Symptom management in ESRD

Frank Brennan
Palliative Care Consultant
St George Hospital Sydney

Renal Supportive Care Symposium
St George Hospital August 19 2011
• Background

• Symptoms – prevalence and management

• Clinic experience in brief
Palliative Care/ a palliative approach can play an important role throughout the course of ESRD
Realistically, given issues of manpower, it may not be possible for a Palliative Care health professional to be present in every Renal Unit.
What are the core competencies in a “Palliative approach” to patients with ESRD?
4 Pillars of a Palliative approach

- Communication
- Symptom management
- Psychosocial support
- Care of the dying patient
Why is symptom management an important aspect of patient care?
• Symptoms are prevalent
• Symptoms are multiple
• Symptoms are burdensome
“Patients with CKD, particularly those with ESRD are among the most symptomatic of any chronic disease group.”

What are the common symptoms associated with ESRD?
The Prevalence of Symptoms in End-stage Renal Disease: A systematic Review

Murtagh FE et al. *Advances in Chronic Kidney Disease* Vol 14, No 1 (January) 2007; pp 82-99
A Cross-sectional Survey of Symptom Prevalence in Stage 5 CKD managed without Dialysis

## SYMPTOM PREVALENCE

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Dialysis</th>
<th>Conservative</th>
</tr>
</thead>
<tbody>
<tr>
<td>FATIGUE/TIREDNESS</td>
<td>71%</td>
<td>75%</td>
</tr>
<tr>
<td>PRURITUS</td>
<td>55%</td>
<td>74%</td>
</tr>
<tr>
<td>CONSTIPATION</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>ANOREXIA</td>
<td>49%</td>
<td>47%</td>
</tr>
<tr>
<td>PAIN</td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>SLEEP DISTURBANCE</td>
<td>44%</td>
<td>42%</td>
</tr>
<tr>
<td>Symptom</td>
<td>Dialysis</td>
<td>Conservative</td>
</tr>
<tr>
<td>------------------</td>
<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td>ANXIETY</td>
<td>38 %</td>
<td></td>
</tr>
<tr>
<td>DYSPNEA</td>
<td>35 %</td>
<td>61 %</td>
</tr>
<tr>
<td>NAUSEA</td>
<td>33 %</td>
<td></td>
</tr>
<tr>
<td>RESTLESS LEGS</td>
<td>30 %</td>
<td>48 %</td>
</tr>
<tr>
<td>DEPRESSION</td>
<td>27 %</td>
<td></td>
</tr>
</tbody>
</table>
Symptom control is challenging
Symptoms interact and compound each other
U. Pruritis
RLS → Insomnia → Fatigue
Pain
Symptoms may derive from the comorbidities
ESRD constrains the use of medication
Pharmacology in the context of CKD is complex
Multiple gaps in knowledge
Recommendations in published data occasionally conflict on the specific doses of medications to be used.
Principles of symptom management

1. Think of the cause(s).

2. Be meticulous

3. Principle of non-abandonment
Background of symptoms

ESRD and its treatment

Co-morbidities
FATIGUE
Complex and multifactorial
• Anaemia - Hb best kept at 11-12

• Electrolyte imbalance

Hyper K  Hypo K
Hyper Ca  Hypo Ca
Hypo Mg  Hypo Na
Hypo Po4
• Nutritional deficiency

• Depression

• Insomnia > Daytime somnolence

• Pain > deconditioning
Fatigue will have an effect on multiple other aspects for the patient:

- QOL
- ADLs
- Need for transport assistance
- Frustration
Management

- Optimize Dialysis
- Correct reversible causes
- Physiotherapy
- Sleep Hygiene
- Social Supports

- If profound – consider Ritalin 10mg mane
Impact on QOL

Davison (2002)
69 dialysis patients

62% stated that pain interfered with their ability to participate and enjoy recreational activities.
51 % stated that pain caused them “extreme suffering”
41 % stated that pain caused them to consider ceasing Dialysis
Positive correlation with depression

In the DOPPS Study - up to 75 % of dialysis patients with moderate to severe pain were not prescribed any analgesia.

