

Managing Pain in Residential Care

while being aware of the implications of the “opioid crisis”

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Faculty/Presenter Disclosure

Faculty: Romyne Gallagher

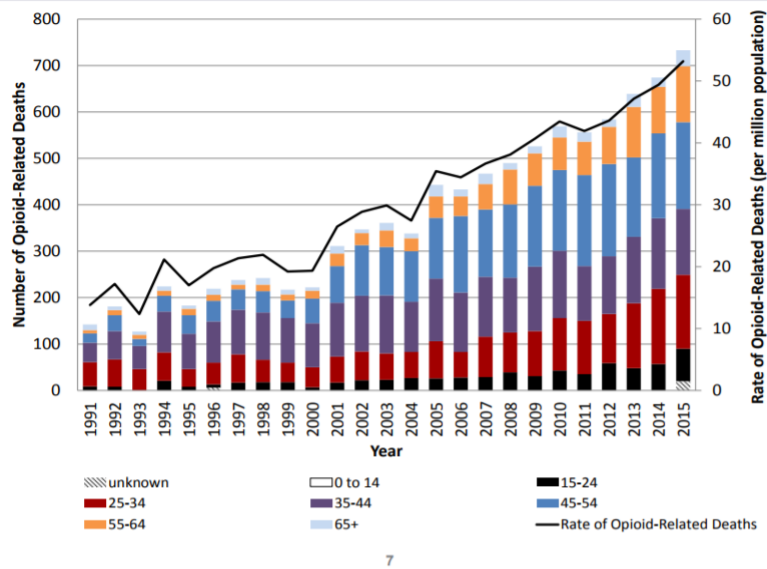
Relationships with commercial interests:

- **Speakers Bureau/Honoraria:** Purdue Pharma prior to 2019

Mitigating potential bias

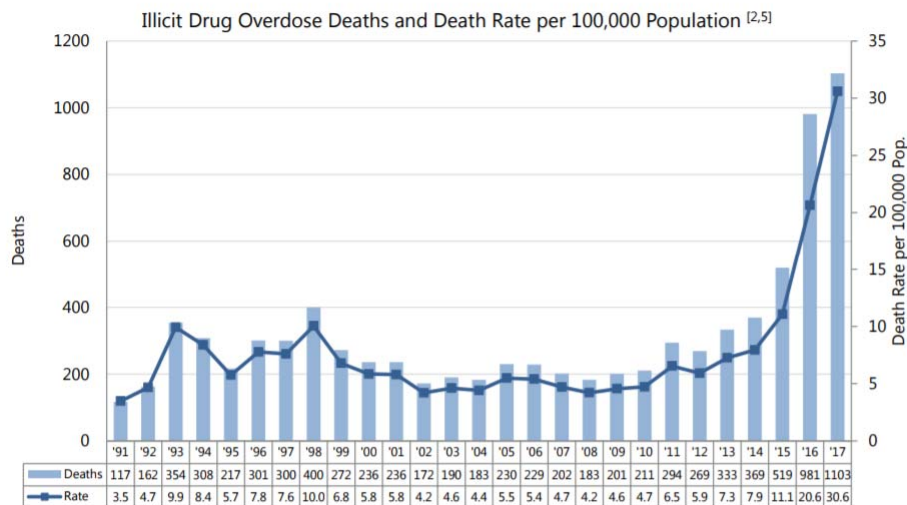
- **Generic names only**

Figure 1: Trends in Opioid-Related Deaths by Year and Age Groups in Ontario, 1991 to 2015



The Ontario Drug Policy Research Network April 2017: <http://odprn.ca>

BC Data and Rates



<https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/death-investigation/statistical/illicit-drug.pdf>

Prescription-related opioid death

Must have had a prescription for an opioid within 60 days of death

Must have toxicology evidence of that same drug following death

Excludes diverted opioid deaths and illicit opioid deaths

All prescription related deaths

3.9 pharmaceutical opioid-associated deaths per 100,000 population in BC from 2004 to 2013, with no significant change over this time period

This rate includes all pharmaceutical opioid deaths, intentional and unintentional, as well as those involving pharmaceutical opioids taken with and without a prescription.

- Gladstone et al. Injury Prevention 2015

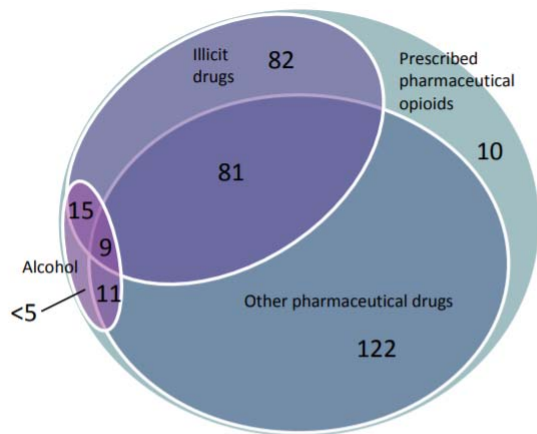


Figure 8. Number of prescribed pharmaceutical opioid-associated deaths in BC from 2009 to 2013 involving prescribed pharmaceutical opioids alone and in combination with other substances. Illicit drugs include illegal drugs as well as pharmaceutical opioids taken without an active prescription. Other pharmaceutical drugs include medications other than opioids detected through toxicology testing. The diagram is for illustrative purposes and is not to scale.

Illicit drugs includes illegal drugs and opioids taken without a prescription (diversion)

Other pharmaceutical drugs includes antidepressants, benzodiazepines, anticonvulsants, antihistamines, antipsychotics

97% of the cases included other substances than the prescribed opioid

BC Coroners Service 2017

Coroner's findings – Sept 27, 2018

Fig. 12. Illicit drug overdose deaths by pattern of illicit drug use

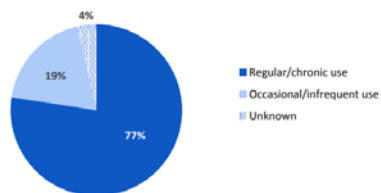
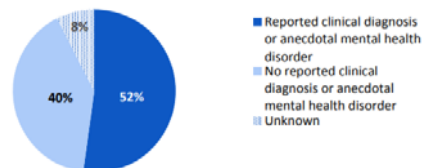


Fig. 10. Illicit drug overdose deaths and pain among decedents with contact with health services in year preceding death



Fig. 11. Illicit drug overdose deaths and reported mental health disorders



Opioid use disorder in chronic Pain Population

Lack of high quality evidence or consistent prevalence evidence

- Voon P et al. *Subst Abuse Treat Prev Policy* 2017

systematic review of 38 studies opioid-treated patients with chronic pain

misuse averaged between 21% and 29%

addiction averaged between 8% and 12%

- Vowles et al. *Pain*. 2015

Chronic pain in Canada

Chronic pain prevalence: 19-25%

- Schopflocher et al. *Pain Research & Management* 2011

In a large data study of adults >50 years – people who were “often troubled with pain” or who had “quite a bit” or “extreme” pain interference with daily life had significant increase of all cause mortality

