



Migraine Matters

Why we should care

What we can do

Dr Elizabeth Leroux, MD, FRCPC

Brunswick Medical Center

Benefits Canada Meeting, 2022

Disclosures

- Allergan/Abbvie: advisory board, speaker
- Aralez/Tribute: advisory board, speaker
- Eli Lilly: advisory board, speaker
- Lundbeck: advisory board, speaker
- McKesson: consultant
- Medscape: speaker
- Novartis: advisory board, speaker
- Teva: steering committee, advisory board

Melanie, 34

- Is struggling with migraine
- Coworkers know when she's in a migraine state
- Was missing 1-2 days per month or leaving early
- Recently went to the Emergency for a prolonged attack
- Now is wondering if she needs a medical leave
- Her mood is low
- Her physician does not seem very proactive

Is it all in our heads?

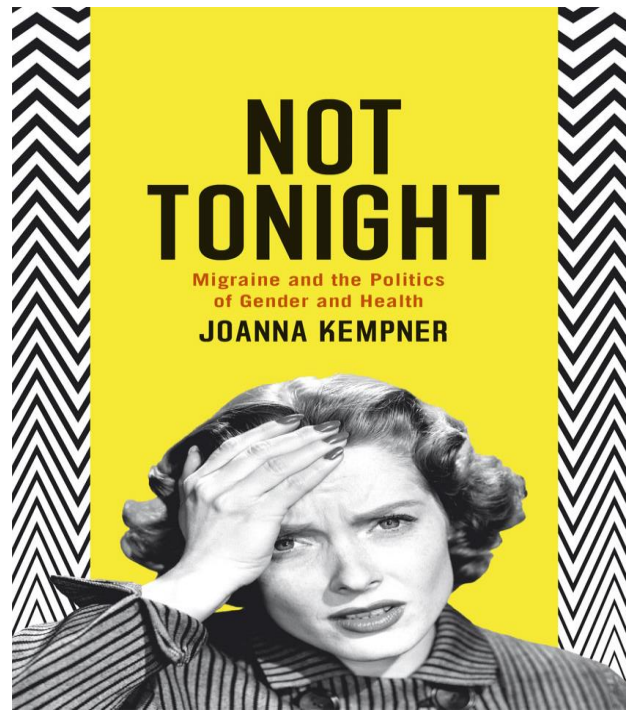


Does Melanie have a **real** health issue?