Bailie GR et al. Kidney International 2004; 65: 2419-2425
Causes of Pain

ESRD and its treatment

Co-morbidities
ESRD and treatment

Disease related:
• Polycystic Kidney Disease
• Renal Bone Disease
• Amyloid
• Calciphylaxis

Dialysis-related pain:
• PD pts with recurrent abdominal pain
• AV Fistulae > ‘Steal syndrome’
• Cramps
Co-morbidities

• OA

• Diabetic peripheral neuropathy

• PVD / IHD

• Phantom limb pain
Pain etiquette

• ENQUIRE REGULARLY

• RESPOND COMPASSIONATELY

• TREAT COMPETENTLY

• REFER WISELY
Principles of pain management

1. Always enquire about pain.
2. Treat the underlying cause of the pain.
3. Treat the pain meticulously.
4. Treat the pain proportionately.
5. Constantly reassess.
Are there authoritative guidelines for pain management in patients with CKD?
Clinical Algorithm and Preferred Medications to Treat Pain in Dialysis Patients

Mid-Atlantic Renal Coalition (MARC) and the Kidney End-of-Life Coalition of the USA, 2009
The Use of Opioid Analgesia in ESRD Patients Managed Without Dialysis: Recommendations For Practice

Murtagh FEM. J Pain & Palliative Care Pharmacotherapy 2007;21(2); 5-16.
Suggested Guidelines for using the WHO Analgesic Ladder in patients with severe CKD and ESRD

A European Palliative Care Research Collaborative Opioid Guidelines Project

A systematic review of the use of opioid medication for those with moderate to severe cancer pain and renal impairment.


Mild pain
Paracetamol
• Metabolised in liver

• 2-5 % excreted unchanged renally

• Inactive metabolites

• No dose adjustment = 1g qid
“It is considered the non-narcotic analgesic of choice for mild-moderate pain in CKD patients.”

Moderate pain
Weak opioid
Tramadol
86% Metabolised in Liver
Tramadol

- O- Desmethyl Tramadol (M1) (Active)
- N- Desmethyl Tramadol (Inactive)
90 % of Tramadol and its metabolites are Renally excreted
Need for dose adjustment
Tramadol “is the least problematic of the Step 2 Analgesics for ESRD patients”

Nevertheless, use with caution – use a bd dose.
If on Dialysis

Commence 25 mg bd
Maximum 50 mg bd

If on a Conservative pathway
eGFR > 15

Commence 50mg bd

Maximum 100mg bd

If on a Conservative pathway

eGFR < 15

Tramadol 50mg bd (maximum)
Codeine
Metabolised in Liver

Codeine

Morphine  Norcodeine
“We advise caution with chronic use of codeine in CKD patients and suggest limiting doses to 120mg or less per day.”

Digesic

= Dextropropoxyphene + Paracetamol
• Major active metabolite of Dextropropoxyphene is Norpropoxyphene

• Accumulates in CKD -- toxicity

• Not recommended in patients with significant CKD

Davison S. Pain Assessment and Management in ESRD. Lecture given on February 17 2010. Accessible at www.kidneyeol.org/resources.htm. See under tab marked “Physician/Clinician Education”.
Moderate to severe pain
Morphine
Morphine is not recommended in CKD
Hydromorphone
Metabolised in Liver

Hydromorphone

Hydromorphone -3- Glucuronide
Hydromorphone-3-Glucuronide

• Toxicity in rat studies

• Toxicity in case studies in humans
“The activity of H-3-G in humans has yet to be fully established”

Murtagh FEM. *J Pain & Palliative Care Pharmacotherapy* 2007;21(2); 5-16.

“…there are no controlled trials supporting the neuroexcitatory action of H3G in a therapeutic context.”

