Poly had a little lamb….

SV Jassal

Associate Prof of Medicine, Univ of Toronto &

University Health Network

Poly had a little lamb

Her name was OverDose

And when I tapered all her drugs

She turned into Verbose

My inspiration… Case 1

- 78yo F patient
- Transferred to Green team UHN with sepsis, hypotension and gangrene
- Unwell, hypotensive, drowsy
- On pip/tazo for presumed sepsis
- Prescribed hydromorphone 1-2mg IV q4h PRN for last 6 days

Meds (as listed)

- Atenolol 50mg OD
- Ramipril 5mg OD
- Atorvastatin 20mg OD
- Replavite 1 OD
- CaCO3 500mg elemental 1,2,2
- Allopurinol 100mg OD
- Pip/Tazo BID
- Hydromorphone prn
- Acetaminophen 1g or #2's prn q4h prn
- Lorazepam 1mg qHS
- Zopiclone 3.75mg qHS

	Day -6	Day -5	Day -4	Day -3	Day -2	Day -1
Hydromorph	1mg x2	1mg x 4	1-2mg x3 +2	None	2mg x5	2mg x2
Lorazepam	1mg	1mg	1mg x2	1mg	1mg	1mg
Haloperidol			1 dose			
Midazolam			UC cath			
acetaminophen	plx2	#2x4	#2x4	#2x1	none	#2x3

Actions

- Stopped sedatives, haloperidol prn order
- Started regular pain relief
  - hydromorph 3mg CR bid
  - q6h acetaminophen1g. Adjust slowly depending on use of doses of breakthrough drugs. Avoid NSAIDs
- (stopped allopurinol, reduced B-blocker and held ACEi)

Objectives

- recognise some MD prescribing “issues” commonly seen in patients on dialysis
- feel inspired to direct medication care plans for renal patients
  - Reduction of polypharmacy
  - Drugs that exacerbate geriatric syndromes
  - Drugs that promote quality of life

Plan

- Case 2 – polypharmacy & falls
- Case 3 – patient with depression/dementia and delirium
- Case 4 – medical optimization