- Smith et al. *Arthritis Care Res* 2018

Table 1. Definitions Related to Use and Misuse of Opioid Analgesics

Term	Definition	Source
Misuse	Use of a medication (for a medical purpose) other than as directed or indicated, whether willful or unintentional, and whether harm results or not	Katz et al (2007) ¹⁴
Abuse	Any use of an illegal drug or the intentional self-administration of a medication for a nonmedical purpose such as altering one's state of consciousness, for example, getting high	Katz et al (2007) ¹⁴
Addiction	A primary, chronic disease involving brain reward, motivation, memory, and related circuitry that can lead to relapse and progressive development, and that is potentially fatal if left untreated; markers include craving and continued use despite adverse outcomes	Smith, (2012) ¹⁵ Katz et al (2007) ¹⁴
Tolerance	A state of adaptation in which exposure to the drug results in diminution of its effects over time	Katz et al (2007) ¹⁴
Physical dependence	Engenders abstinence syndrome when the drug is abruptly stopped	Katz et al (2007) ¹⁴

Tolerance with long-term use and physical dependence with sudden cessation are normal reactions, not part of OUD

definitions

Big Data Studies

PRO

Large sample size

Actual practice as opposed to “sterile” research setting

Easily available data/ much cheaper than RCT

Decision-makers love data

Compare across settings and societies

Good accuracy of the Null hypothesis – no diff between groups

Big Data Studies

CON

Observational studies are not causal

Quality of data input: 4.3 – 86% incompleteness of records (Balas et al. MedInfo 2015)

Selection bias of data bases: may not include everyone (Docherty et al. Curr Opin Crit Care 2015)

Medical billing/Hospital data not collected for research reasons (compliance, reimbursement etc..)
(Patel et al. J Am Acad Ortho Surg 2016)

Lack of Patient Related Outcome Measures – functional status, pain, patient satisfaction, test results, imaging, cognitive impairment (EHrenstein et al. Clin Epid 2017)

Pharmacy data: What is dispensed is not always taken as directed

Assumptions are made: On Opioids = No Pain; All opioids are the same

Effect of Opioid vs Non-opioid Medications on Pain-Related Function in Patients With Chronic Back Pain or Hip or Knee Osteoarthritis Pain JAMA 2018

Interpretation: Results do not support initiation of opioid therapy for moderate to severe chronic back pain or hip or knee osteoarthritis pain.

The median pain score was 5. Not severe Pain.

Non-Opioid group was able to be treated with Tramadol. 10% used it.

Does not distinguish between mechanical back pain and neuropathic pain

Populations were different: 42% of opioid group employed

26% non-opioid employed

What appears in the media.....

Medscape: More data confirm that opioids no better than non-opioids....

WebMD: Opioids Not Best Option for Back Pain, Arthritis.....

CBC: Prescription opioids no better than over-the-counter drugs for chronic pain, study shows

Vox Media: Finally, proof: opioids are no better than other medications for some chronic pain

Postsurgical prescriptions for opioid naïve patients and association with overdose and misuse: retrospective cohort study BMJ Open 2017

- 1 015 116 “opioid naïve” patients undergoing surgery
- Only had access to their pharmaceutical records and hospital records
- 568 612 (56.0%) patients received postoperative opioids
- 5906 patients had opioid misuse event (0.6%, 183 per 100 000 person years)
- Analysis of 5906 patients: each refill, additional week of opioid use associated with an adjusted increase in the rate of misuse of 44.0% (95% P<0.001), and 19.9% increase in hazard (P<0.001)
- The study did not analyze opioid events in those who did not get a post-operative prescription

Postsurgical prescriptions for opioid naive patients and association with overdose and misuse: retrospective cohort study BMJ Open 2017

WHAT IS ALREADY KNOWN ON THIS TOPIC

Opioid misuse is increasing rapidly in the US and internationally

Surgical patients are four times more likely to get opioids at discharge than their non-surgical counterparts

It is unknown how opioid prescribing habits by clinicians are related to rates of misuse

WHAT THIS STUDY ADDS

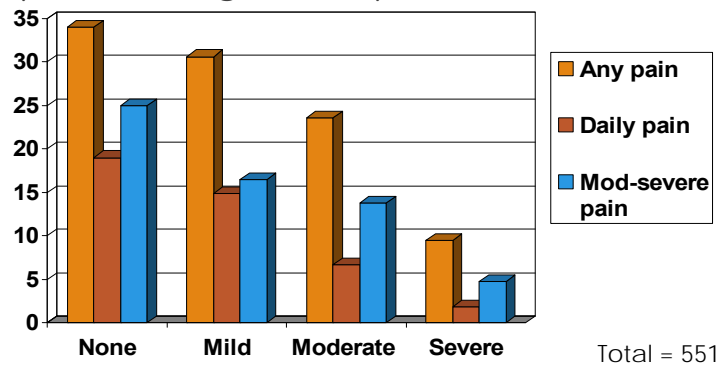
Each refill and additional week of opioid prescription is associated with a large increase in opioid misuse among opioid naive patients

The duration of a prescription rather than opioid dosage was more strongly associated with ultimate misuse in the early postsurgical period

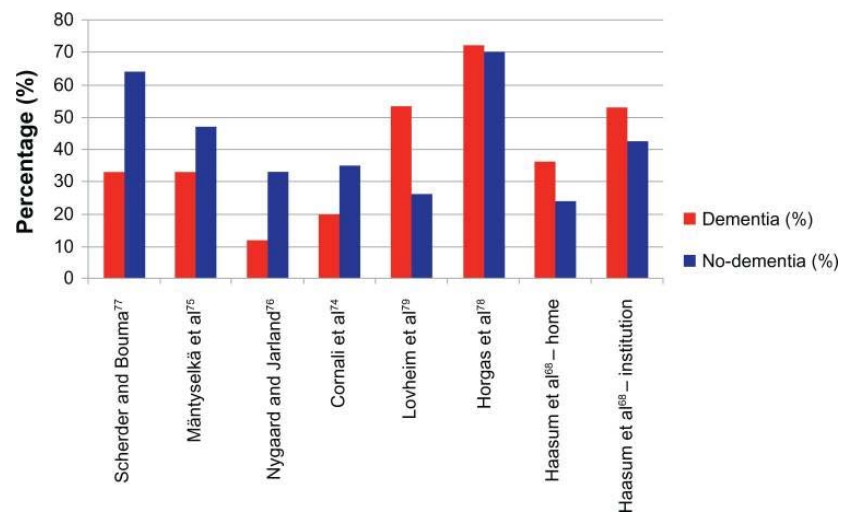
thebmj | BMJ 2018;360:j5790 | doi: 10.1136/bmj.j5790

Pain Assessment

Pain reports and cognitive impairment



Reynolds et al. J Pain & Symptom Management 2008



Studies on the prevalence of analgesic use in patients with dementia vs no dementia. Achterberg et al Clin Intervent Aging 2013

When should pain be assessed?