Use with caution
In dialysis patients
Recommendation 1

Clinical Algorithms (MAC) recommends:

Commence 0.5 mg – 1mg q 4hours po and 1mg prn and titrate
Recommendation 2

Commence 1mg q 6hours and prn

Conservative pathway
Hydromorphone “may not be as effective or as well tolerated” in this setting.

Recommendation 1

• Commence low - 1mg qid.

• If tolerated move to a q4hours dosing

• Titrate up dose carefully – once pain well controlled aim to convert to Fentanyl patch

Recommendation 2

Commence 1.3 mg q 8 hours

Murtagh FEM. J Pain & Palliative Care Pharmacotherapy 2007;21(2); 5-16.
Oxycodone

Short-acting
- Endone
- Oxynorm

Long-acting
- Oxycontin
Use with caution

MAC Clinical Algorithms
“Insufficient pharmacokinetic evidence to establish safety in CKD, but literature reports use without major adverse effects.”

MAC Clinical Algorithm
• Metabolised by liver

• Active metabolites are eliminated mainly by hepatic metabolism

• Single dose study showed prolongation of oxycodone and its metabolites
“There are no long term studies of chronic use in renal failure and the conflicting case reports mean there is insufficient evidence currently for a recommendation.”

Fentanyl
- Metabolised in Liver
- Inactive metabolites
- 5-10 % excreted unchanged renally
- Fentanyl is not dialysed
Fentanyl is safe to use at standard doses
Buprenorphine

= Norspan
Buprenorphine

- Buprenorphine – 3 – Glucuronide (B-3-G)
- Norbuprenorphine (NorB)

Both accumulate in CKD
B-3-G is inactive; NorB has minor analgesic quality
“There is lack of evidence about longer term use in ESRD”

“It may be a potentially useful analgesia for use in CKD.”

Davison S. Pain Assessment and Management in ESRD. Lecture given on February 17 2010. Accessible at www.kidneyeol.org/resources.htm. See under tab marked “Physician/Clinician Education”.
Methadone
• Metabolised in liver

• Excreted mainly in the feces. Some renal excretion of Methadone and its metabolites

• Not dialysed

• Safe to use, but requires skill in dosing regimen – specialist use.
The hand that writes the opioid must also write the laxative
Pain in ESRD summary

Mild pain --- Paracetamol 1g qid
Mild-moderate pain
-- Tramadol (adjusted dose)
-- Oxycodone (with caution)
Moderate to severe pain

Hydromorphone (with caution)

Fentanyl

Methadone
Always be aware that pain is complex and may be only partially opioid-sensitive – especially neuropathic pain.
Management of Diabetic Neuropathy in CKD

• Paracetamol

• Opioids – weak - strong

• TCA

• Gabapentin
When in doubt contact a Pain Team
NAUSEA
Look for the cause (s)

- Uraemia $\rightarrow$ CTZ zone
- Delayed Gastric emptying
- Concurrent medications
- Constipation
Treat the symptom:

Maxalon 5mg – 10mg tds
Haloperidol 0.5mg bd
Cyclizine 25- 50mg tds
Ondansetron 4mg bd
CRAMPS
In Dialysis patients:

Secondary to removal of fluid/solutes
Treat by:

- Adjusting the Dialysis Na/K
- Quinine prior to dialysis
- Carnitine 1-2 g IVI during dialysis
Cramps in patients not on Dialysis:

Quinine
Crampeze  1- 2 bd

Magnesium oxide, Magnesium sulphate, Vitamin B6
INSOMNIA
This may be the product of multiple other symptoms
• Pain
• Uraemic Pruritis
• Cramps
• RLS
• Periodic Leg Movement Disorder
• Sleep Apnea
• Prostatism
• Treat the cause

• Treat the symptom
General measures

• No caffeine after lunchtime
• No alcohol at night
• No smoking at night
• Temazepam 10-20mg nocte
Specific measures

If suspicious of Sleep Apnea –

Formal Sleep Study
RESTLESS LEGS SYNDROME
Definition

1. An urge to move the limbs, usually associated with parasthesias/dysthesias
2. Motor Restlessness
3. Symptoms exclusively while at rest, with relief (completely or partially) with movement.
4. Symptoms worse at night.