Polypharmacy vs. Properpharmacy

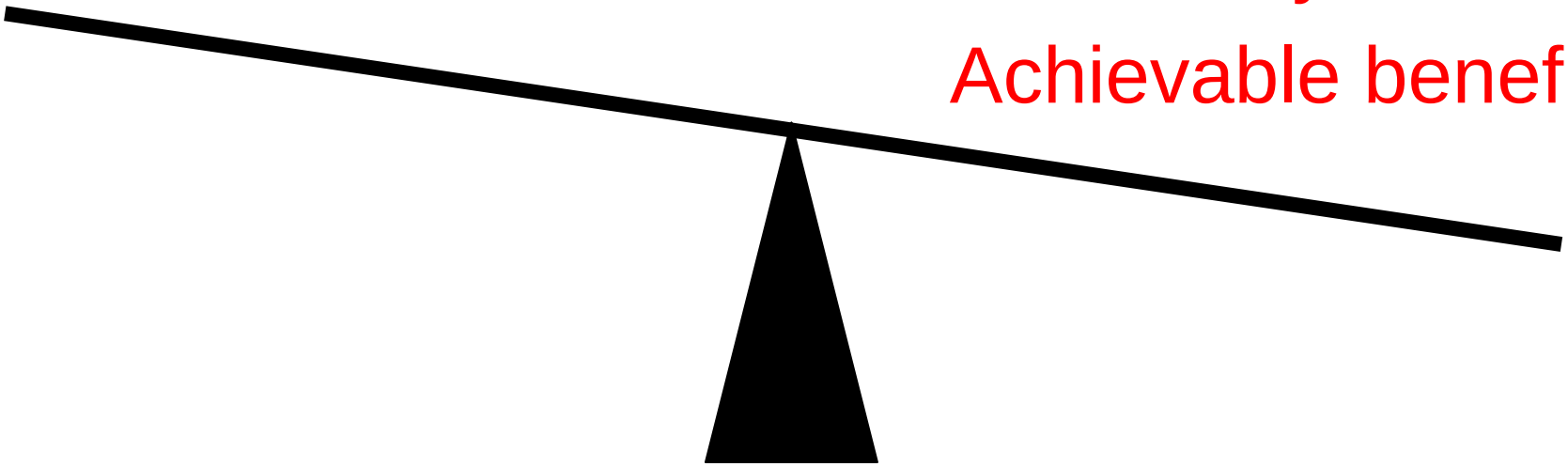
Guidelines

Complex disease

Multiple disease

Geriatric Syndromes

Achievable benefits



Life Expectancy (in years) for Older Dialysis Patients

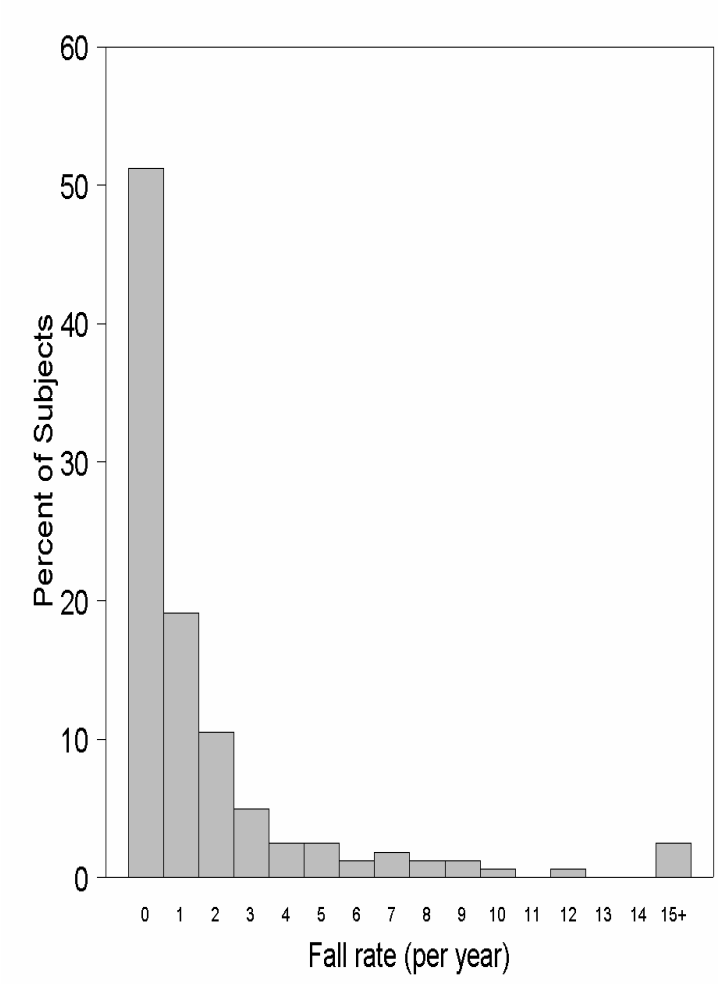
Age at Onset of Dialysis	1990–1994	1995–1999
65–69 yr	3.7	4.6
70–74 yr	3.1	3.9
75–79 yr	2.7	3.2
80+ yr	2.1	2.6

Jassal SV, et al. *CMAJ*. 2007;177:1033-8.

Geriatric Syndromes

- Frailty
  - Lack of appetite/ loss of taste
- Mobility disorders & functional loss
  - Fatigue & functional loss related to pain/stiffness
  - Sensory loss exacerbated by meds/disease
- Incontinence – diltiazem: arthritis mgment
- Sleep ‘hygeine’
- Dementia, delirium & depression

Accidental fall risk in HD



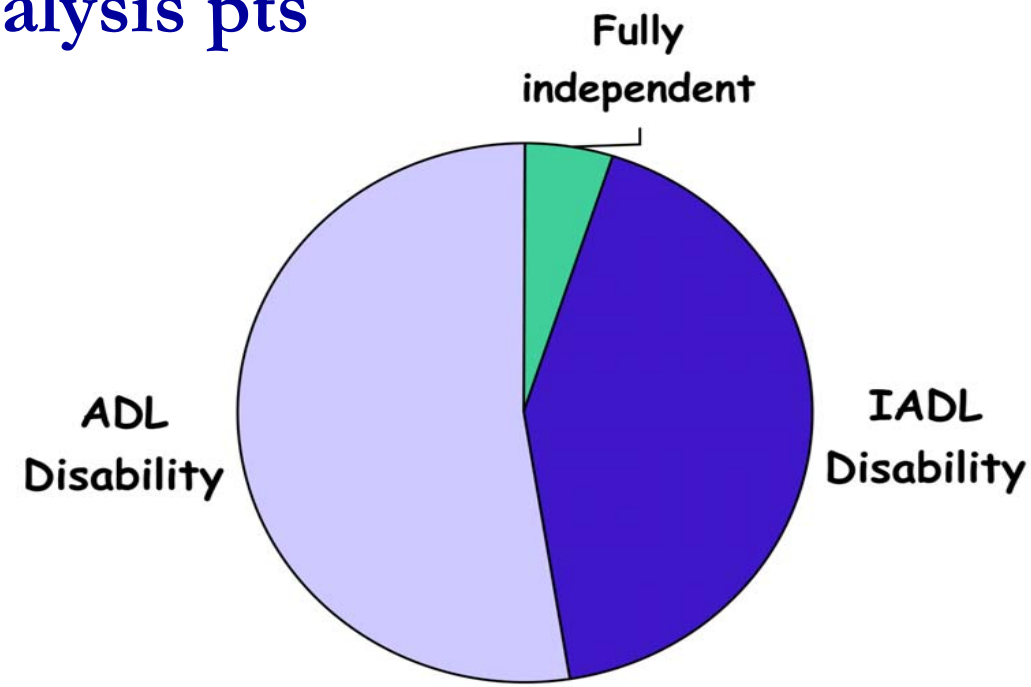
- 164 HD patients followed for a total of 190.5 patient years
- 305 falls /79 individuals
- 58% had >1 fall (2-48)
  - Av. 2.78 falls per pt

    (95% CI 1.8-3.8)

  (gen popn rate ~0.6-1.4/yr)

