patient case.

Proceed

2. Ms Algae Epione

2.1 Meet Algae Epione

CFPC Learn

1

2

3

4

Ms Algae Epione

Algae is a 39-year-old mother of five and a successful fashion designer. You have been following her for migraines, which she has been managing with naproxen and acetaminophen.

Algae

What do you think?



Algea (Slide Layer)

SCFPCLearn

Ms Algea Epione

Algae: I've been having a hard time with migraines lately. With five kids and work, I can't just lie down in bed and wait for it to go away.

Algae

What do you think?




2.2 Multiple choice question

(Multiple Response, 10 points, 1 attempt permitted)

SCFPCLearn

Which of the following findings would be consistent with a migraine? Choose five.



☒ Pulsating headache

☐ Focal weakness

☒ Duration: 4-72h

☐ Vomiting

☒ Unilateral headache


☒ Nausea

☒ Disabling headache



☐ Aggravated with Vasalva

Submit

2.3 Review



Review




Answer: Pulsating headache, duration 4-72 hours, unilateral headache, nausea, disabling headache are all consistent with migraine.

The POUNDing acronym



Click on the buttons to view additional information

Moving Forward

POUNDing (Slide Layer)



Review



Answer: Pulsating headache, duration 4-72 hours, unilateral headache, nausea, disabling headache are all consistent with migraine.

The POUNDing acronym

- The best predictors of a migraine headache can be summarized by **POUNDing**: Pulsating, Duration 4-72 hOurs, Unilateral, Nausea, Disabling.
- If 4 of 5 criteria are met, the likelihood ratio (LR) is 24. If 3 of 5 are met, the LR is 3.5.
- A likelihood ratio greater than five is generally considered helpful to make a diagnosis.

Moving Forward

2.4 Meet Algae Epione

CFPCLearn

Ms Algae Epione

Are your migraines any different than usual?

No, it's the same old ones. Bad pain for a couple of hours, one side, very nauseous. I have to lie down in a dark room. Should you make sure that everything is OK? Do I need an MRI?

Algae's neurological examination is normal.

Moving Forward



2.5 True or False Question

(Multiple Choice, 10 points, 1 attempt permitted)


CFPCLearn

True or False?


For patients with episodic migraines and no red-flags, Choosing Wisely and other guidelines recommend against routine neuroimaging.

☒ True
☐ False


Submit



2.6 Answer



Review



Answer: True. For patients with episodic migraines and no red-flags, choosing wisely and other guidelines recommend against routine neuro-imaging.

Non-acute Headaches


Acute/changed Headaches

Predicting imaging abnormalities


Click on the buttons to view additional information

Moving Forward

Non-acute headache (Slide Layer)



Review



Answer: True. For patients with episodic migraines and no red-flags, choosing wisely and other guidelines recommend against routine neuro-imaging.

Non-acute Headaches

Acute/changed Headaches

Predicting imaging abnormalities


In a cohort of patients with **non-acute headache** (>4 weeks) seen in a neurology clinic, only 1.2% had significant intracranial abnormalities, most commonly hydrocephalus and brain tumors. This is comparable to the prevalence of incidental findings on MRI in the general population which was 0.7% (neoplastic findings) to 2% (non-neoplastic findings).

Moving Forward

Changing headache (Slide Layer)

SCFPCLearn

Review



Answer: True. For patients with episodic migraines and no red-flags, choosing wisely and other guidelines recommend against routine neuro-imaging.

Non-acute Headaches

Acute/changed Headaches

Predicting imaging abnormalities


The risk of significant intracranial abnormalities in **acute or changed** headache is higher. There is a lot of heterogeneity across cohorts. In a systematic review, the prevalence of significant abnormalities on imaging ranged from 5%-39%. Diagnoses to consider are strokes, intracranial hemorrhages, giant cell arteritis, or systemic disorders.

Moving Forward

Predicting imaging abnormalities (Slide Layer)

SCFPCLearn

Review



Answer: True. For patients with episodic migraines and no red-flags, choosing wisely and other guidelines recommend against routine neuro-imaging.

Non-acute Headaches

Acute/changed Headaches

Predicting imaging abnormalities

Features predicting serious intracranial abnormality on imaging:

- Very intense headaches with fast onset; LR 11
- Abnormal neurological examination: LR 5 (may be higher as older study CT images less sensitive)
 - Can be subtle (papilledema, decreased attention, ataxia)
 - Referral to optometrist/ophthalmologist for assessment of papilledema may be helpful if increased intracranial pressure suspected
- Undefined headache (not migraine or tension-type); LR 4

Moving Forward

2.7 Meet Algae Epione

SCFPCLearn

Ms Algae Epione

You: You've had the headaches for a while and they really are typical of migraines. There is no need to do head imaging. It won't help us.