Incidence in the general population: 2-15%

Incidence in ESRD: 20-30%
Mechanism is not completely understood
Brain Fe metabolism
Basal Ganglia
Tyrosine $\rightarrow$ L-Dopa $\rightarrow$ Dopamine $\rightarrow$ D2R
Tyrosine $\rightarrow$ L-Dopa $\rightarrow$ Dopamine $\rightarrow$ D2R
Basal Ganglia ________ Hypothalamus
(Circadian rhythm)
Management

Clonazapem

0.5mg – 1mg nocte
Dopamine agonists
• Ergot-Dopamine Agonists (Pergolide, Cabergoline)

• Non-Ergot Dopamine Agonists (Pramipexole, Ropinirole, Rotigotine)
• Augmentation

• Rebound
Gabapentin
Two Level 1 studies have shown efficacy for Gabapentin in the treatment of RLS in Dialysis patients

- **Study A** – Placebo controlled – Thorp et al (2001)
- **Study B** – Gabapentin compared to Levodopa – Micozkadioglu et al (2004)
On Dialysis

Gabapentin 100-300mg after each Dialysis
On conservative management

If eGFR > 15 - Gabapentin 100mg nocte

If eGFR < 15 - Gabapentin 100 every 2\(^{nd}\) night

In both situations then increase by 100mg increments
Authorities recommend caution:

“In Stage 5 CKD without dialysis it is preferable not to use.”

URAEMIC PRURITUS
Associations

• Poor sleep quality

• Depression

• QOL

• Mortality

The pathogenesis of pruritus remains elusive
There are a plethora of suggested treatments
Pathogenesis    Management
Too often the literature concentrates on one or the other but rarely both
The last decade has seen considerable developments in the neuroscience of pruritus and the management of UP
The pathogenesis of pruritus
Complex neural network within the dermis and nerve fibres enter the Epidermis as free nerve endings
C Fibres
10 – 15 % of the C fibres are itch sensitive
For many years the assumption was that the itch pathway was:

Histamine $\rightarrow$ C Fibres $\rightarrow$ Spinal Cord
Of the C Fibres that are itch-sensitive:

20 % are Histamine-sensitive

80 % are Histamine-insensitive
Myth 1

That all itch is histamine mediated
Myth 2

That the best first line medication for pruritus of whatever cause are Anti-Histamines
Histamine-sensitivity of C fibres

Mast Cell

Histamine

H1 Receptor
Histamine is the predominant mediator of IgE-induced urticaria, anaphylaxis
What triggers the Histamine-independent nerve endings?
Keratinocytes

Mast Cells

T-Lymphocytes
Histamine-independent C fibres

Multiple receptors and channels have been described in recent years

PAR 2    TP    TRPV1    TNF    GPCR
Dorsal Horn
Fig. 3.4  The dorsal horn of the spinal cord. (Reproduced with permission from Hill 1956.)
Dorsal Horn

Recent discovery of a Itch receptor in the Dorsal Horn common to both the Histamine-sensitive and Histamine-independent pathways:

Gastrin Releasing Peptide Receptor (GRPR)

Pathogenesis of UP
Multiple theories, conflicting findings
HyperParathyroidism
• There is no correlation between PTH levels and UP

• PTH itself is not pruritogenic
Calcium
Inconsistent findings on s.Calcium and UP
One study found increased extracellular Calcium ions in the deepest layer of the Epidermis in patients on HD with UP

Phosphate
Inconsistent findings on Phosphate and UP
s. Calcium x s. Phosphate
In the DOPPS II study only at a very high Calcium-Phosphate product (ie. > 80 mg²/dL²) was there a correlation with UP frequency.