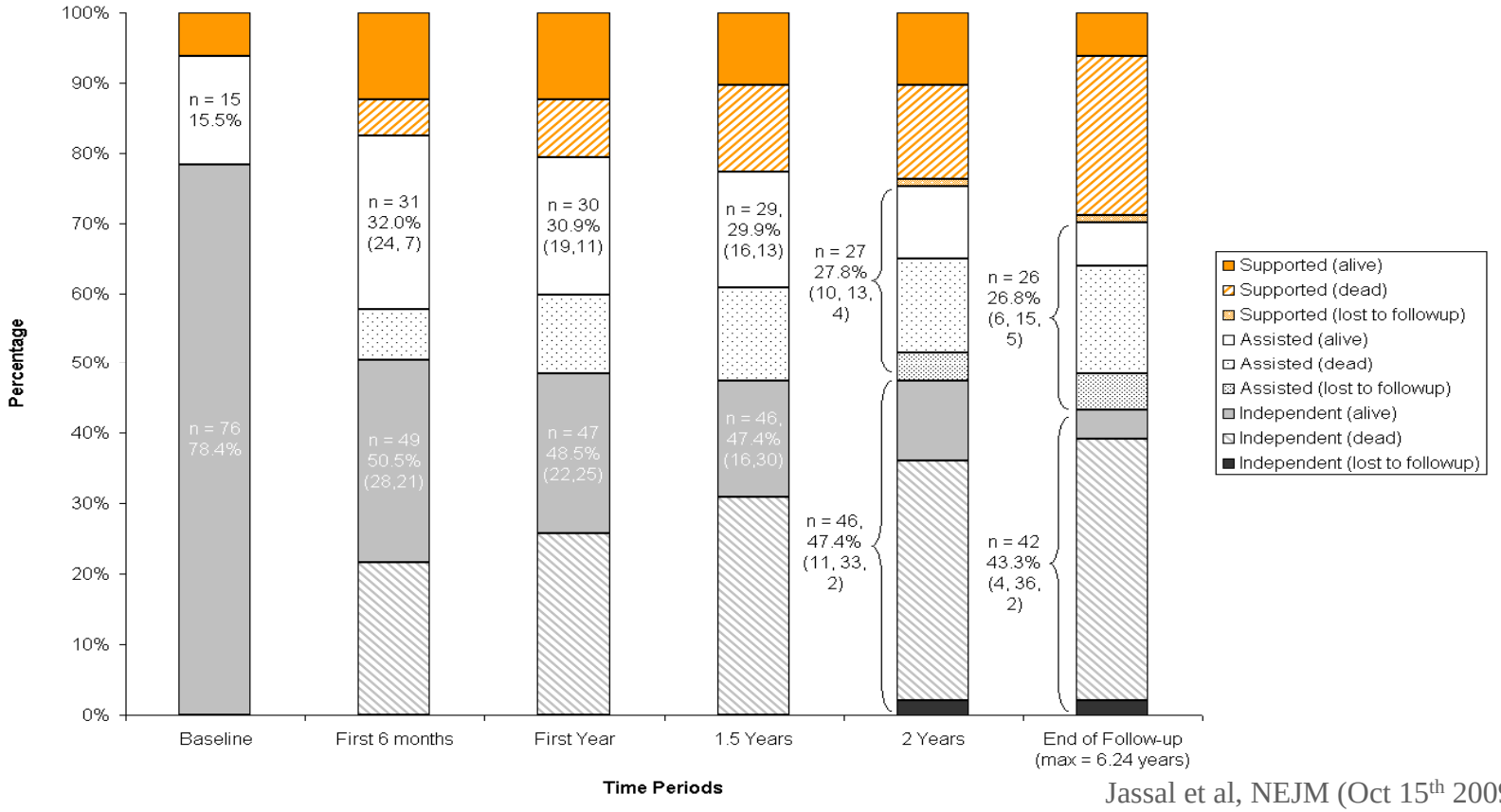
Cook et al, CJASN 2006, Li et al, NDT 2007

Functional disability is common in haemodialysis pts



Cook et al, Kidney Int 2008

Transition to dependency…



Jassal et al, NEJM (Oct 15th 2009)

Polypharmacy vs. Properpharmacy

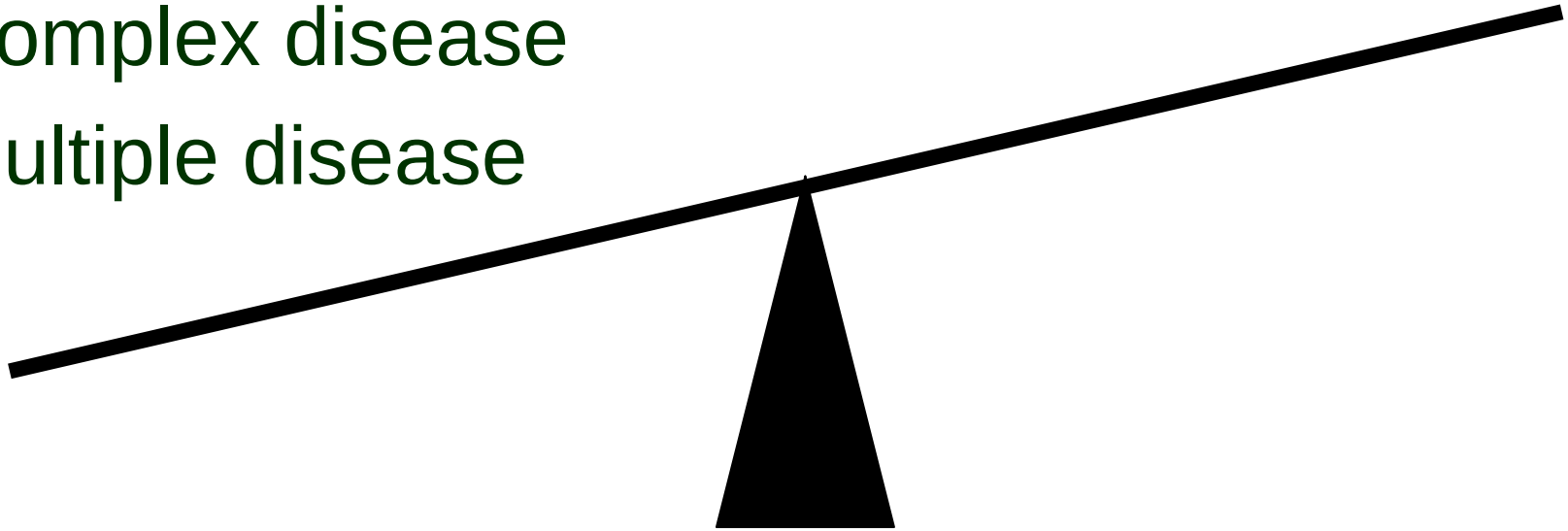
Geriatric Syndromes

Achievable gains

Guidelines

Complex disease

Multiple disease



Case 2 – Frieda T.