Stigma and Myths



**Have you tried...
drinking water and salt?
Advil?**

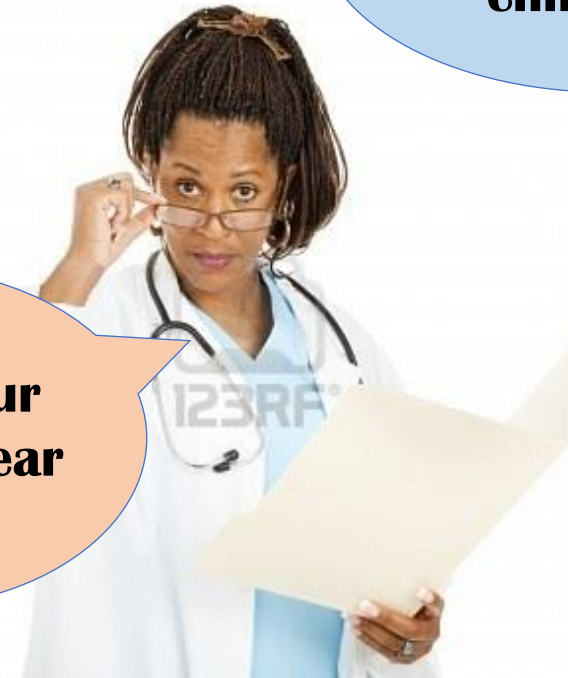


**It must be the
chocolate or the
chinook**

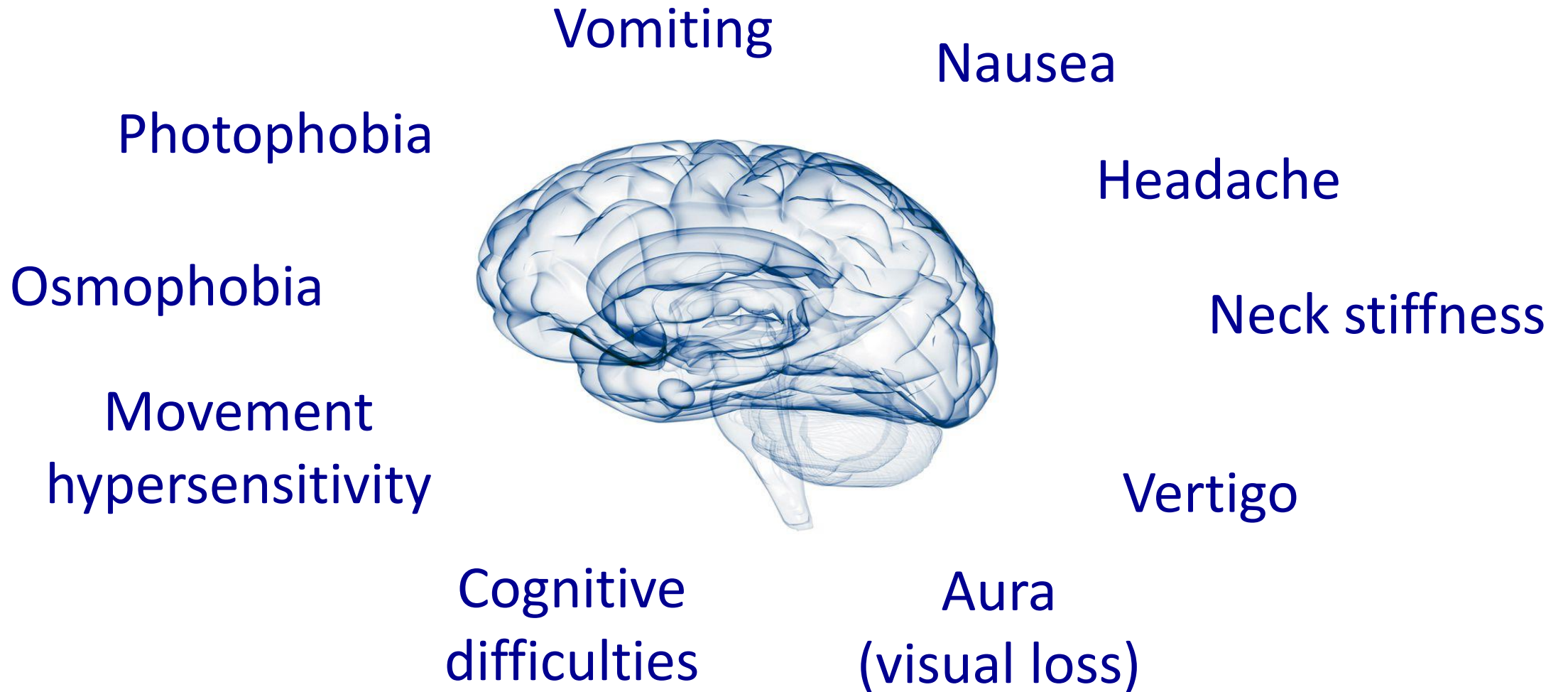


**My mother said «t's just
a headache»**

**Manage your
stress my dear**



Migraine attack: More than a Headache





World Health Organization

1st

The most prevalent neurological disorder

2nd

The leading cause of global disability

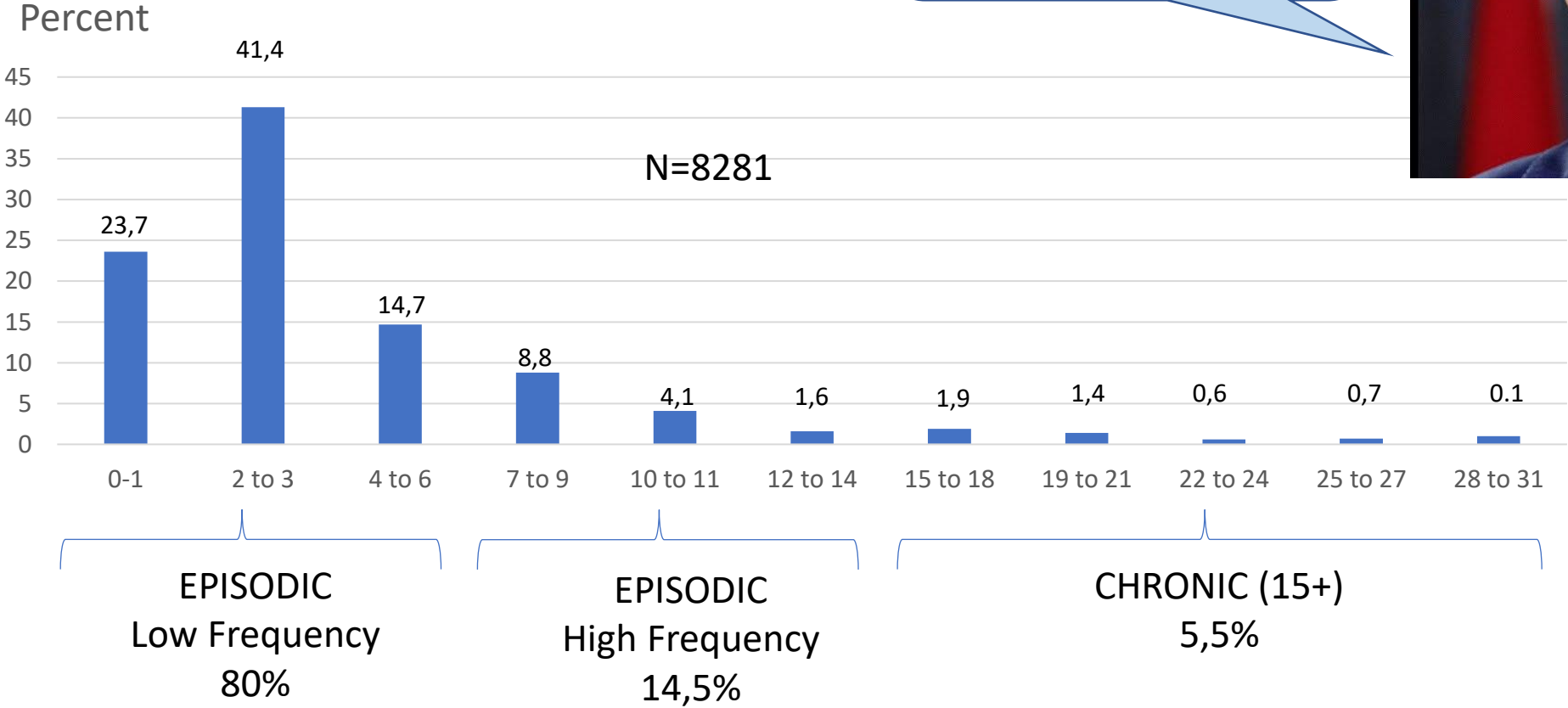
3rd

The most prevalent medical illness

| Disability Class | Conditions | World Health Organization 2004 |
|------------------|---|--------------------------------|
| I | Burn scar | Parasitic infection |
| II | Asthma | Incontinence |
| III | Angina arthritis | HIV Rheumatoid |
| IV | Heart failure | Parkinson |
| V | Bipolar disease retardation | Mild mental |
| VI | AIDS | Alzheimer |
| VII | Acute psychosis Severe migraine | Quadriplegia |

Migraine is frequent, with a continuum of severity

Did you say 12-15% of the population?



Blumenfeld AM, et al. Disability, HRQoL and resource use among chronic and episodic migraineurs: results from the International Burden of Migraine Study (IBMS). Cephalalgia. 2011;31(3):301-15.

Serrano D, et al. Fluctuations in episodic and chronic migraine status over the course of 1 year: implications for diagnosis, treatment and clinical trial design. J Headache Pain. 2017;18(1):101.