Adequacy of dialysis
Dialysis adequacy (as measured by Kt/V) did not correlate with the frequency of UP in large epidemiological studies

Other causes suggested

- Xerosis
- Abnormalities in afferent pain fibres
- Hypervitaminosis A
- Cutaneus divalent ion content
- Allergic sensitisation
- Bile acids
- Aluminium
- High s. Magnesium
- Histamine
“Despite this vast array of possible explanations, none consistently have been demonstrated to be the underlying cause of pruritus associated with CKD. Large epidemiological studies ultimately may facilitate our understanding of the elusive pathophysiological process of this distressing symptom.”

Large number of therapies described
What therapies have the strongest foundation in evidence – based practice?
• Oral medications
• Topical preparations
• UV Therapy
Gabapentin
There are 3 (three) Level 1 studies showing that Gabapentin has significant efficacy in treating uraemic pruritus

Naini et al (2007)
Razeghi et al (2009)

Randomised, double-blind, crossover, placebo-controlled trial.

25 patients on HD

Gabapentin 300mg after HD v Placebo for 4 weeks, 1 week washout period, then reversed.
Mean initial pruritus score = 8.4 +/- 0.94

With Gabapentin = 1.2 +/- 1.8
Placebo = 7.6 +/- 2.6

p < 0.0001
Naini et al (2007)

Randomised, double-blind, placebo controlled trial

34 patients on HD

Gabapentin 400mg post HD twice weekly v Placebo for 4 weeks
Initial pruritus score = 7.2 +/- 2.3

Mean decrease in score –

• Gabapentin = 6.7 +/- 2.6
• Placebo = 1.5 +/- 1.8

p < 0.001
Razeghi et al (2009)

- Randomised, double-blind, placebo controlled.
- 34 patients on HD
- Gabapentin 100mg post HD for 4 weeks, 1 week washout period, then 4 weeks on Placebo
Mean initial pruritus score (out of 100)

• Gabapentin = 6.44 +/- 8.4
• Washout = 15 +/- 11.2
• Placebo = 81.11 +/- 11.07

p < 0.0001
Dosing identical as above with RLS
Authorities recommend caution:
“In Stage 5 CKD without dialysis it is preferable not to use.”

Evening Primrose Oil
Gabba Linolenic Acid (GLA)
Essential Fatty Acids (EFA)
Present in the epidermis
n-6 EFA

- Linolenic Acid (LA)
- Gabba –Linolenic Acid (GLA)
- DGLA
- Arachidonic Acid
- Adrenic Acid
- Docosapentaenoic Acid
n-EFA

Linolenic Acid (LA)

Gabba –Linolenic Acid (GLA)

PGE1

DGLA

15 OH DGLA

Arachidonic Acid (AA)

Adrenic Acid

Docosapentaenoic Acid
PGE1 and 15 OH DGLA have an anti-inflammatory/ anti-pruritic effect
n-EFA

Linolenic Acid (LA)

Gabba –Linolenic Acid (GLA)

DGLA

Arachidonic Acid (AA)

PGE2

Leukotriene B4

Adrenic Acid

Docosapentaenoic Acid
• PGE 2 is pro-inflammatory

• Leukotriene B4 is very pruritogenic
So supplementing the Gabba-Linolenic Acid (GLA) has an anti-inflammatory/anti-itch effect...
n-EFA

Linolenic Acid (LA)

Gabba –Linolenic Acid (GLA)

DGLA

PGE1

15 –OH DGLA

PGE2

Arachidonic Acid (AA)

Leukotriene B4

Adrenic Acid

Docosapentaenoic Acid
100mg bd

= Blackmores Evening Primrose Oil
contains 100mg GLA per capsule
Thalidomide  100mg nocte

Silva SR. *Nephron* 1994; 67(3): 270-273
Inhibits the synthesis of TNFα
Mast Cell

TNF α

Th 2 Lymphocyte

IL-2 = Itchy ++

Th 1 Lymphocyte
Other oral medications

- Anti-Histamines – evidence does not support use.
- Ondansetron – conflicting results. Not recommended.
- Cimetidine – not recommended
- Naltrexone – conflicting results. Not recommended.