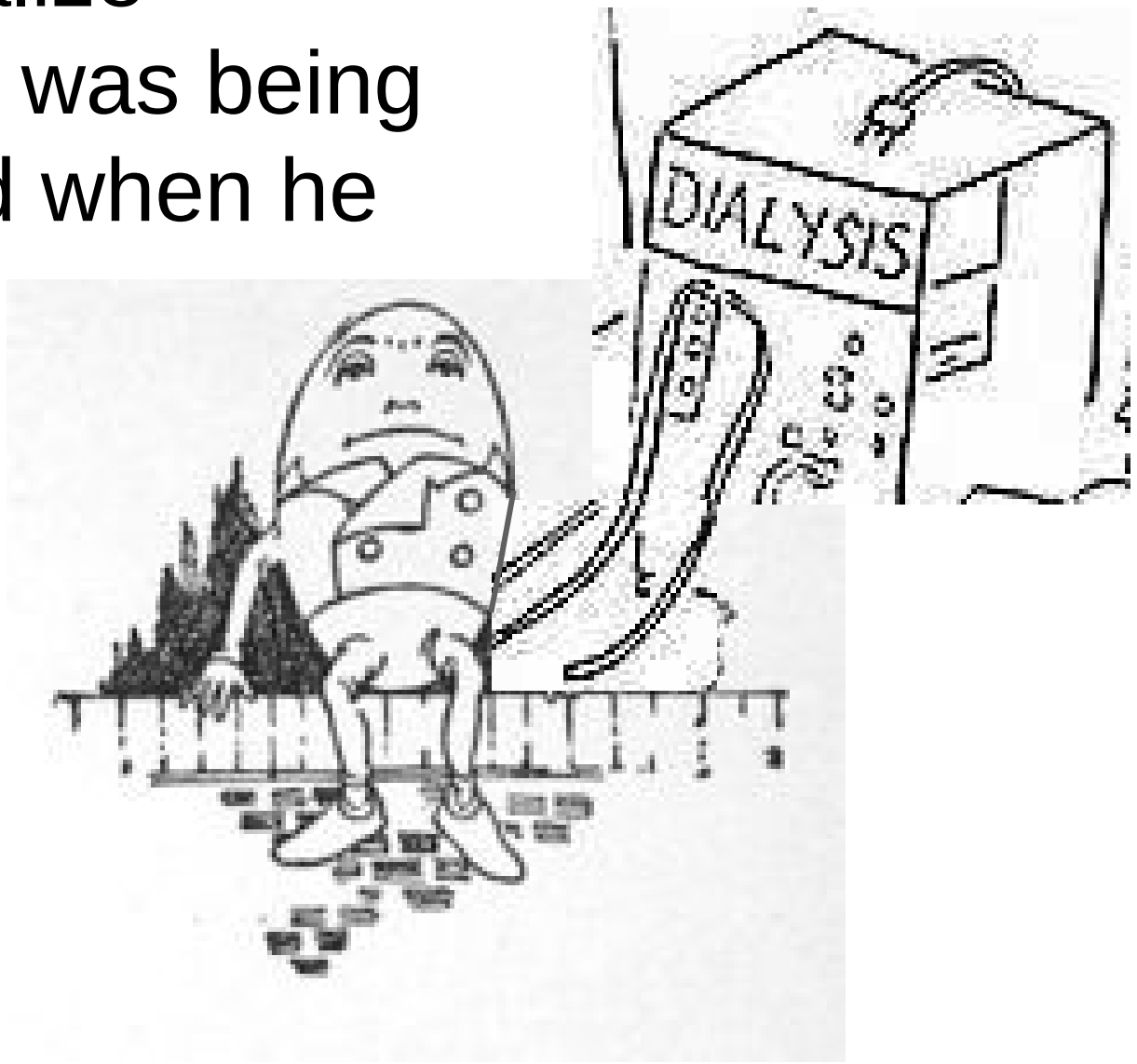
- 82yo presented with a fall and pelvic fracture
- ESRD 2ndry to HT/DM2; On HD ~ 1 year
- Known comorbidities

PMH
1.Stroke with mild L hemiparesis affecting upper and lower limb; rheumatoid arthritis (burnt out)
2.Hypertension -unpredictable readings; No macrovascular complications of DM
3.Osteoarthritis (knees); Osteoporosis; Hypothyroid

Social circumstances

- Pleasant lady lives with her husband in a retirement facility (self managed apartment); Staff love her as she always brings cookies or corn bread…!
- Has good family & friends circle nearby; Known to be ‘stoical’ and very determined
- Recent admission with pelvic fracture 2ndry to a fall