- ▶ Upon patient's admission to a facility
- ▶ Whenever a patient has an acute illness or injury; experiences a decline in function; or a change in mood, cognition or behaviour
- ▶ Whenever a patient exhibits unexpected social withdrawal or signs of depression
- ▶ Whenever vital signs are obtained (the "5th vital sign")
- ▶ At least daily, for patients with a known painful condition
- ▶ Before and after administration of as-needed (PRN) analgesic medication
 - ▶ American Medical Directors Association.
Pain management in the long term care setting. Columbia MD: 2012

Pain Assessment in Verbally Responsive Dementia Patients

Focus on present pain "do you hurt right now?"

Use verbal reports by staff and family

- What was their pre-dementia behavior when in pain?

What behavior do staff and family identify as distress?

Observations during care, mobilizing or other pain-inducing activities

Medical Problems - Previous and Current

Other mobidities: CHF, COPD, CRF, CVA, Cancer

Past painful conditions

- previous traumatic injuries, medication history

Past medical history

- 35% of post stroke patients will have a central post-stroke neuropathic pain
 - Siniscalchia et al. Pharmacol Research 2012
- Vascular dementia patients likely have similar central neuropathic pain
 - Scherder et al. Drugs Aging 2012
- 20-24% of diabetics experience painful DPN
- 25-50% of patients >50 years with herpes zoster develop PHN
 - Schmader Clin J Pain. 2002

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Evidence on imaging/Prior Pain History

Degenerative joint disease

Degenerative disc disease

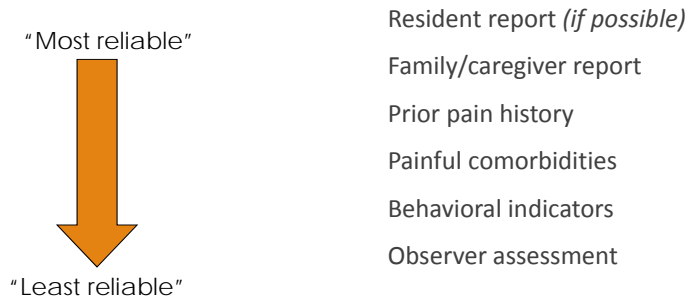
Spinal stenosis

Osteoporosis/Compression fractures

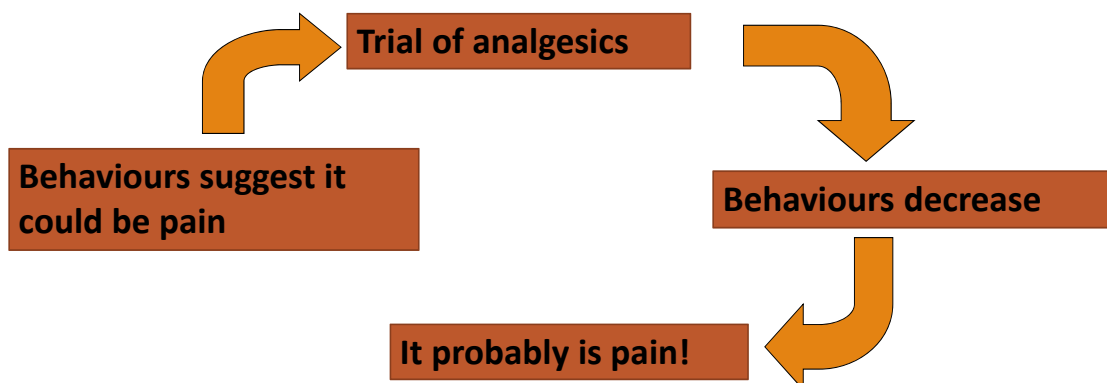
Old traumatic fractures

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Hierarchy of Data Sources



Empirical trials of analgesics



Evidence for empirical trials of analgesics

352 residents in facility care

Moderate to severe dementia with agitation

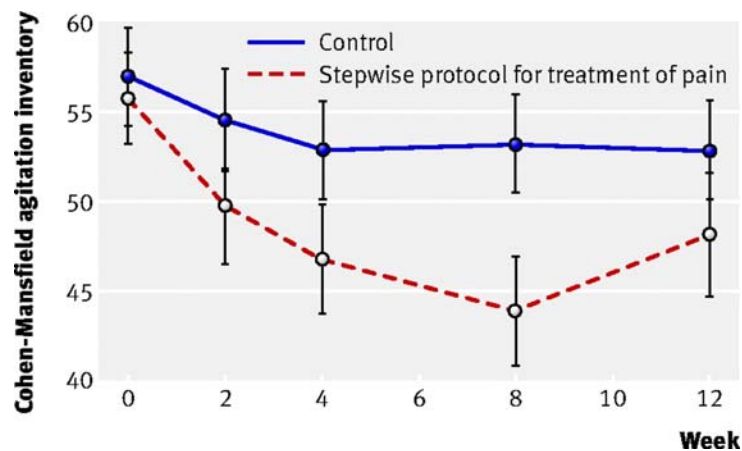
Randomized: step wise protocol vs regular care

Intervention was daily pain care using step-wise protocol

Protocol used acetaminophen – morphine or buprenorphine patch + pregabalin

• Husebo et al BMJ 2011

Using step-wise pain management in agitated residents



ADLs and cognition unchanged

Husebo et al BMJ 2011

Pain Management

Non-pharmacologic

Pharmacologic

Interventional

Non-pharmacologic therapies

Education about pain, goal setting, problem solving

Cognitive behavioral therapy

Relaxation, hypnosis,

Exercise – PT/OT

- Falls prevention clinics
- Yoga
- Swimming

Devices to restore or assist function – PT/OT

Manual therapies – caution in osteoporosis

TENS unit – ongoing use with disabilities may be challenging

Most therapies need adequate cognition to be safe and effective

Evidence for analgesics in older adults

The efficacy studies for opioids have no patients over 73 years of age

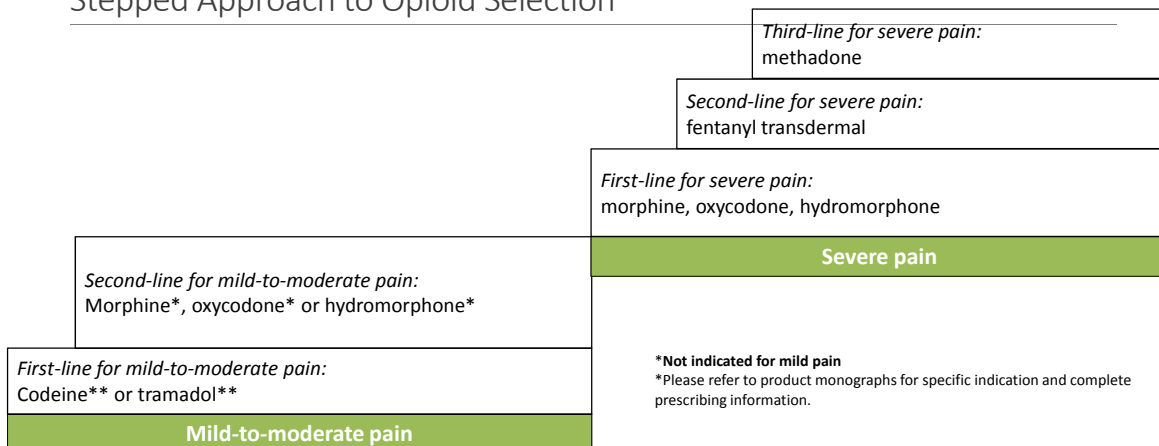
- Papaleontiou A et al JAGS 2010

Guidelines for management of pain in older adults focus primarily on analgesic efficacy