Ok, if you don't think I need a scan... It would be reassuring though. I do trust you. I usually take acetaminophen and naproxen as soon as the headaches start. Do you think I should take something prescribed?

Moving Forward



2.8 True or False Question

(Multiple Choice, 10 points, 1 attempt permitted)

SCFPCLearn


True or False?

Prescription medications like triptans are more effective than over-the-counter (OTC) medications like acetaminophen, ASA, or naproxen.

☐ True

☒ False


Submit



2.9 Answer

CFPCLearn

Review



Answer: False

OTC Medications

Triptans


Click on the buttons to view additional information

Moving Forward

Medications (Slide Layer)

CFPCLearn

Review



Answer: False

OTC Medications


Triptans

OTC medications have similar efficacy to prescription medications for acute migraines.


Acetaminophen, ASA, ibuprofen, naproxen, diclofenac and sumatriptan all have numbers needed to treat (NNTs) of ~5 for 2-hour pain relief.

Moving Forward

Triptans (Slide Layer)



Review



Answer: False

OTC Medications

Triptans

Triptans are much more expensive.

For example,

- Six tablets of sumatriptan 100mg is approximately \$35.
- 50 tablets of ibuprofen 200mg is approximately \$10.

Moving Forward

2.10 Meet Algae Epione



Ms Algae Epione

How often do you get your migraines?

I get them about once a week, but even with the meds, I can't function for a few hours. With work and kids, it's not manageable.

We could try medications to make your migraines less frequent. You would have to take them every day.




Moving Forward





2.11 Multiple choice question

(Multiple Response, 10 points, 1 attempt permitted)

CFPCLearn

Which of the following is **false** about prophylactic medications?





☐ Anti-hypertensive medications are effective.

☐ Some anti-depressants are effective.

☐ Paresthesia is common with topiramate.

☒ CGRP-inhibitors are likely much more effective than other agents.


☐ Botulinum toxin (example: Botox) injections may be effective.





Submit

2.12 Answer

CFPCLearn

Review





Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

CGRP-inhibitors

Effectiveness

Comparisons

RCT Data

Click on the buttons to view additional information about CGRP-inhibitors.


Moving Forward

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CGRP-inhibitor (Slide Layer)

SCFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

CGRP-inhibitors

Effectiveness

Comparisons

RCT Data

CGRP-inhibitors are calcitonin gene-related peptide inhibitors. They are available as:


- Subcutaneous injections given every 1-3 months (erenumab, fremanezumab, galcanezumab, eptinezumab)
- Pills/tablets administered daily or every other day (atogepant and rimegepant).

Moving Forward

Effectiveness (Slide Layer)

SCFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

CGRP-inhibitors

Effectiveness

Comparisons

RCT Data

Calcitonin Gene Related Peptides inhibitors


- Patients with 50% reduction in migraines:
 - ~40% versus ~25% on placebo (NNT 7)
- 1-2 fewer migraine days per month
- Cost: ~\$7000/year.

Moving Forward

Comparative effectiveness. (Slide Layer)

SCFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

CGRP-inhibitors

Effectiveness

Comparisons

RCT Data

X


- CGRP-inhibitors are marketed as more effective due to their "migraine specific" mode of action. But generally, NNTs are similar to other prophylactic agents.
- However, there is one industry-funded randomized controlled trial suggesting a CGRP-inhibitor is more effective (and better tolerated) than topiramate.
- Thus, it is possible CGRP-inhibitors are better but the evidence not strong yet.

Moving Forward

RCT (Slide Layer)

SCFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

CGRP-inhibitors

Effectiveness

Comparisons

RCT Data

X

Only one head-to-head RCT: 777 patients randomized to CGRP-inhibitor (erenumab) or topiramate (50-100mg).


- 50% reduction in migraines/month:
 - 55% erenumab versus 31% topiramate, (NNT 4)
- Discontinued due to adverse effects:
 - 11% erenumab versus 40% topiramate.
- Suggests erenumab is better but some limitations: RCT funded by erenumab manufacturer; single study only; topiramate less effective than previous studies (e.g., 31% responded in this RCT versus 47% average response with topiramate in past RCTs).

Moving Forward

2.13 Answer

CFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

Anti-hypertensives

Antidepressants

Topiramate & VPA

Botox


Click on the buttons to view additional information about other medications for migraine prophylaxis.