Few realize Humpty was being dialyzed when he fell



Freida T. Clinical examination

- Cooperative, but withdrawn looking
- Height 164cm; weight 49kg (was 56kg)
- Pulse SR 68/min; BP 185/95 lying; 146/74 sitting; 2HS + nil added
- L hemiparesis affecting L arm & hand, and leg. Leg strength grade 4+/5 with classic hemiparetic swinging gait. Used cane
- Burnt out RA hands, wrists; OA knees (no hot joints)

Medications

- Glicazide 4mg OD
- Candesartan 8am OD
- Amlodipine 10mg 8am OD
- Metoprolol 12.5mg BID
- Frusemide 160mg 8am OD
- Aspirin EC 81mg OD
- Clopidrogel 75mg OD
- Omeprazole 20mg OD
- Sevelamer 800mg with supper
- Atorvastatin 20mg 8am OD

- Vitamins B&C 1 tab OD
- Calcitriol 0.25mcg q Mon, Wed Friday
- Fe fumarate 300mg BID
- Clonazepam 1mg prn
- Amytryptilline 25mg OD
- Hydroxyzine 25mg BID
- Docusate Na 1 tab BID
- Lactulose 30mls TID prn
- Acetaminophen 500mg 2 tabs po prn q4h

Objectives

- feel inspired to direct medication care plans for renal patients
  - Reduction of polypharmacy
  - Drugs that exacerbate geriatric syndromes
  - Drugs that promote quality of life

Geri-Nephro perspective

- Limited life expectancy
- Multiple common comorbidities – unlikely to survive long enough to have adverse effects from them
- High likelihood of fall related morbidity (& mortality); functional loss & pain
- Postural hypotension
- Arthritis causing pain + prob limiting mobility

Action plan

- Identify disease states
  - Medically listed
  - Newly identified
  - Less overt – dementia; BP liability; pain; depression
- Identify orphan diseases
- Identify orphan drugs
- Identity deficiencies

Example – pharmacy med reconciliation

Diabetes management	Glicazide 4mg OD
	Candesartan 16mg 8am OD
	Aspirin EC 81mg OD
	Atorvastatin 20mg 8am OD
Hypertension	Amlodipine 10mg 8am OD
	Metoprolol 75mg BID
	Frusemide 160mg 8am OD
	+ Candesartan 16mg 8am OD
Stroke	Clopidrogel 75mg OD
	+ Aspirin EC 81mg OD
Arthritis - RA& OA	Acetaminophen 500mg 2 tabs po prn q4h
Dialysis dependent	Sevelamer 800mg with supper
	Vitamins B&C 1 tab OD
	Calcitriol 0.25mcg q Mon, Wed Friday
	Fe fumarate 300mg BID
Orphan drugs	Omeprazole 20mg OD
	Allopurinol 100mg OD
	Clonazepam 1mg prn
	Amytryptilline 10mg OD
	Hydroxyzine 25mg BID
	Docusate Na 1 tab BID
	Lactulose 30mls TID prn
Hypothyroidism	Orphan diseases
Weight loss	
Postural hypotension	
?Depression	

What actually happened I

- Stopped
  - Pantoprazole/ allopurinol/ frusemide/ sedating drugs
- Softened diabetes targets
- Reassessed the aspirin / clopidrogel (and heparin x3/wk) combination

What actually happened II

- Postural hypotension with multiple falls
- Tolerate higher BP
  - Changed the timings to be after dialysis (taken at home)
  - Stopped the amlodipine
  - Incr. Metoprolol (cut out the half tablet!)
  - Incr. Candesartan
- Treated depression

Other Geriatric Syndromes

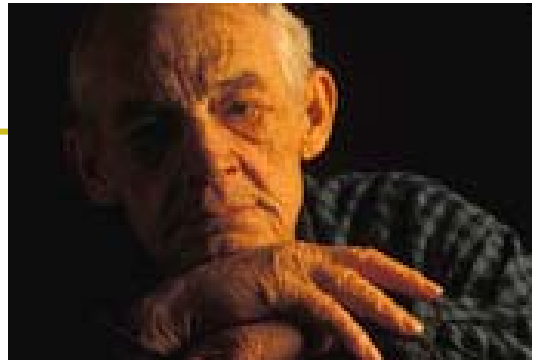
- Frailty
  - Lack of appetite/ loss of taste
- Mobility disorders & functional loss
  - Fatigue & functional loss related to pain/stiffness
  - Sensory loss exacerbated by meds/disease
- Incontinence – diltiazem: arthritis mgment
- Sleep ‘hygeine’

Case 3

COGNITIVE DISORDERS ARE COMMON

The pharmacy perspective

- Increased risk of medication error
- Meds themselves may contribute to the risk of acute delirium and or chronic cognitive change



Case 3 :
The "Difficult" patient

- Sam H is a 76 year old man, originally from the UK
- ESRD 2ndry to DM2
- On HD (via a tunnelled cath) ~ 3years
- Known comorbidities
  - Legally blind, L BKA (2008)
  - Atrial fibrillation, cardiac disease (stable)
  - 1yr ago seizure (unknown aetiology)

- Now presents with 3rd admission for confusion/not coping
- Recently felt to be non-adherent with dialysis & dialysis regime
- Aggressive with paranoid features over past few weeks

Social circumstances

- Widower
- Some family support
- Currently in a full care residential facility – likes it, has friends there
- Reports being ‘lonely’

DELIRIUM vs DEMENTIA

Acute delirium

- Recent onset, fluctuating over 24h
- Key elements include impaired attention, disturbed consciousness, and disorganized thinking. Frequently drowsy or stuporous.
- Attributable (in most cases) to an acute event eg new medical condition, intoxication or medication side effect

Meagher et al, J Psych Res 2008

Is there evidence of acute change in mental status?
Does it fluctuate or increase/decrease in severity during the day?