The efficacy of analgesics must be balanced with adverse drug events (ADE) since the risk of ADE are much higher in older adults

- O'Neil C et al Am J Geriatr Pharmacother. 2012

Pharmacologic Treatment Options: Stepped Approach to Opioid Selection



**±acetaminophen
NRS, numerical rating scale. NSAID, non-steroidal anti-inflammatory drug.

Acetaminophen

Recommended as first line for mild to moderate pain for all ages – up to 4g per day in divided doses

Analgesic effect is secondary to prostaglandin synthesis

dose-dependent hepatotoxin

Pharmacokinetic profile of acetaminophen is highly variable with age

Older adults with malnutrition, pre-existing liver disease, concomitant use of enzyme-inducing drugs and chronic alcohol use likely need lower doses of 2-3 g per day

- O'Neil C et al Am J Geriatr Pharmacother. 2012

Acetaminophen Systematic Review/Meta analysis of RCT

10 trials of 3521 patients for OA hip and knee

3 trials of 1825 patients for low back pain

Acetaminophen is ineffective:

- for reducing pain, disability or improving quality of life in low back pain

Acetaminophen detectable but not clinically important:

- for reducing pain and disability in knee and hip osteoarthritis

Acetaminophen users have almost 4 times likelihood of abnormal liver function tests – effect uncertain

- Machado et al. BMJ 2015;350:h1225 | doi: 10.1136/bmj.h1225

NSAIDS in older adults

NSAIDS significantly higher all cause mortality (OR 1.76) than those not receiving NSAID

- Kerr et al. Clin Pharmacol 2011

Risk of acute renal failure significantly higher in all NSAIDS and significant progression of CKD

- Schneider V et al. Am J Epidemiol. 2006

Composite cardiovascular outcome (MI, stroke, CHF, cardiac death) higher in all NSAIDS

- Solomon et al Arch Int Med 2010

Efficacy of Opioids in Older Adults

Systematic review and meta-analysis

43 studies, 8690 patients, age 60-73, mean age 64 years

Mean duration of treatment: 4 weeks (12% of studies > 12 weeks)

Osteoarthritis (70%), neuropathic pain(13%) and other conditions(17%)

Significant pain reduction ($p < 0.001$), physical disability reduction ($p < 0.001$)

Sleep improvement ($p = 0.31$)

Adverse events: constipation (30%), nausea (28%), dizziness (22%)

Adverse events caused 25% to stop opioid

- Papaleontiou et al J Am Geriatr Soc 2010

Effectiveness of opioids

- Selection criteria: adults, ≥ 10 subjects per arm, any chronic pain condition, double-blind treatment period lasting ≥ 12 weeks, and all μ -agonist opioids approved in the USA
- Enrolled enrichment design trials only – individual titration to optimum dosing before start of analysis.
- 15 studies met criteria
- Opioid efficacy was statistically significant ($p < 0.001$) versus placebo: for pain intensity, $\geq 30\%$ and $\geq 50\%$ improvement in pain, patient global impression of change, and patient global assessment of study medication.
- There were minor benefits on physical function and no effect on mental function.

Effectiveness of Opioids

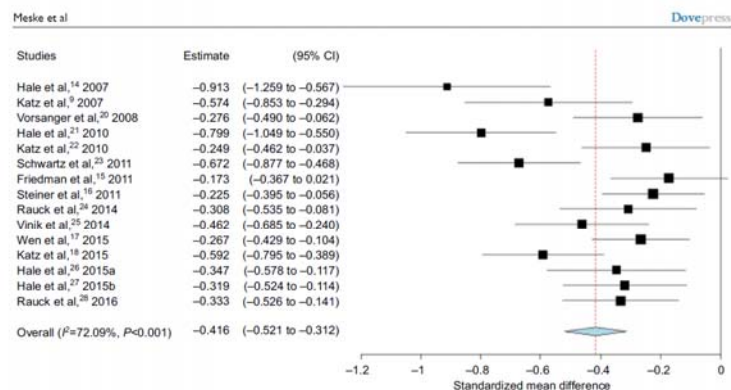



Figure 2 Change in PI from randomization baseline to week 12 with active study opioid drug versus placebo.
 Notes: The standardized mean difference effect size was -0.416 and $p < 0.001$, with a lower bound estimate of -0.521 and an upper bound -0.312.
 Abbreviation: PI, pain intensity.

Meske et al J Pain
 Research 2018

Opioids are the safest class of analgesics for moderate to severe pain in older adults

Why don't we use them?



Opioid adverse events
Addiction and diversion concerns

Opioids and Adverse Event Studies

Most of the studies do not control for:

- cognitive impairment/depression
- CNS active drugs: antidepressants, antipsychotics
- Gait and mobility problems

None of the studies consider whether pain is controlled on opioids – hence pain as a factor in adverse events is not eliminated

Pain is associated with delirium, abnormal gait and increased mortality

General factors affecting absorption, distribution & elimination - Age

Absorption: clinically inconsequential.

Distribution: Lean mass to fat ratio increases with age resulting in higher concentrations of fat-soluble drugs

Serum albumin may decrease: more unbound drug and enhanced drug effects

General factors affecting absorption, distribution & elimination - Age

Drugs with active metabolites can accumulate due to age-related decreases in renal clearance. Example: benzodiazepines, amitriptyline and some opioids

The accumulation of active metabolites can cause toxicity in the elderly due to. Toxicity is likely to be severe in those with renal disease.

Opioid classes

Are all opioids the same?

- Opioids bind to three opioid receptors with differing effects
- There are at least two distinct classes of opioids based on structure
- Methadone also targets NMDA receptors
- There are two pathways of metabolism for opioids
- Two opioids are lipophilic and the rest are more hydrophilic

Opioids of choice in frail elderly and renal failure

Hydromorphone is better than morphine and codeine

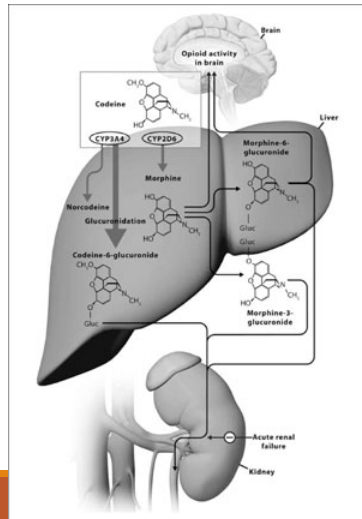
Oxycodone

Fentanyl

Methadone

Buprenorphine

Codeine, morphine, hydromorphone metabolism



Glucuronidation
10% of codeine becomes morphine

Morphine and hydromorphone are both glucuronated to active metabolites.