Migraine is invisible on CT scans and MRIs

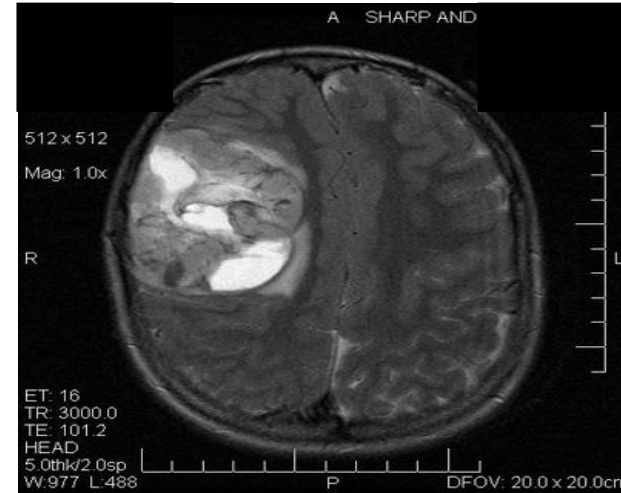
Computer
Visibly broken
Hardware



Computer seems
normal
Software



Brain tumour
Visible on
imaging



Chronic
migraine
Normal CT



The causes of migraine in 2022

It is a NEUROLOGICAL disease

Chemistry

GENES

Blood vessels and neurons
Neurotransmitters, ion channels

Electricity

PEPTIDES

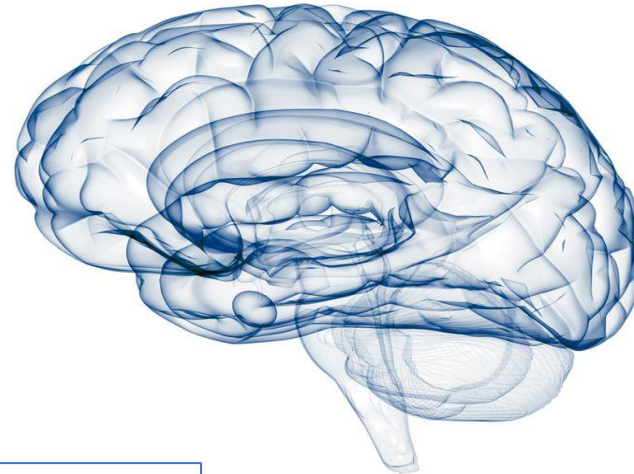
Neurogenic Inflammation
CGRP, PACAP, VIP

ELECTROPHYSIOLOGY

Low habituation to stimuli
(visual, auditive, sensory)

SEROTONIN METABOLISM

Low between attacks



ACTIVE BRAIN ZONES

Hypothalamic / trigeminal
Connection during attack

OXYDATIVE STRESS

Mitochondrial function
Energy metabolism

Pain modulation dysfunction

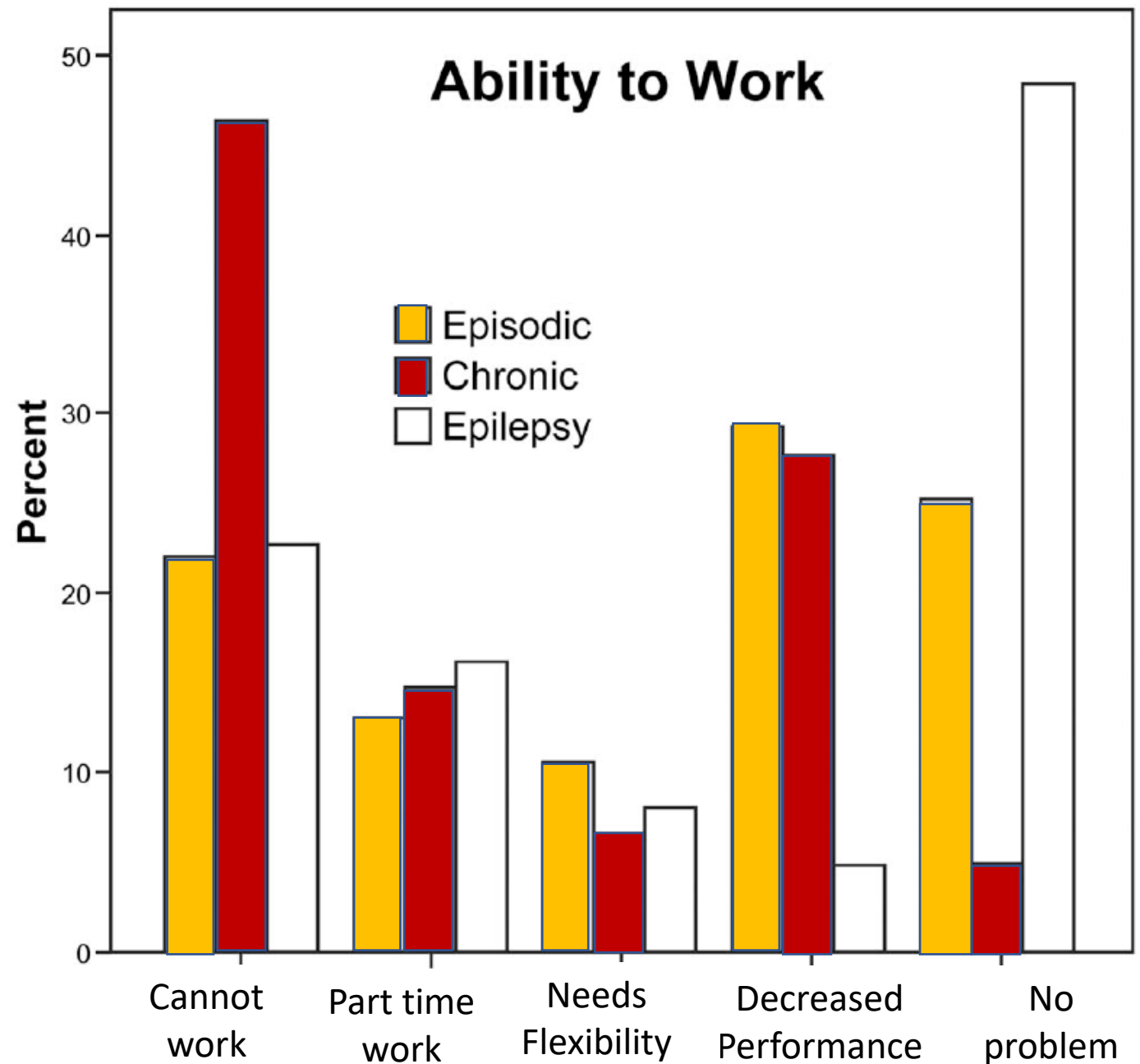
Sensitization (central /peripheral)