AND

Is the patient easily distractible, or have difficulty keeping track of what is being said?

AND EITHER

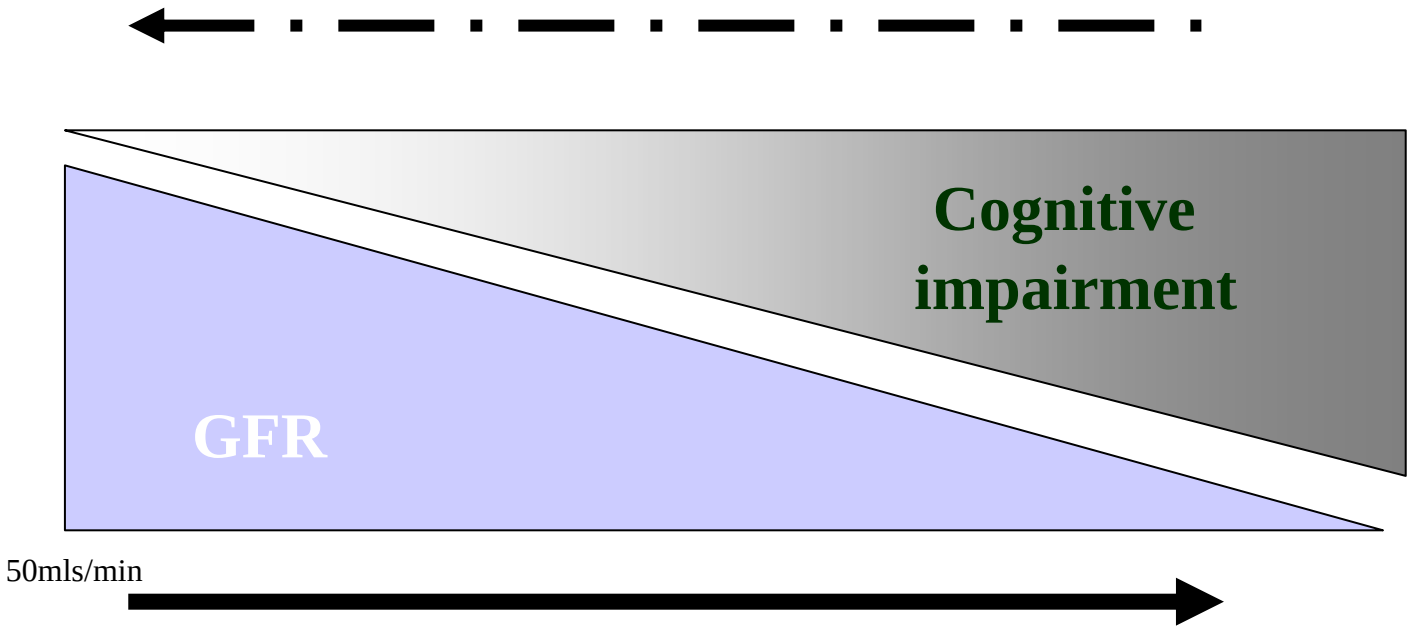
Incoherent
(eg rambling, unclear flow of ideas, or jumping between topics)

OR

Reduced consciousness
-vigilant [hyperalert]
-lethargic [drowsy]
-stupor [hard to arouse]
-coma [unarousable]