The metabolites cause neuroexcitation

Hydromorphone metabolites are cleared more quickly than morphine

Opioid Induced Neurotoxicity

Definition

- Neuroexcitability manifested by agitation, confusion, myoclonus, hallucinations and rarely seizures

Predisposing Factors:

- High opioid doses
- Recent rapid dose escalation
- Dehydration
- Renal failure
- Advanced age – lack of cognitive reserve, pharmacokinetics changes
- Other psychoactive drugs

*Daeninck PJ, Bruera E. Acta Anaesthesiol Scand. 1999

Tramadol

Dual Action

- Opioid agonist
- Inhibits reuptake of Serotonin and Norepinephrine

Metabolism: like codeine requires metabolism to become active

View as a **weak opioid** – i.e. for moderate pain

Available dosage strengths (CR tramadol, q24h)

- 150mg q24h is the usual adult starting dose for opioid naïve patients
- Not to exceed 400 mg total daily dose

Recent report of increased risk of hypoglycemia and hyponatremia

- Fournier et al. JAMA Internal Medicine 2015; Fournier et al Am J Med 2015

Recent report of 29% nausea and vomiting in palliative patients

- Husic et al. Mater Sociomed 2015

Fentanyl patch

Fentanyl is highly lipophilic and poorly absorbed orally

A 25mcg fentanyl patch = 100mg morphine/day = 20 Tylenol #3 per day

Takes 12 hours for onset of analgesia

Need adequate subcutaneous tissue for absorption

Takes 24 hours to reach maximum effect

Change patch every 72 hours

Dosage change after six days on patch

Sufentanil for incident pain

Well absorbed through buccal, sublingual and nasal mucosa

- Onset is 5-10 minutes
- Cleared in 30 minutes
- 12.5mcg- 25mcg starting dose
- Up to 100mcg per dose
- For sublingual use must be able to follow directions

If unable to follow directions may use intranasally



CR Oxycodone – resistant to crushing

CR Oxycodone in a new formulation

Turns to gel on contact with water

- not injectable
- can't delay swallowing

Extremely crush resistant

Pharmacare does not cover at this time

Oxycodone/Naloxone CR tablets

Oxycodone with core of naloxone

Lower incidence of constipation

Naloxone not absorbed from the gut – no effect on analgesia

Comes in 5,10, 20, 40mg oxycodone size

Not covered by Pharmacare but may have other coverage

Buprenorphine

Partial agonist of mu receptor

Requires metabolism to become analgesic

Slow onset, highly bound to receptor

Can be started in opioid naïve patients

Ceiling effect – consider as a weak opioid

Comes in patch that lasts 7 days

Useful for moderate pain

Buprenorphine patch currently not reimbursed by Pharmacare – may have other coverage

Methadone in older adults

Well tolerated and effective

Starting dose 1mg q12hr

Well absorbed orally and buccally

Titrate once weekly only

Use other short acting opioid for breakthrough pain while titrating methadone

Use methadone for breakthrough dose bid-tid once on stable dose

- Gallagher Pain Med. 2009

Variability of Response to Strong Opioids

four-arm multicenter, randomized, comparative, of superiority, phase IV trial

520 patients randomized to receive morphine, oxycodone, buprenorphine or fentanyl for 1 month to manage cancer pain

Mean age = 67 (12 SD)

Started on morphine 30mg/day (opioid naïve) or 60mg/day (already on opioid) OR morphine equivalents

Assessed non-responder or poor responder, prevalence of adverse effects, changes to therapy to maintain pain control

Aprox. 25% were poor to non-responders

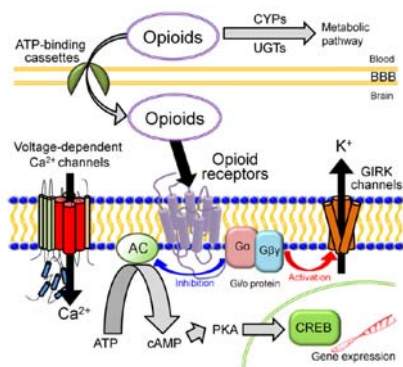
- Corli et al. Annals of Oncology 2016

Variability of Response to Strong Opioids

	Morphine	Oxycodone	Buprenorphine	Fentanyl	
% Increase in daily dose	32.7	70.9	56.4	121.2	Significant
% requiring increase dose	29.5	26.4	37.8	37.1	Not sig.
Rotation	22.1	12	16.5	12.9	Significant
Stopped due to toxicity/pain	27	15.2	20.5	14.5	Significant
Severe confusion	15.5	9.3	9.2	6.3	Significant

Corli et al. Annals of Oncology 2016

Opioid genomics



Molecules associated with the action of opioids:

Metabolism

Transportation

Opioid receptors

Ca & K channels

Gene expression - CREB

Titrating opioids

Increase dose by 15-20% each time if symptom not controlled

Starting with long acting opioids?

- Officially NO but in reality.....
- In residential care inadequate staff to do q4hr opioids
- Oxycodone SR 5mg = 1.5 Tylenol #3
- Methadone 1mg q12 hrs = 2 Tylenol #3
- ½ 12mcg patch = 5 Tylenol #3

Buprenorphine patch is safe in opioid naive

Treating constipation

Docusate not useful

Senna helpful but can cause cramps

Lactulose works well but horrible taste

PEG 3350 (Laxaday) works well and can be mixed with drink of choice. Takes a few days to establish a best dose

Neuropathic Pain Adjuvants

NNT gabapentin 7.7

NNT pregabalin 7.2

NNT for strong opioids 4.3

- Finnerup et al. Lancet Neurology 2015

Anticonvulsants not well tolerated in oldest adults – ie gabapentin, pregabalin, topiramate

- 32% withdrawal from study of pregabalin in neuropathic pain
- Dworkin et al Neurology 2003

Anticonvulsants in the treatment of low back pain and lumbar radicular pain: a systematic review and meta-analysis CMAJ 2018

- prescriptions of anticonvulsants for back and neck pain, including radicular pain in primary care, has increased by 535% in the last 10 years – Australia data
- Comparing anticonvulsants to placebo
- Non-specific back pain and lumbar radicular pain
- 9 trials, 859 patients
- Gabapentinoids: high-quality evidence that gabapentinoids **did not** reduce pain or disability compared with placebo in the short or intermediate term
- Adverse events were common: drowsiness, dizziness, nausea
 - Enke et al CMAJ 2018

Neuropathic Pain Adjuvants

NNT TCA = 3.6 NNT SNRI = 6.4

- Finnerup et al. Lancet Neurology 2015

TCAs have intolerable side effects

- In a trial of TCA vs opioids for neuropathic pain both were effective but patients preferred opioids (54%) to TCAs(30%) to placebo(10%) $p=0.02$
- Raja et al Neurology 2003

SNRIs are likely the best option for older adults with neuropathic pain

- Study of >80 years old found it safe and efficacious for depression
- Baca et al Int J Geriatr Psychiatry 2006