Topical preparations
There are two Level 1 studies showing efficacy for Capsaicin cream in UP

Capsaicin cream (0.025 %)

Side effect – transient “burning” feeling on the skin
Topical Calineurin Inhibitors
Tacrolimus/ Pimecrolimus ointment
- suppresses the Th1 Lymphocyte production of IL-2
Inconsistent efficacy results in trials

Yes

Kuypers (2004)

No

Duque (2005)
UV Therapy
UV Therapy

- Broadband UVB

CONSTIPATION
Multifactorial
• Reduced mobility

• Reduced fluid intake

• Medication – oral Fe, PO4 binders, opioids

• Poor diet

• More common on CAPD
• General measures – high fibre diet, increased mobility

• Specific – combination of softener (eg. Coloxyl) and stimulant (eg. Senna)
ANOREXIA
Multifactorial
• Nausea
• Dry mouth
• Altered taste
• Delayed gastric emptying
• Depression
• Uraemia
• Inadequate dialysis
• Abdominal discomfort and swelling from CAPD
• Patients on Dialysis require 2 x protein of the non-dialysis patient.

• Chronic Protein Energy Malnutrition is common
Management

• Attempt to reverse the reversible causes

• Renal Dietician Review

• Megace 160mg bd
ANXIETY
Psychosocial support
BZ have a prolonged half-life

Lorazepam (Ativan) sublingually useful for panic attacks
DEPRESSION
Incidence – 5-22 % of patients

Difficult to accurately diagnose with multiple neuro-vegetative symptoms already present with the ESRD –

Fatigue, anorexia, insomnia
Do you feel depressed?
1. SSRIs that can be used without dose adjustment are:

Citalopram, Fluoxetine, Sertraline

2. TCA
What is the experience of the Renal Supportive Care Clinic?
Palliative Care Clinic

123 patients from March 2009 to July 2011
## Clinic patients
March 2009 – July 2011

<table>
<thead>
<tr>
<th>NUMBERS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT for Dialysis</td>
<td>71</td>
</tr>
<tr>
<td>Dual diagnosis</td>
<td>10</td>
</tr>
<tr>
<td>Symptoms on Dialysis</td>
<td>35</td>
</tr>
<tr>
<td>Withdrawal discussion</td>
<td>7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>123</td>
</tr>
</tbody>
</table>
The POS-S (Renal) Symptom Inventory
Questionnaire POS-S (renal) – staff version

Below is a list of symptoms which the patient may or may not have experienced. Please record how these symptoms have affected the patient in the table below. Put a tick in the box to show how you think they have affected how they have been feeling over the last week.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Not at all, no effect</th>
<th>Slightly — but not bothered to be rid of it</th>
<th>Moderately — limits some activity or concentration</th>
<th>Severely — activities or concentration markedly affected</th>
<th>Overwhelmingly — unable to think of anything else</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortness of breath</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weakness or lack of energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea (feeling like you are going to be sick)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomiting (being sick)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor appetite</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constipation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mouth problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drowsiness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor mobility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Itching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty sleeping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restless legs or difficulty keeping legs still</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling anxious</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling depressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhoea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any other symptoms?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Which symptom has affected the patient the most? .................................................................