Migraine is disabling in the workplace

Episodic
1-14 days / month

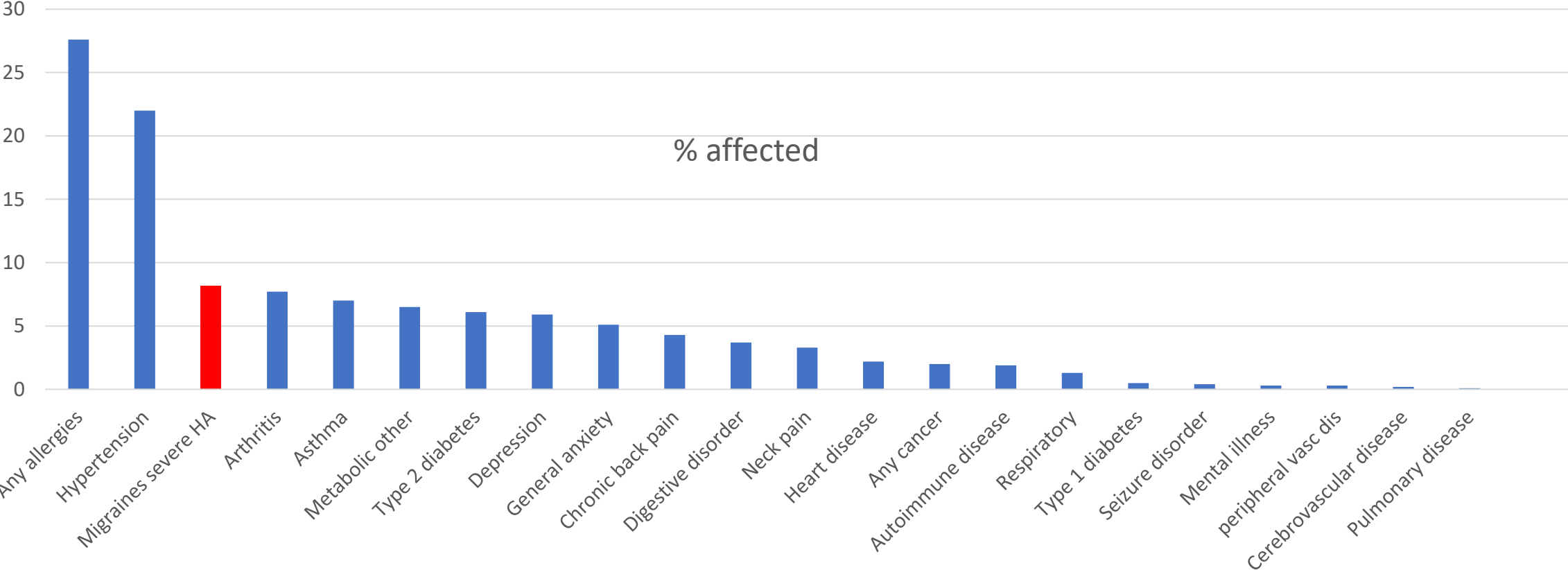
Chronic
15-30 days per month

Young WB, Park JE, Tian IX, Kempner J. The stigma of migraine. PLoS One. 2013;8(1):e54074.



Prevalence of diseases in the workplace (US)

Presenteeism study over 4 years



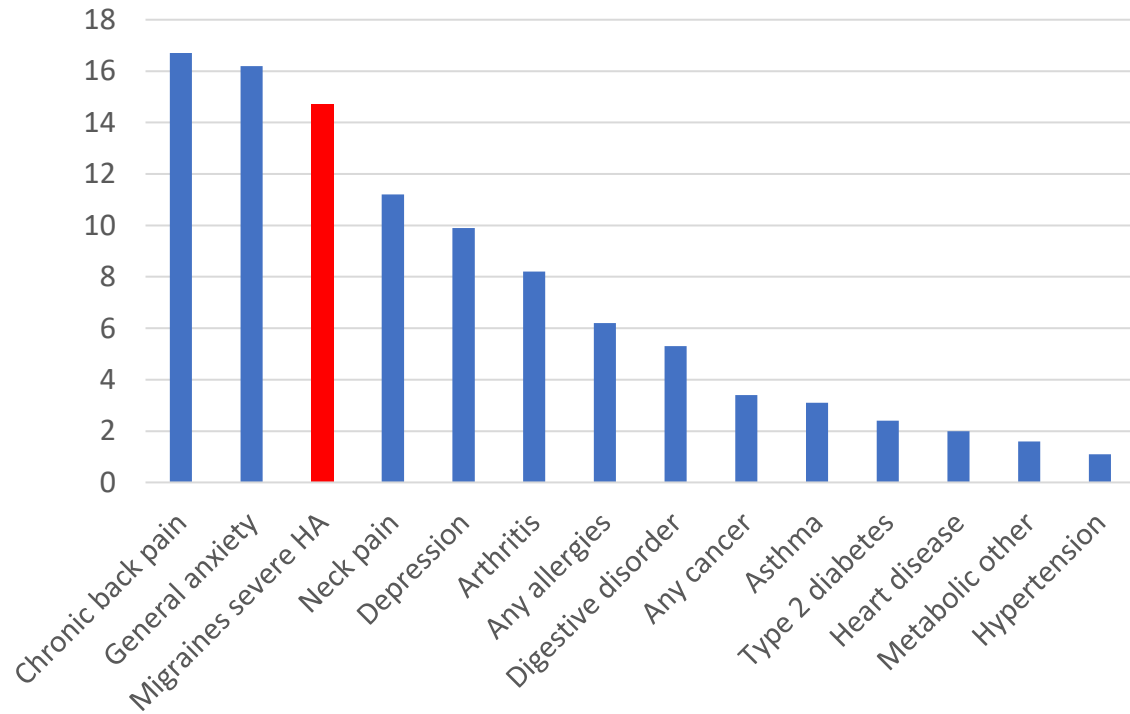
Use of The Health-Related Productivity Loss Instrument (HPLI)

A total of 58 299 HRAs from 22 893 employees were completed and analyzed
7959 employees from 6 locations completed the HRA each year for 4 years