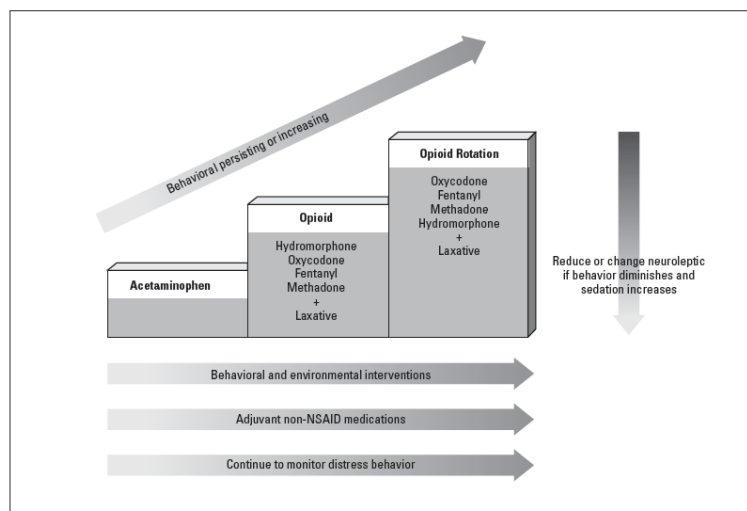


Figure. Trial of analgesics for older adults with advanced dementia exhibiting distress behavior.

Adapted from the World Health Organization's "Three-step analgesic ladder" for cancer pain relief¹⁷

Pain Interventions

Vertebroplasty

- CT scan more accurate than X-ray
- May improve pain even past acute fracture period
- Done as outpatient

Epidural steroid injection

- Spinal stenosis, nerve root entrapment: multiple sites

Nerve root injection

- Single site

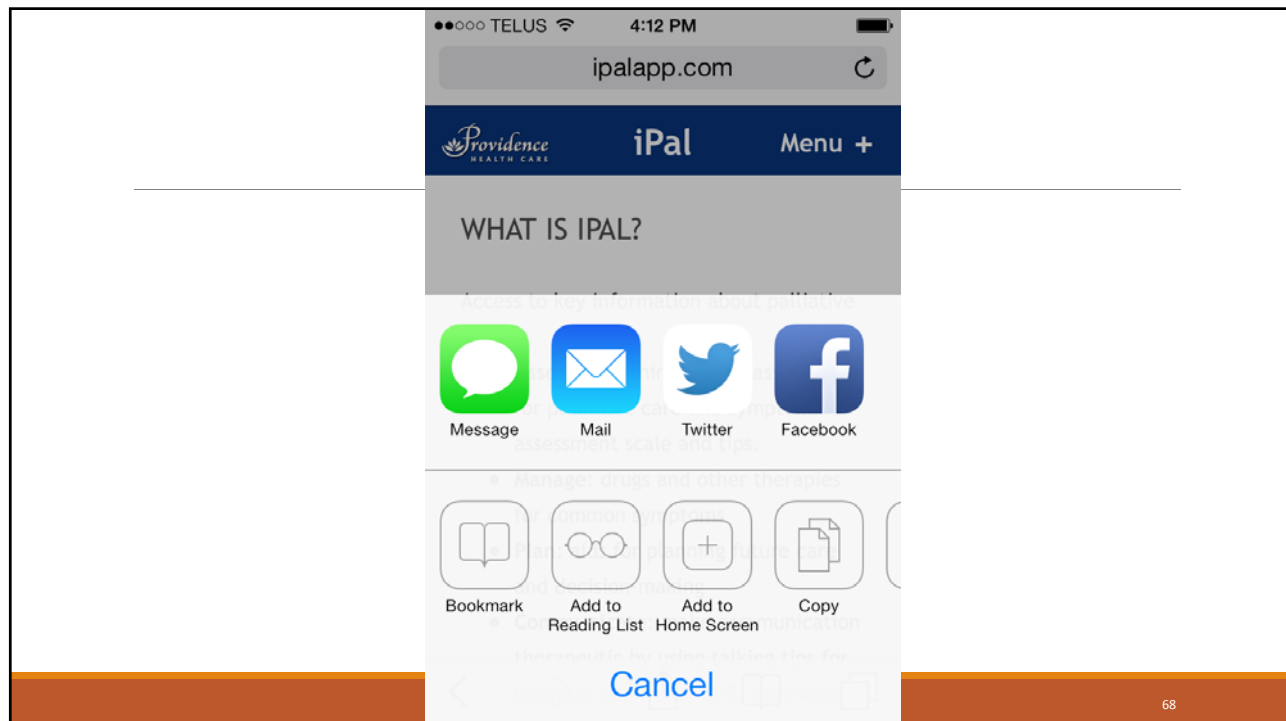
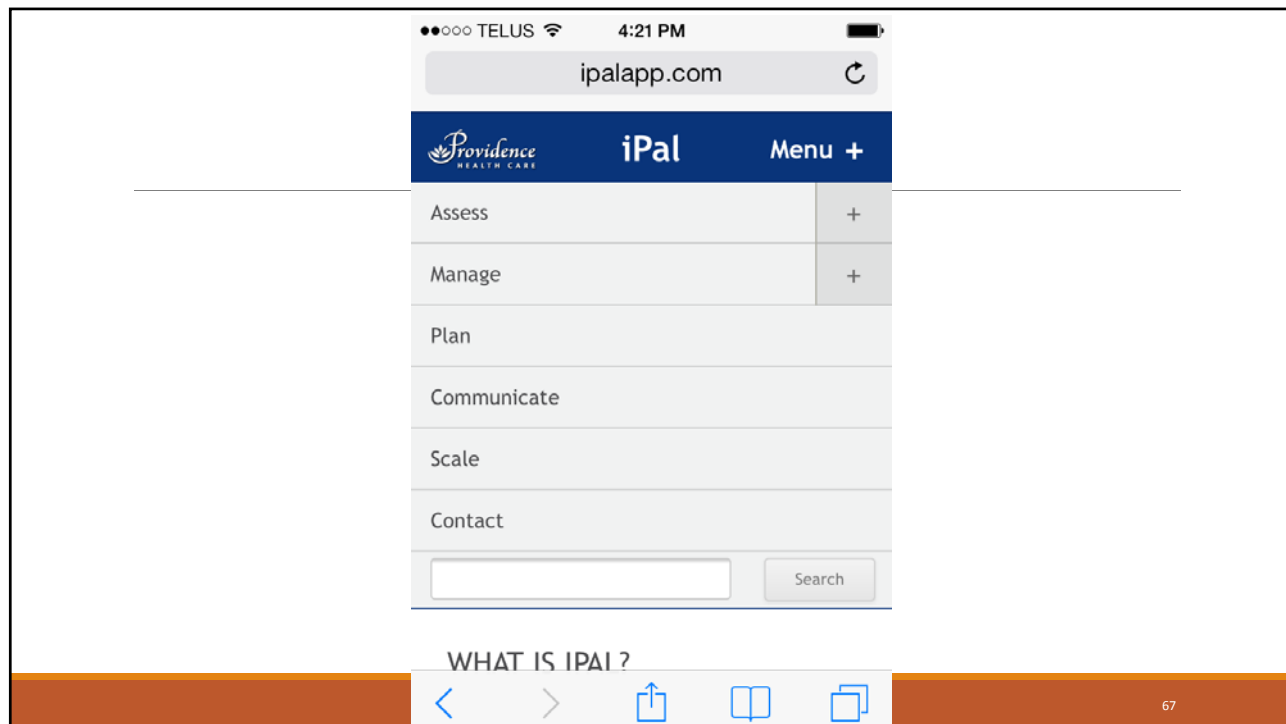
iPal

Essential information for palliative care

Web-based app works on any smart phone

<http://ipalapp.com>

Developed by Providence Health Care Palliative Care Program



Case 1

90 year old man who has remained physically active by dancing since his retirement at age 75

Has comorbidities of CHF secondary to congenital ASD, atrial fibrillation, chronic renal failure (eGFR 33), hypothyroidism, and mild cognitive impairment

Married with two daughters who live nearby

Kept active despite known compression fractures in lower thoracic spine.