Which symptom, if any, has improved the most? .................................................................
Clinic Mean Demographics at first visit (as at July 2011)

<table>
<thead>
<tr>
<th></th>
<th>Dialysis patients who visited the clinic</th>
<th>Conservative patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 1\textsuperscript{st} visit</td>
<td>73 yrs</td>
<td>81 yrs</td>
</tr>
<tr>
<td>BMI</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td>Creatinine</td>
<td>625 umol/L</td>
<td>298 umol/L</td>
</tr>
<tr>
<td>eGFR (MDRD)</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Haemoglobin</td>
<td>111 g/L</td>
<td>110 g/L</td>
</tr>
<tr>
<td>Albumin</td>
<td>30 g/L</td>
<td>34 g/L</td>
</tr>
<tr>
<td>Male</td>
<td>75%</td>
<td>59%</td>
</tr>
<tr>
<td>Symptom</td>
<td>Nil-Mild</td>
<td>Moderate</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>WEAKNESS</td>
<td>31 %</td>
<td>36 %</td>
</tr>
<tr>
<td>FATIGUE/ Tiredness</td>
<td>59 %</td>
<td>32 %</td>
</tr>
<tr>
<td>PRURITUS</td>
<td>54 %</td>
<td>24 %</td>
</tr>
<tr>
<td>POOR MOBILITY</td>
<td>46 %</td>
<td>28 %</td>
</tr>
<tr>
<td>PAIN</td>
<td>49 %</td>
<td>29 %</td>
</tr>
<tr>
<td>DEPRESSION</td>
<td>66%</td>
<td>21 %</td>
</tr>
<tr>
<td>SLEEP DISTURBANCE</td>
<td>55%</td>
<td>14 %</td>
</tr>
</tbody>
</table>
## SYMPTOM PREVALENCE

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Nil-Mild</th>
<th>Moderate</th>
<th>Severe - overwhelming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyspnea</td>
<td>67%</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>Anorexia</td>
<td>64%</td>
<td>22%</td>
<td>14%</td>
</tr>
<tr>
<td>Restless Legs Syndrome</td>
<td>76%</td>
<td>15%</td>
<td>9%</td>
</tr>
<tr>
<td>Nausea</td>
<td>79%</td>
<td>11%</td>
<td>10%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>93%</td>
<td>5%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Pain
Patients with Moderate to Overwhelming Pain on 1\textsuperscript{st} survey (Non dialysis)
Patients with Moderate to Overwhelming Pain on 1st survey (Dialysis)

<table>
<thead>
<tr>
<th>% of patients</th>
<th>None</th>
<th>Slight</th>
<th>Moderate</th>
<th>Severe</th>
<th>Overwhelming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey 1 (n=21)</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Survey 2 (n=6)</td>
<td>0</td>
<td>17</td>
<td>25</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Survey 3 (n=5)</td>
<td>0</td>
<td>0</td>
<td>67</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>Survey 4 (n=4)</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>0</td>
</tr>
</tbody>
</table>
Uraemic Pruritus
Patients with Moderate to Overwhelming Pruritus on 1st survey (Non dialysis)
Patients with Moderate to Overwhelming Pruritus on 1\textsuperscript{st} survey (Dialysis)
Restless Legs Syndrome
Patients with Moderate to Overwhelming RLS on 1st survey (Non dialysis)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Survey 1 (n=13)</th>
<th>Survey 2 (n=11)</th>
<th>Survey 3 (n=9)</th>
<th>Survey 4 (n=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>55</td>
<td>44</td>
<td>43</td>
<td>0</td>
</tr>
<tr>
<td>Slight</td>
<td>0</td>
<td>27</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Moderate</td>
<td>62</td>
<td>43</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Severe</td>
<td>0</td>
<td>14</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Overwhelming</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
</table>
Patients with Moderate to Overwhelming RLS on 1st survey (Dialysis)
U. Pruritus
RLS → Insomnia
Pain
Percent of Severe to Overwhelming Symptoms (all patients) n=55
Conclusion

- Symptom management is an important arm of management.
- Symptoms are prevalent and multiple
• Be meticulous

• Symptom relief may have a significant impact of patients’ Hr QOL