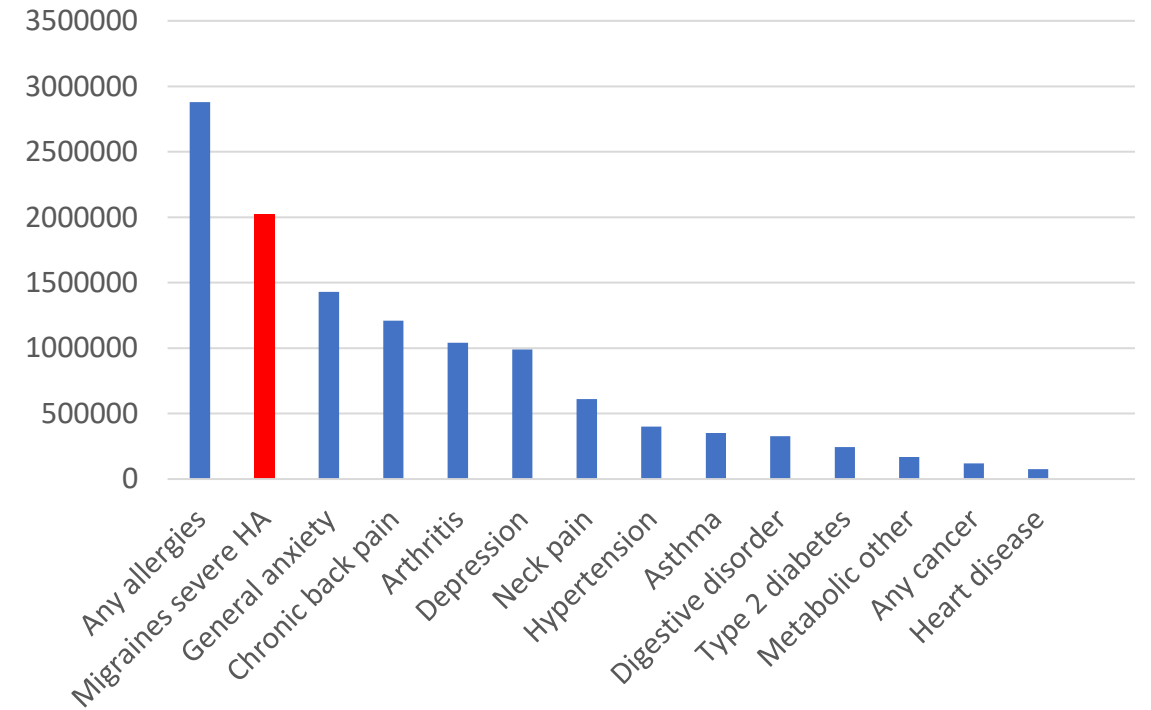
Presenteeism data in the US

- 25% of US workplace productivity lost to presenteeism
- 16% of presenteeism may be due to migraine

Min/day lost/person



Annual company cost USD

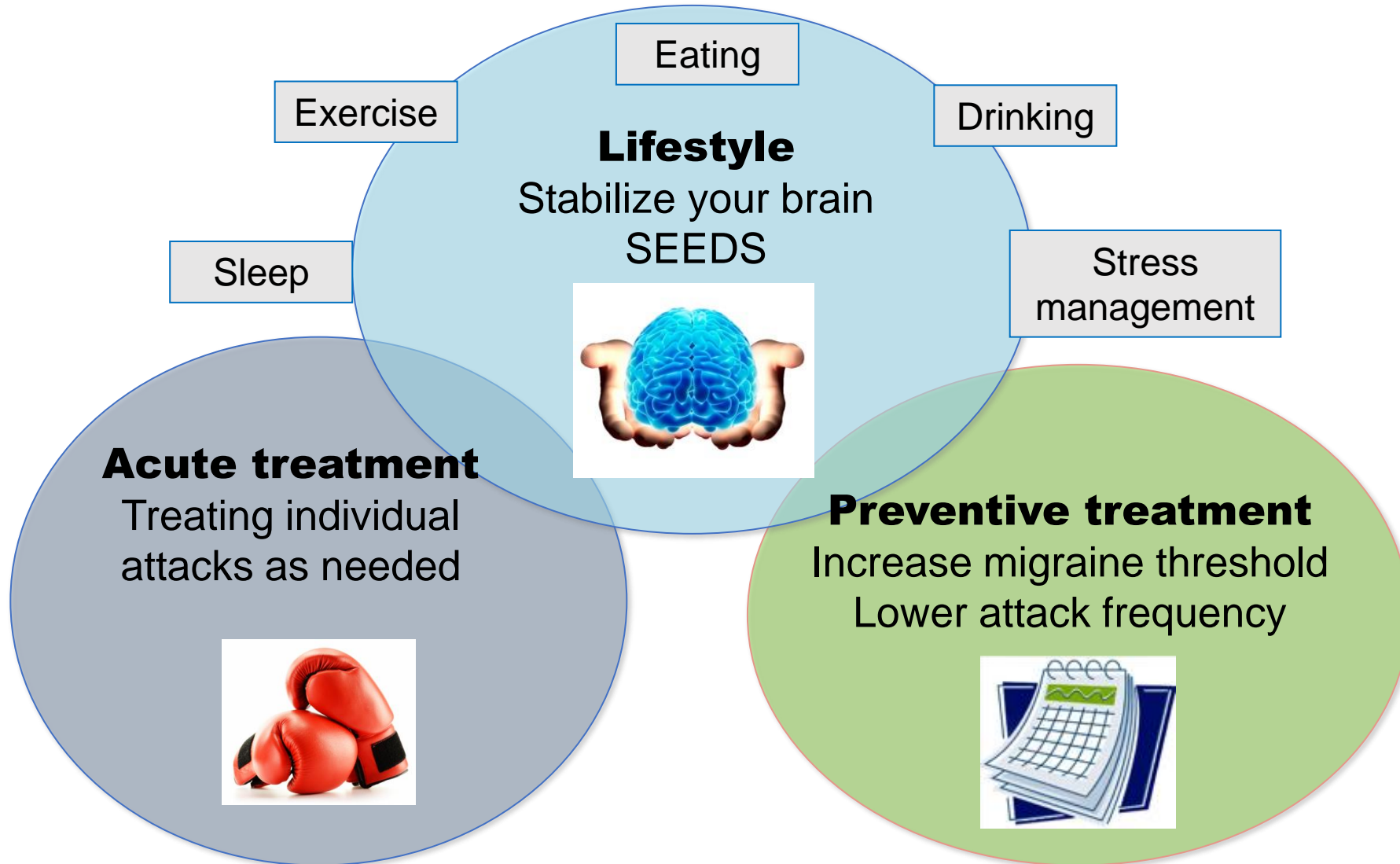


Integrated Benefit Institute data

Migraine is similar to other chronic diseases for STD and LTD

| | Migraine | Depression | Diabetes | Back pain | Rheumatoid |
|---------------------------|----------------|----------------|----------------|----------------|--------------|
| Tx for condition | 3% | 8% | 6.3% | 11% | 1.4% |
| Excess sick days Wages | 2.2 600 USD | 2.4 640 USD | 1.5 400 USD | 4.3 700 USD | 2 500 USD |
| STD claims/ 10 000 | 2.4 | 2.2 | 2.4 | 4.3 | 1 |
| STD work days | 38 | 49 | 43 | 50 | 62 |
| LTD claims/ 10 000 | 1 | 1.1 | 1.6 | 2.7 | 1.8 |
| LTD work days | 179 | 153 | 186 | 169 | 198 |
| LTD remain open 2Y | 37% | 15% | 45% | 30% | 55% |
| LTD cost | 37 000 | 32 000 | 39 000 | 35 000 | 41 200 |