Lifting a heavy object when he fell backwards onto the floor. He immediately felt pain in his back.

Continued to struggle at home with the back pain. Family physician gave him Tylenol#3 for pain but caused constipation so he did not use it regularly

After months of ongoing back pain he presented to the local hospital with back pain

Case 1

He was admitted to the hospital with the chief complaint of back pain

In ER he was found to have a troponin elevation so he was referred to Internal Medicine and admitted under their service

The Internal Medicine service adjusted his CHF medications and then transferred him to the Hospitalists to finally address his back pain.

An x-ray showed multiple compression fractures in his lower thoracic spine and upper lumbar spine. A CT scan was not done.

His back pain was treated with acetaminophen and oxycodone prn. He only used two oxycodone per day.

He had a pre-discharge occupational therapy visit to his home and refused to return to hospital.

Case 1

Back pain continued to be severe enough to restrict his mobility and he did not go out of his home for months

Cardiologist referred him to the regional pain clinic where he was seen by the anesthetist

Due to his multiple comorbidities anesthetist did not feel that he could tolerate any procedures and gave him tramacet as recommended by the NOUG

The patient found the tramacet somewhat helpful for his pain and used it in combination with the Tylenol #3 and acetaminophen to manage his pain.

Because of his ongoing back pain his family physician gave him a prescription for celecoxib. Within 10 days his eGFR dropped to 21 and the celecoxib was discontinued. It had made no difference to his pain.

Case 1

The pain was ongoing and he was not going out of his house. The family physician gave him a prescription for hydromorphone 1mg tabs and told him he could use it "only when the pain was really bad"

The patient returned to see the anesthetist. He was using a combination of tramacet, Tylenol #3, acetaminophen and hydromorphone.

The patient was drowsy and professed that he did not care if he died as his back pain was not controlled and he had been unable to go out of the house in many months except in a wheelchair to doctors appointments.

Case 1

The patient was admitted to the hospital and started on a low dose s.c. infusion of fentanyl. All other opioids were stopped.

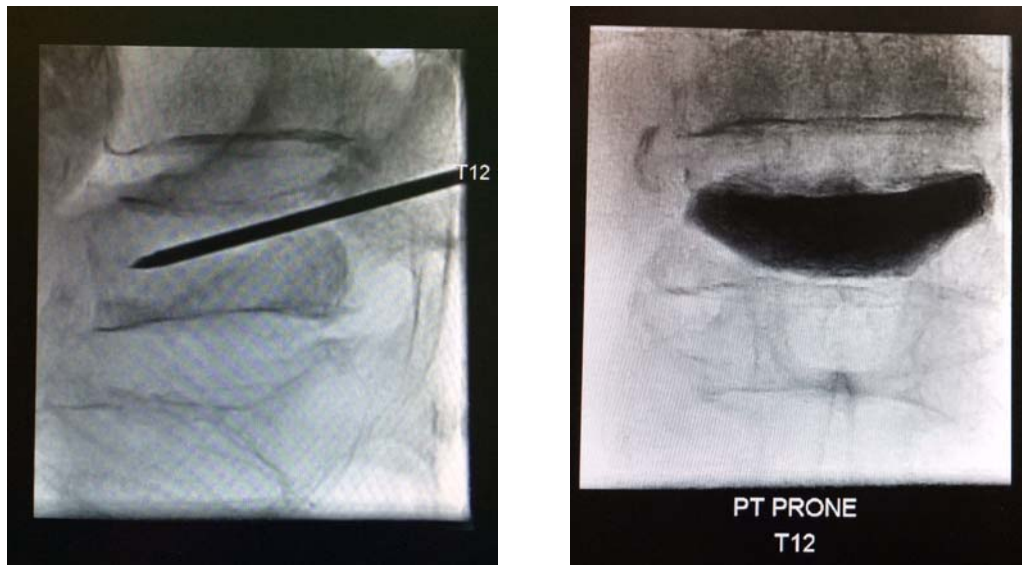
Within 24 hours his pain at rest was controlled on 25mcg/hr of fentanyl

After getting his pain under better control and stopping the other medications he was more alert and in a better mood.

However, his back pain became intense whenever he tried to get up even with a bolus of fentanyl prior to movement. This was clearly incident pain from a collapsed vertebrae.

A CT scan was done to assess the feasibility of vertebroplasty





Case 1

The vertebroplasty allowed the patient to get up and walk the next day.

There was still a need for the regular opioid to control the background pain from the compression fractures but the incident pain was much better controlled. The patient was discharged to home with a fentanyl patch.

On subsequent visits the patient noted that he was able to go out to movies and that he hoped to resume dancing again.

S.I. died 5 months after discharge after a short acute stay for CHF secondary to his ASD

Key Learnings

Old adults with disabling pain secondary to vertebral fractures can benefit from vertebroplasty months after the initial fracture under certain circumstances

Speak with radiologist first to see whether MRI (to see Marrow Edema) or CT is best

Rapid pain control with fentanyl in hospital is possible using the SC/IV infusion route and then switching to patch

NSAIDS can be deadly in frail older adults especially when they already have CRF

Case 2

79 year old woman

Right CVA with left hemiplegia

Recurrent TIAs, HT, AF, blindness L eye

Osteoporosis, recurrent falls

Distant breast cancer

Dementia – moderate

English was second language

Case 2

Staff report noisy and agitated with care
Sun downing but loxapine 2.5mg at hs not effective
Seen by psychiatrist, screening tests for delirium
Increase dose of antipsychotic in late afternoon and pm
What could account for the agitation?

Case 2

Another fall resulting in unstable intertrochanteric hip #
Admitted to acute care and had hip screw
Admitted to rehab ward
Seemed to be unable to follow directions and was resisting care and pinching staff.
Diagnosis: advanced dementia, return to residential care

Case 2

In acute care pain medication orders were

- Hydromorphone 1-2mg q4hr while awake
- Tylenol 650mg qid while awake

What is wrong with these orders?