Moving Forward

Anti-hypertensives (Slide Layer)

CFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

Anti-hypertensives

Antidepressants

Topiramate & VPA

Botox


- A number of antihypertensive medications are useful for migraine prophylaxis.
- The best data is for propranolol with an NNT of 4 (patients with 50% decrease in headache: 57% versus 30% on placebo).
- There is also evidence for lisinopril, candesartan and verapamil.

Moving Forward

Tricyclic Antidepressants (Slide Layer)

SCFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

Anti-hypertensives

Antidepressants

Topiramate & VPA

Botox

X


- Tricyclic antidepressants have similar efficacy to anti-hypertensives; NNT 8 (i.e., patients with 50% decrease in headache: 38% versus 24% on placebo)
 - Effective for migraines and tension type headaches.
- Doses as low as amitriptyline 10mg have been tried (mean dose: 80mg).
- There is also some evidence for venlafaxine while duloxetine has been less studied. No evidence for SSRIs.

Moving Forward

Topiramate (Slide Layer)

SCFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

Anti-hypertensives

Antidepressants

Topiramate & VPA

Botox

X


- Topiramate and valproic acid (VPA) have similar efficacy to anti-hypertensives and anti-depressants already discussed.
- Topiramate (100mg/day) has limited utility as ~20% of patients discontinue due to side-effects:
 - Paresthesia (NNH 3), taste disturbances (NNH 14), anorexia (NNH 17), fatigue (NNH 25) and memory problems (NNH 25).
- Side effects for VPA include dizziness (NNH 14), tremor (NNH 14), nausea (NNH 7).

Moving Forward

Botox (Slide Layer)

SCFPCLearn

Review



Answer: The statement that is false is "CGRP-inhibitors are likely much more effective than other agents."

Anti-hypertensives

Antidepressants

Topiramate & VPA

Botox

- Botox: Industry sponsored, small RCTs at risk of bias, show that patients who receive Botox injections have ~2 fewer migraine days per month compared to placebo, with unclear effect on the number of responders (patients with >50% decrease in headache).
- Adverse events: ptosis, muscle weakness, injection site pain.
- Cost: ~\$800 every 3 months. About 30-40 injections every 12 weeks. Some drug plans cover the price of the drug, but usually not the administration.

Moving Forward

2.14 Meet Algae Epione

SCFPCLearn

Guidelines

Guidelines recommend anti-hypertensives, antidepressants and anti-epileptics as first line agents. They differ, however, in their recommendations for specific agents within each class.

Given that the benefits are similar, a good strategy is to pick an agent based on additional benefits (e.g., hypertension, mood) if possible, and avoid those with undesirable side-effects (e.g., hypotension, sedation) or high cost.





Moving forward





2.15 Create a Plan





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Let's Make a Plan



Using what you have learned write a plan for Algae. It can include any/all of the following: lifestyle intervention(s), prescription intervention(s), lab(s)/test(s) required, follow up appointment time frame, and referral required.







Fill in your plan for the patient here

See how your plan compares





2.16 Plan Answers

CFPCLearn

Treatment Plan



This is the proposed plan for the patient. How does your plan compare?



Treatment considerations

Medication

Monitor

Next Appointment

Click on the buttons to see suggested answers

What's in a name?

Next Appointment (Slide Layer)

SCFPCLearn

Treatment Plan

This is the proposed plan for the patient. How does your plan compare?


Treatment considerations


Medication

Monitor

Next Appointment

What's in a name?



 You make a follow-up appointment in a month.

Monitor (Slide Layer)

SCFPCLearn

Treatment Plan

This is the proposed plan for the patient. How does your plan compare?


Treatment considerations


Medication

Monitor

Next Appointment

What's in a name?





 You ask her to monitor her migraines in a calendar.

Medication (Slide Layer)

SCFPCLearn

Treatment Plan



This is the proposed plan for the patient. How does your plan compare?


Treatment considerations

Medication

Monitor

Next Appointment



What's in a name?

 You therefore start her on propranolol 20mg PO BID. You warn her of the risk of low blood pressure and dizziness.

Treatment considerations (Slide Layer)

SCFPCLearn

Treatment Plan



This is the proposed plan for the patient. How does your plan compare?


Treatment considerations

Medication

Monitor

Next Appointment



What's in a name?

 Algae is thinking of getting pregnant, so ACEi/ARBs are contraindicated. She is also not keen on starting an anti-depressant.

Name (Slide Layer)

SCFPCLearn

Treatment Plan



This is the proposed plan for the patient. How does your plan compare?


Treatment considerations

Medication

Monitor

Next Appointment

What's in a name?



 **Meaning behind name: Algae Epione**

In Greek mythology, the Algae were three goddesses of pain, and Epione was linked to healing.

2.17 References

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References



Thanks for visiting the clinic!

References are available [here](#).

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