Global Management of Migraine



What can be done in the workplace

| | |
|------------------|---|
| Educate | Educate Human Resources and workforce |
| Provide | Provide a program on migraine for employees at large |
| Identify | Identify people struggling with migraine and suggest resources |
| Encourage | Encourage medical management and interdisciplinary programs |
| Support | Support employees, fight stigmas |
| Design | Design a migraine friendly workplace with reasonable accommodations |

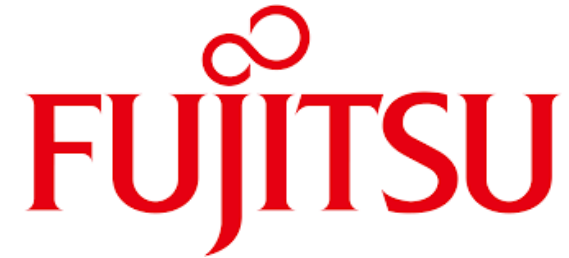
Reasonable accommodations

| | | |
|---------------------|---------------------------|--------------------------|
| No scents policy | Lighting adaptation | Screen adaptation |
| Noise protection | Workstation adaptation | Variation of tasks |
| Mini-breaks | Access to a room for rest | Adequate access to water |
| No irregular shifts | Flexible schedules | Tele-work |



MIGRAINE
AT WORK

January 2021: Nikkei, the largest Business Newspaper in Japan, wrote on the **Fujitsu Headache Project**.



- A survey was made in 2018 with the Japanese Headache Society.
- Migraine affected **17% of the employees**.
- Yet, only 16% of people with migraine consulted physicians.
- **Migraine reduced the productivity from 100% to 53%.**
- Fujitsu calculated the **annual economic loss to be 27 million US\$**
- The Fujitsu Headache Project was launched in October 2020
- E-learning for Headache + video seminars to **34,000 employees**
- 90% finished the course.
- Fujitsu is starting on-line Headache Consultations by headache specialists.

<https://www.fujitsu.com/global/about/csr/employees/health/>

Shimizu T, Sakai F, Miyake H, et al. Disability, quality of life, productivity impairment and employer costs of migraine in the workplace.

J Headache Pain. 2021;22(1):29.

Migraine Fitness at Work

GOALS OF THE PROGRAM

email if interested: leroux.neuro@gmail.com



1 Collaborate with employers.

2 Educate the workforce.

3 Reduce stigma and provide resources that will help empower self-efficacy, reduce burden of illness and improve quality of life and productivity.

Migraine preventives: oral medications

Options before Botox and CGRP antibodies

| Class | Medications |
|---------------------------|---|
| Anti-depressants | Amitriptyline Nortriptyline Venlafaxine |
| Anti-convulsants | Topiramate Gabapentin Valproic acid |
| Anti-hypertensives | Propranolol Nadolol Candesartan |

- Not designed for migraine
- Benefit is partial
- Trial and error approach
- May wear off over time

Side effects of oral preventives are common

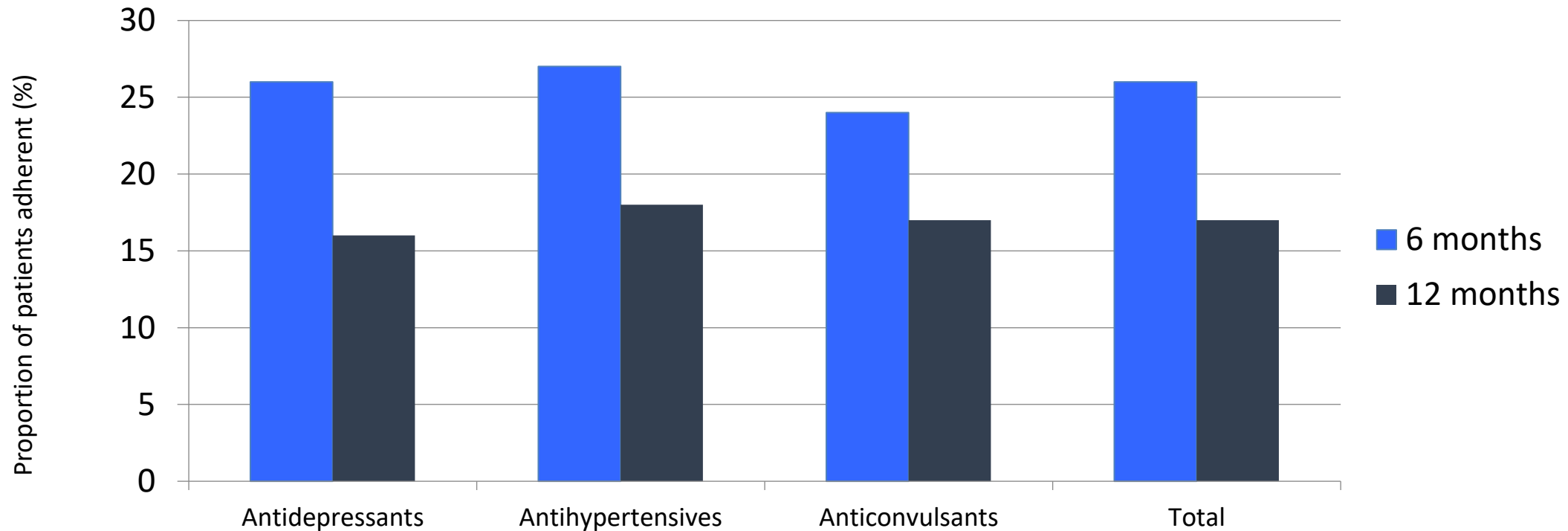
«Fat and drowsy or thin and stupid?»



Side effects are common and disabling

- Weight gain
- Drowsiness
- Hypotension, fatigue
- Fainting
- Cognitive difficulties
- Nightmares
- Tremor
- Sexual difficulties
- Dizziness
- Nausea and stomach pains

After 1 year....meds are stopped by 8/10 people with chronic migraine. NOT great.