Case 2

Returned to residential care and started on oxycodone SR
15mg q12hr

Titrated up to 50mg in am, 40mg in pm

Comfortable: smiling, no resistance to care, able to converse
with interpreter

Case 2

Opioid equivalent dose for acute care orders:

- $2\text{mg} \times 4 \text{ doses} = 8\text{mg} = \mathbf{40\text{mg morphine/day}}$

Opioid equivalent dose for residential care orders:

- $50\text{mg} + 40\text{mg} = 90\text{mg/day} = \mathbf{135\text{mg morphine /day}}$

Key Points

While awake and prn orders are not acceptable in dementia patients with known pain

Older people generally require lower opioid doses than younger people but...

The dose that gives pain relief varies from person to person

Case 3

68 year old man with known advanced liver failure and dementia

Both conditions thought to be secondary to alcohol

Calling out, sleeps poorly, vulgar language with swearing

Resistent to care, kicks out

Would say little even with interpreter

Case 3

Past medical history

- Liver cirrhosis
- Diabetes – not currently taking meds
- Hypertension

Case 3

Patient in acute care but refuses to take medications to try to clear hepatic encephalopathy

Behavior managed with sc antipsychotics but family note he is drowsy and do not wish him to be so drowsy

Stabilizes in acute care an prognosis thought to be greater than 3 months so referred to residential care

Case 3

Residential care expresses concerns re behavior

Patient still refusing treatment and irritable

Staff must approach with care

What to do?

Case 3

Closed head injury after hit by car crossing street 10 years ago
After patient often complained of headaches, neck and back pain
Had to quit work at that time
Wife noted that he no longer complains of headaches or pain
What is happening?

Case 3

Fentanyl patch: $\frac{1}{2}$ of a 12mcg patch q72 hours started = about 25mg morphine per day = aprox. 4 Tylenol #3 per day
Titrated up to 18mcg/hr as tolerated
Much less calling out – yet he was not drowsy
Resistance to care stopped

Key Learnings

As cognitive impairment progresses reports of pain diminish

If the pain was chronic, it is likely still there

If things are not making sense can always take a more in depth history!

Case 4

84 year old Cantonese speaking lady who was admitted to acute care from assisted living with back pain

Past medical history

- Osteoporosis with previous compression fractures
- Severe bronchiectasis and chronic hypoxemia
- Hypothyroidism
- Chronic renal failure

Case 4

CT scan shows T6 compression fracture that was not present on 2011 scan

Age of fracture on CT unknown

On examination no point tenderness over T6

Patient refuses to take pain medications even Tylenol

Discharged back to facility with no change in medications

Case 4

Readmitted several days later with nausea and vomiting

Tramadol for back pain had been added by family physician

Patient drowsy with little response

Presumed to be dying by resident so palliative care asked to see

Case 4

Hydromorphone 0.25mg q4hrs regularly with breakthrough q1hr ordered

Regular metoclopramide 10mg sc qid

Rehydration

Patient smiling and eating next morning

Key learnings

Dig deeper when patient's refuse pain medications

Use interpreters

Chronic pain can occur secondary to old compression fractures

Tramadol known for nausea, hypoglycemia

Case 5

81 yr old Chinese woman, speaks little English

Right-sided CVA causing hemiparesis 2010

In facility care since 2011

On admission to facility noted to resist care, be agitated

Treated with olanzepine, nortriptyline, paroxetine, Tylenol #3 prn

Behaviour settled

Case 5

Dementia progresses over the years and becomes less mobile and less communicative

Annual care conference notes drowsiness

- Olanzapine stopped, paroxetine switched to citalopram, nortriptyline stopped

6 weeks later palliative care asked to see because agitated, eats almost nothing, anxious, often taking off clothes

Son wants full investigations and transfer to acute care

Case 5

Restarted olanzepine to reduce agitation and increase appetite

Switch citalopram to mirtazepine

Long insightful discussion with son about mother's preferences for care

What to do about disrobing?

Case 5

Allodynia: a non-painful sensation is painful

Sign of central neuropathic pain

Tylenol #3 discontinued

Methadone 1mg q12 hr titrated up to 2mg in am and 1mg in pm

Resident eating all meals, keeping her clothes on, not anxious

Key Learnings

If an older adult gets a new symptom always think of drug changes first!

Keep an up to date list of diagnoses and their management so will not stop drugs that are controlling symptoms

Taking off clothes can be due to allodynia

Case 6

77 year old man immigrated from Hong Kong 10 years ago

Admitted to residential care after ongoing severe pain and depression for many years. Also some decline in cognition

Complained of pain in mouth and down throat on both sides

No response to analgesics, all teeth removed in attempt to treat pain

Admitted to psychiatry and treated with ECT – still no response

Admitted to residential care as family could not cope

Case 6

Curtains drawn around bed, sitting in wheelchair banging head on bedside table

Not able to speak English but able to report severe pain with interpreter

No visible abnormalities in pharynx or mouth, imaging from previous investigations are negative

Had all teeth removed due to pain

What could this be?

Case 6

Started small dose of methadone 1mg/ml q12hrs and titrated to 3mg q12hrs

Added duloxetine 30mg then 60mg daily

Small response but no major change

Increased dose of duloxetine to 90mg and then to 120mg

Still complained of pain but now out with others playing dominos and smiling

Key Learnings

If patient's pain description doesn't fit a known pain syndrome – think of depression

If the pain is atypical and widespread - think of depression

Keep on trying to treat – even if ECT has failed

Push the dose of antidepressant if no response

Focus on function especially when there is cognitive impairment

Case 7

84 year old with renal failure secondary to NIDDM

Also has CHF, mild COPD

Painful peripheral neuropathy secondary to NIDDM, ischemic vascular disease

On dialysis for a months with decreasing function ability so admitted to residential care

Case 7

On multiple meds for various chronic conditions

Hydromorphone 12mg q12hr for pain was started and titrated in acute care

Pain is not well controlled and he feels drowsy on all these medications

Experiences nausea, dizziness and severe pain following dialysis

What causes the symptoms after the dialysis?

How would you treat his neuropathic pain?

Case 7

Nausea and dizziness can occur following fluid shifts that occur in dialysis

Reducing the amount of fluid removed can help

Pain occurs as hydromorphone serum level dramatically reduced by dialysis

Case 7

Methadone excreted primarily through bowel

Hydromorphone CR 18mg/day switched to methadone 4mg q12hr and gradually titrated to dose of 6mg q12hr

Patient feels pain is better controlled with less sedation

Methadone

A long-acting μ opioid agonist with NMDA blocking properties

- a good option in neuropathic pain
- good option in ESRD

No active metabolites

Excreted mostly by bowel

Requires more careful initial titration

Methadone

Variable equianalgesic dose to other opioids

When converting from other opioids use half of equianalgesic dose and hold dose for 5 days before any titrating starts

In frail elders never use more than 30mg/day to start

Allows drug to reach steady serum level

Many drug interactions with CYP450 3A4

Methadone

In elders usually use q12 hours

Start with very low dose

Often can treat neuropathic pain without other adjuvants if methadone gives good analgesia

Good combination for neuropathic pain is methadone and mirtazepine

Topical Opioids

Ischemic ulcers, pressure ulcers, fungating tumors

Morphine 1% concentration in intra-site gel

Methadone 1% concentration in inert wound powder