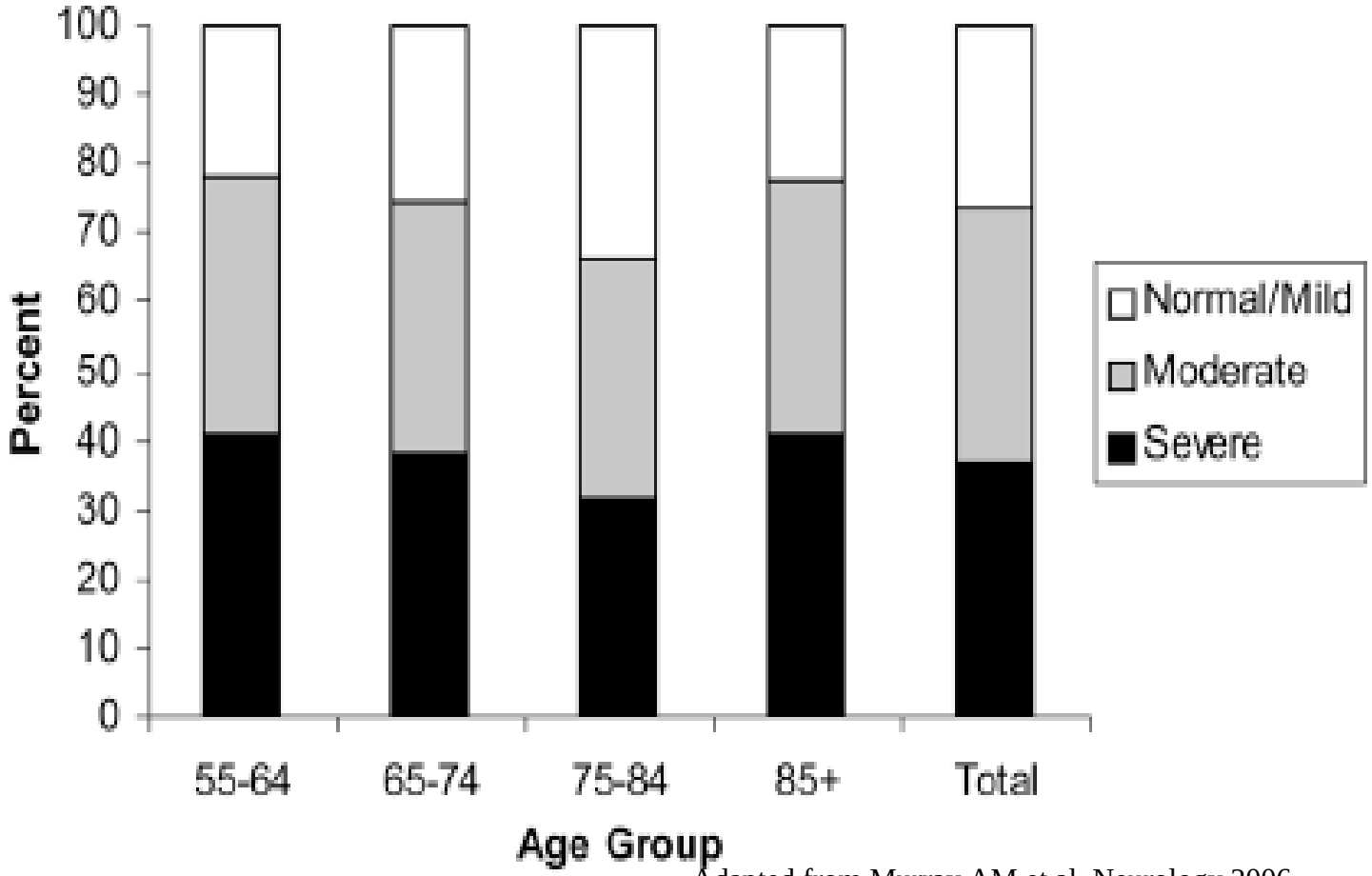
Study	Study Design	Number	Study Population
REGARDS, 2008	C/S	23000	US adults aged > 45y
HERS, 2005	C/S	1015	Menopausal F; Mean age 67y
NHANES III, 2007	C/S	4849	US adults 20-59y
NAME, 2009	C/S	335	Homebound elders, mean age 73y
Murray et al., 2006	C/S	338	Prevalent HD patients
Health ABC, 2005	LT	3034	US adults mean age 74y
CHS, 2004	LT	3349	US adults mean age 75y
Buchman et al., 2009	LT	886	Elderly NH residents
Khatri et al, 2009	LT	2172	Community based >70y

Change in cognitive function with GFR



Murray et al, Neurology 2006
Kurella Tamura et al, Am J Kid Dis 2008

In prevalent HD patients…



Adapted from Murray AM et al, Neurology 2006

Case 3

- Acute delirium 2ndry to UTI
- Background mild cognitive impairment now manifesting as dementia

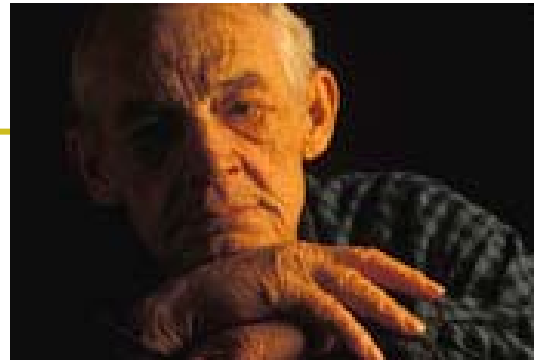
- Antibiotic care, did not require medication for agitation
- Referral for memory clinic + OT

What we also know….

Older dialysis patients have a high incidence of

- Other sensory loss –
  - Sensory (neuropathy)
  - Vision
  - hearing
- Loss of personal control (dependence)
- Fear, isolation and depression

An additional problem



- In both cases the patients reported symptoms which may be consistent with depression
  - Withdrawn/ change in personality
  - Aggressive
  - Report feeling lonely
  - Dementia

Depression

- Common (20-40%)
- Atypical features & overlap with somatic symptoms related to ESRD
- May actually help other psychosomatic symptoms – pain, fatigue, sleep

Depression

- Worthy of a trial of antidepressants
  - Citalopram
  - Venlaflaxine
  - Mirtazepine
- 6 months treatment, effects within a few weeks in many cases