N= 8688 chronic migraine patients surveyed

Proportion of days covered, adherence defined as $\geq 80\%$ of days of intake

CGRP and migraine

A major scientific discovery



The science of migraine «It's all in your brain»

Dr Elizabeth Leroux, MD, FRCPC
Neurologist, Montreal
Migraine Canada Webinar
June 14 2020

Scientists who discovered migraine mechanism win £1.1m Brain prize

World's largest neuroscience prize goes to researchers whose work has paved way for preventive treatments



Prof Peter Goadsby of King's College London, one of four scientists who received the prize for their work unpicking the neural basis of migraine attacks. Photograph: Ken McKay/ITV/Rex/Shutterstock

Scientists win prize for migraine research that offers 'light at the end of the tunnel'



Peter Goadsby and colleagues awarded the Brain Prize, world's largest neuroscience award

CBC Radio · Posted: Mar 11, 2021 5:52 PM ET | Last Updated: March 11

35 years of research

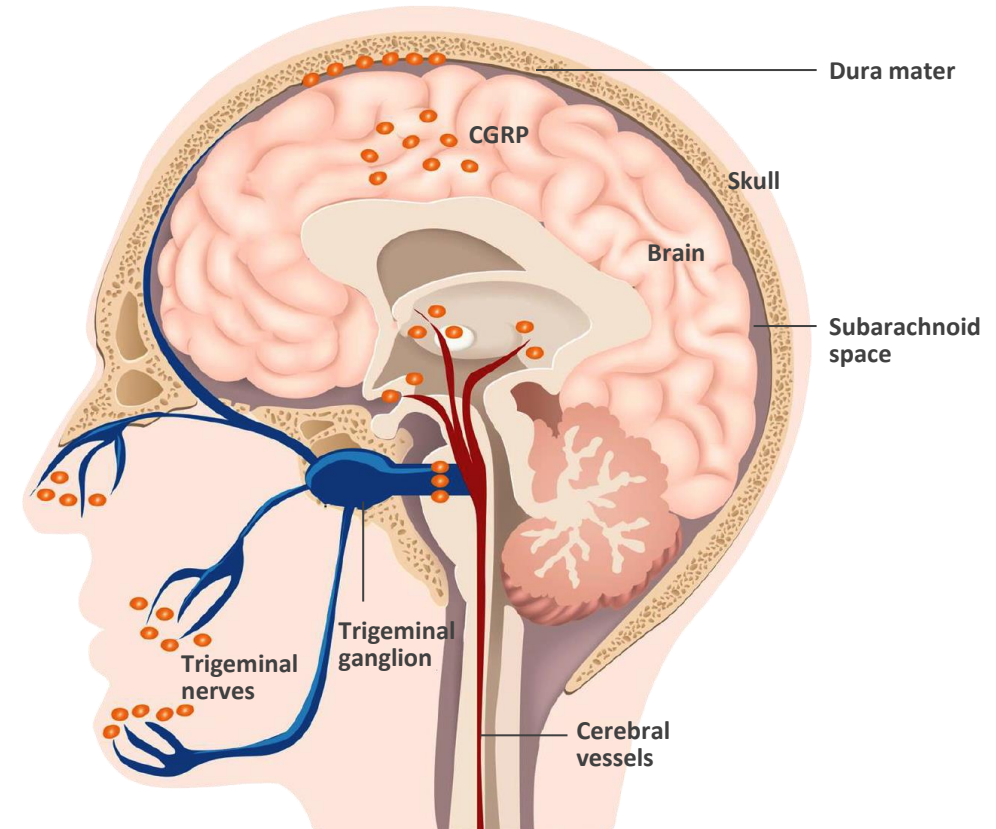
CGRP Plays a Role in Migraine

During migraine attacks, CGRP serum levels are **elevated**¹⁻³

CGRP infusion triggers **migraine-like headache**⁴

Triptans reduce CGRP levels, concurrent with pain relief⁵

Selective antagonists to CGRP and its receptor effectively treat migraine^{5,6}



1. Goadsby PJ et al. Ann Neurol 1990;28:183-7;
2. Edvinsson L, Goadsby PJ. Eur J Neurol. 1998;5:329-41;
3. Cernuda-Morollón E et al. Neurology. 2013;81:1191-6;
4. Hansen JM et al. Cephalalgia. 2010;30:1179-86;
5. Durham PL. Headache. 2006;46(Suppl. 1):S3-8;
6. Giamberardino MA, Martelletti P. Expert Opin Emerg Drugs. 2015;20:137-47.

Blocking CGRP to treat migraine can be done with antibodies or gepants.

| Antibody | Gepant |
|------------------------------------|---|
| Aimovig, Ajoovy, Emgality, Viiupty | Ubrogepant (acute) Atogepant (preventive) ** Not yet approved in Canada |
| Injectable | Pill |
| Every month or every 3 months | Daily or as needed |
| Preventive | Acute and preventive |

CGRP antibodies for migraine prevention

Webinar Host:
Dr Elizabeth Leroux, neurologist
Chair of Migraine Canada
October 4th, 2020

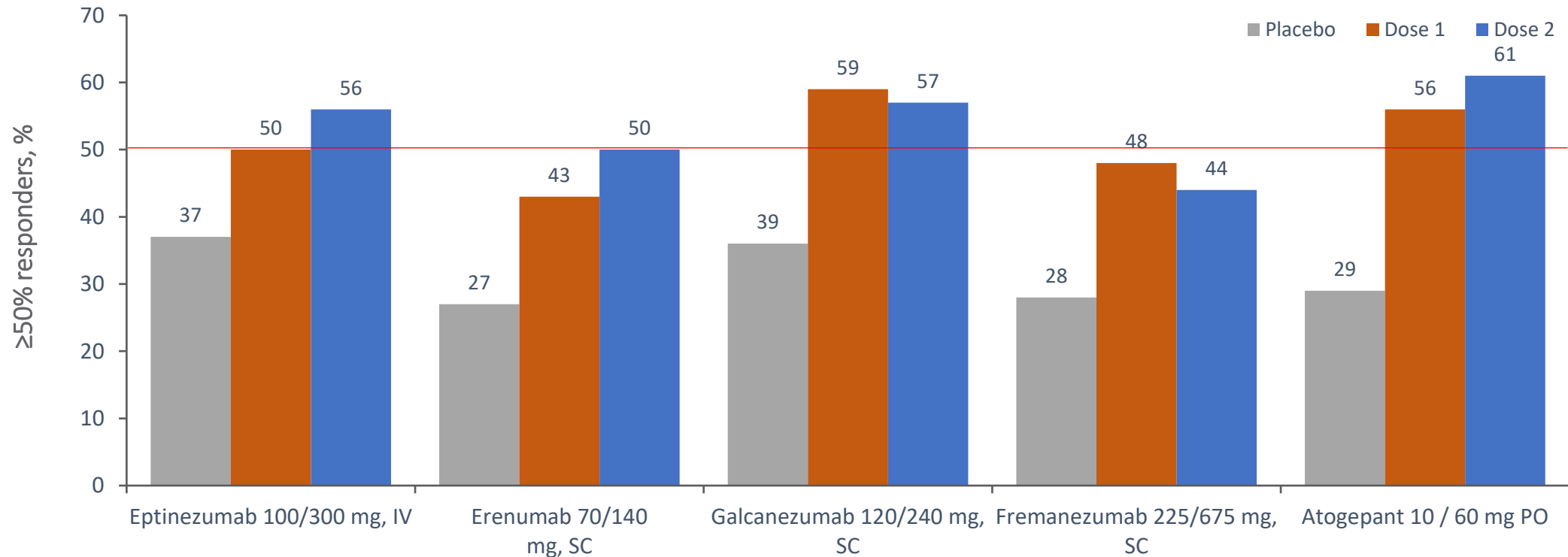


Gepants A new option, lots of questions

Migraine Canada webinar
Dr Elizabeth Leroux, MD, FRCPC
November 17th 2021



Episodic Migraine: 50% Responder Rates of CGRP MABs and atogepant



EPTI: Ashina M, *et al. Cephalalgia*. 2020;40(3):241-54;

ERE: Goadsby PJ, *et al. Headache*. 2017;57(Suppl 3):128-129;

GAL: Stauffer VL, *et al. JAMA Neurol*. 2018;75(9):1080-8; Skljarevski V, *et al. Cephalalgia*. 2018;38(8):1442-54;

FREM: Dodick DW. *JAMA*. 2018;319(19):1999-2008.

ATO: Ailani J *et al. NEJM*. 2021;385:695-706.

Migraine Canada

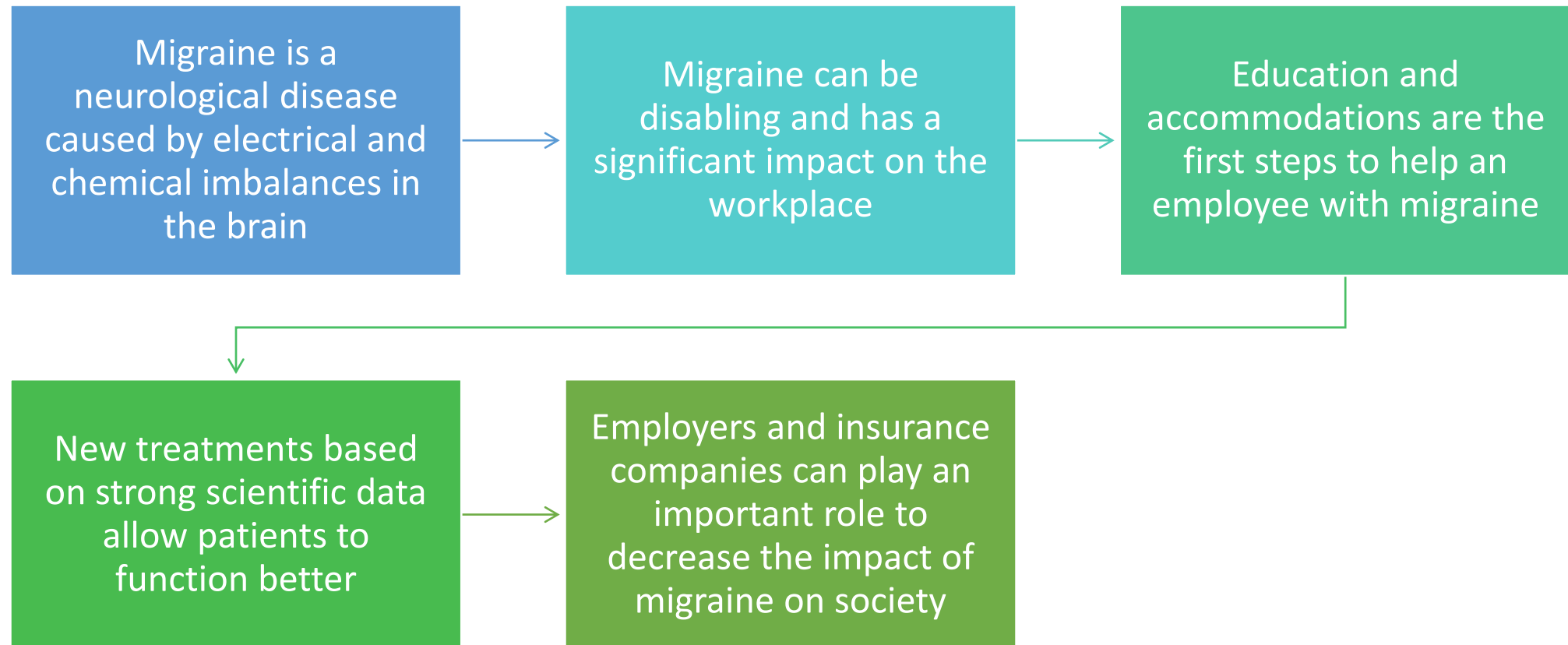
- Education on migraine (Migraine Tree)
- Webinars on YouTube
- PDFs on migraine basics
- Podcasts Migraine Talks
- Social media and support
- Advocacy (CADTH and Health Ministries)



webinars ▶ TOUT REGARDER

| | | | | |
|--|---|--|---|--|
| <p>Migraine and Mental Health Webinar Migraine Canada 68 vues • il y a 4 mois</p> | <p>The Female Life Cycle and Migraine Migraine Canada 128 vues • il y a 6 mois</p> | <p>Cluster Headache - All You Need to Know Migraine Canada 290 vues • il y a 7 mois</p> | <p>Migraine - Why is it commonly misdiagnosed? Migraine Canada 87 vues • il y a 9 mois</p> | <p>CGRP antibodies for migraine prevention - Part 1 Migraine Canada 364 vues • il y a 10 mois</p> |
|--|---|--|---|--|

Conclusions





**Thank you for
your attention!**