Case 4 : Polypharmacy vs. Proper-pharmacy

Guidelines

Complex disease

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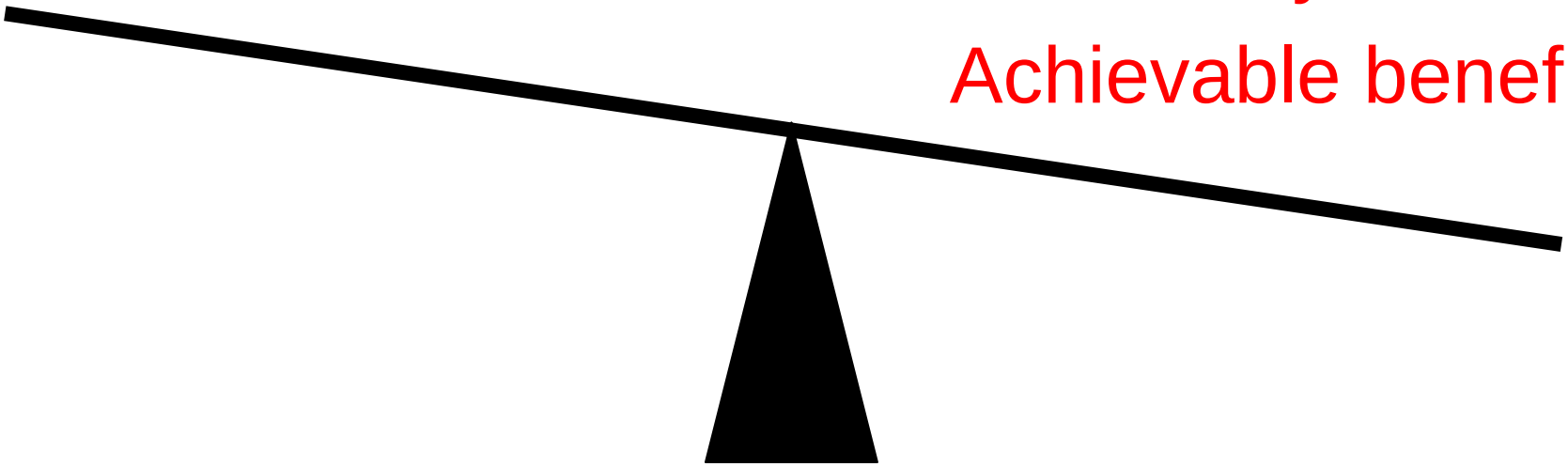
Geriatric Syndromes

Achievable benefits



Case 4 : Polypharmacy vs. Proper-pharmacy

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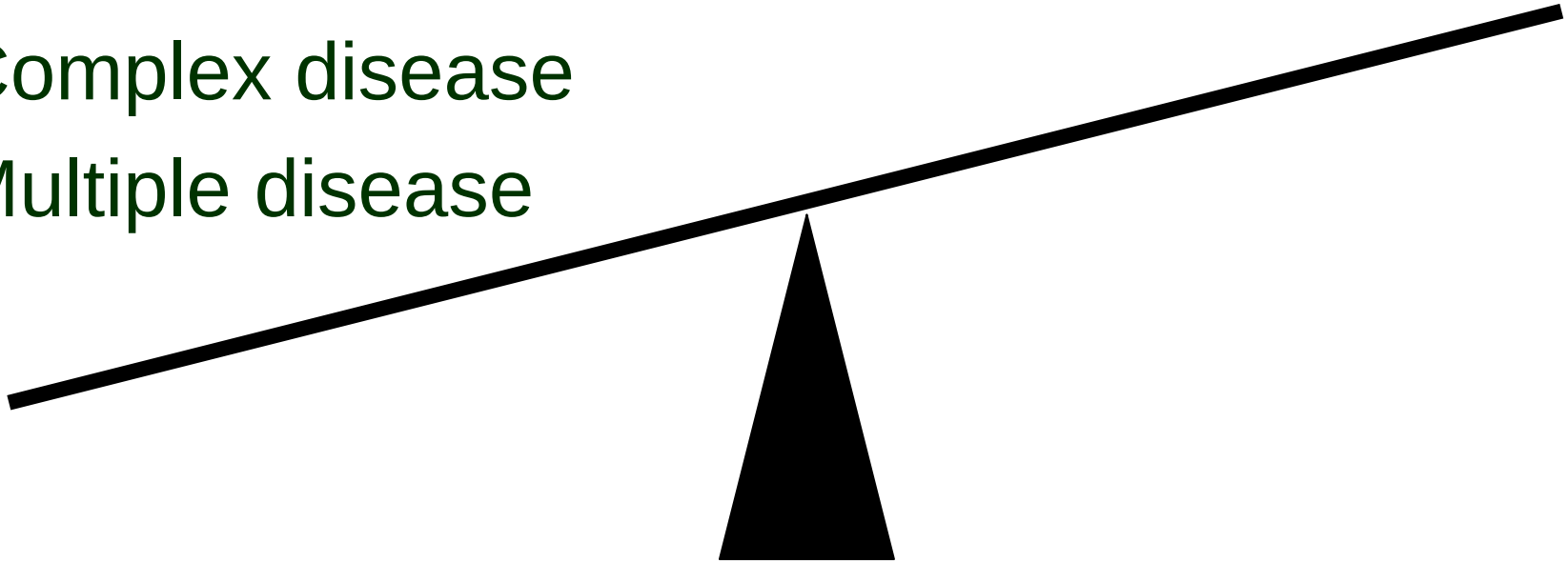

Case 4 – "proper" pharmacy!

- 75yr old male, hypertensive, vasculopath
- Acute start onto dialysis after MI/bypass surgery. Prolonged CCU
- Now referred for rehab

O/E

- well, except for functional loss

Meds:

- Replavite
- CaCo3
- Calcitriol
- Oral Fe
- Aranesp
- Rosuvastatin
- Metoprolol
- Amlodipine
- Omeprazole
- Clopidrogel

Perfect medication

- Clopidrogel – was started for stent placed 17months ago; possible to switch to aspirin now
- Amlodipine vs ACEi – prefer ACEi but this was held due to acute kidney injury

Conclusion

- Case 1: pain management
- Case 2: meds & fall risks
- Case 3: delirium and dementia (depression)
- Case 4: the next step, non-acute care management

Conclusion

- Inspiration to be assertive with MDs
- Consider geriatric syndromes and the appropriateness of guidelines for patients at risk of geriatric syndromes
- Window into our work in the geriatric renal clinics

Poly was a little lamb
Her name was OverDose
And when I tapered all her drugs
She turned into Verbose