

Urology for Geriatricians: Common Clinical Problems to Address

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TOPICS

Benign Prostatic Hyperplasia
Prostate Cancer
Renal Masses and Renal Cancer
Bladder Cancer
Urinary Stones
Hematuria
Urinary Catheters

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BENIGN PROSTATIC HYPERPLASIA (BPH)

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Benign Prostatic Hyperplasia and LUTS

History:

IPSS form - obstructive versus irritative symptoms

Fluid type and volume of intake

Nocturia and sleep habits/volume intake at night

Hematuria and infections

Exam

The dreaded DRE; Abdominal exam for a distended bladder

Bladder scan post-void residual (PVR) - We do flow rate studies as well.

Labs

Complete U/A, culture if indicated

PSA within a year

Cr if PVR high

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International Prostate Symptom Score (IPSS)

Patient Name: _____ **Date of Birth:** _____ **Age:** _____ **Today's Date:** _____

Determine Your BPH Symptoms Circle your answers and add up your scores at the bottom.

Over the past month	Not at all	Less than one time in five	Less than half the time	About half the time	More than half the time	Almost always
Incomplete emptying: How often have you had the sensation of not emptying your bladder completely after you finished urinating?	0	1	2	3	4	5
Frequency: How often have you had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5
Intermittency: How often have you stopped and started again several times when you urinate?	0	1	2	3	4	5
Urgency: How often have you found it difficult to postpone urination?	0	1	2	3	4	5
Weak stream: How often have you had a weak urinary stream?	0	1	2	3	4	5
Straining: How often have you had to push or strain to begin urination?	0	1	2	3	4	5
Sleeping: How many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning?	None 0	One Time 1	Two Times 2	Three Times 3	Four Times 4	Five or More Times 5
Add Symptom Scores:		+	+	+	+	+

Total International Prostate Symptom Score= _____

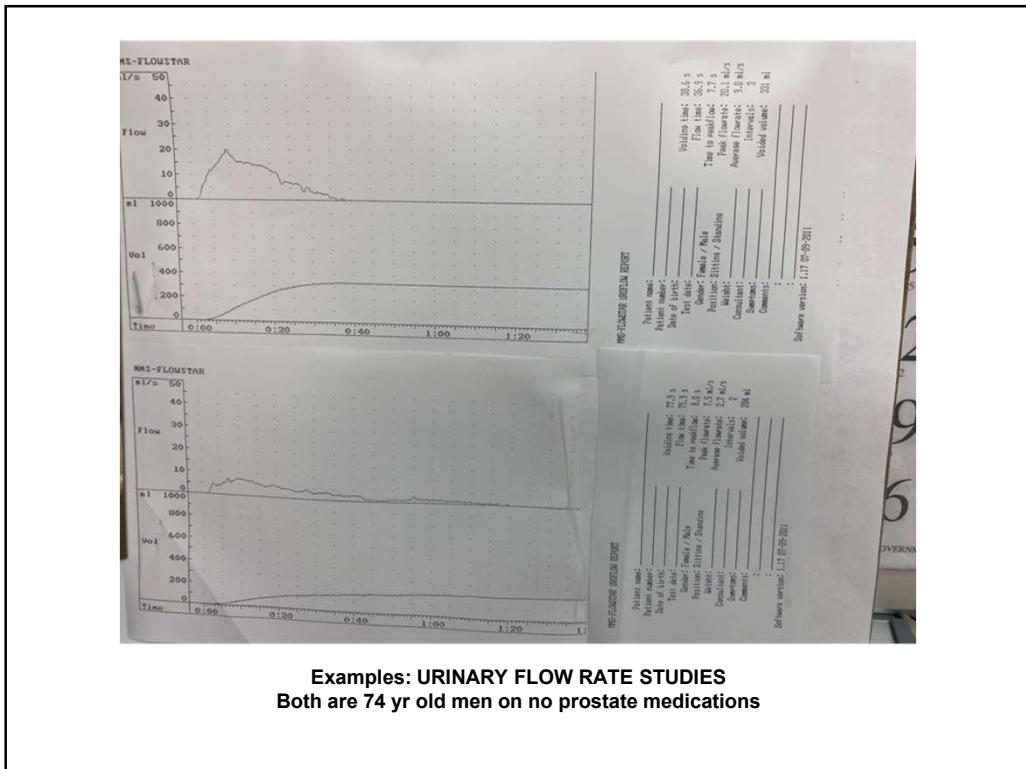
1-7 mild symptoms 8-19 moderate symptoms 20-35 severe symptoms

Regardless of the score, if your symptoms are bothersome you should notify your doctor.

Quality of Life (QoL)	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?	0	1	2	3	4	5	6

Would you be interested in treatment options? Yes No

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BPH

1. Bladder irritants - coffee, tea, soda, spicy foods.....
2. Drinking 4L of all fluids/day - COMMON
3. Drinking within 3 hours of going to bed
4. Are you awakened by the need to void, or do you void because you are awake?
5. Diabetes control and/or Diuretic usage

Post Void Residual

Multiple testings required

Some technical skill involved

< 200 cc is fine, though not perfect :)

200-400 cc - best to refer to Urology for further assessment and plan

> 400 cc - Urologist ASAP; over 600cc - foley and Cr

PVR correlates with likely need for surgical intervention and potential loss of bladder function

If no office machine; this can be done with Ultrasound in Radiology: Pre and Post-void bladder volumes

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BPH

Medical Management of LUTS

Alpha blocker to start - Tamsulosin or Alfuzosin
Should see improvement by 4 weeks

MTOPS - do not expect miracles!! Average IPSS improvement was 6-7 points;
placebo was 4 points; but some men are dramatically benefitted

Can then add a 5-ARI (Proscar) if you think the prostate is above average size -
up to 6 months for benefit, and has some ED and breast tenderness risks.

Anti-cholinergics or Mirabegron can then be added for men with irritative
symptoms refractory to basic medical management, with lowish PVR's.
Actual Drugs and dosing vary by region, insurance and cost (Next slide)
All have comparable efficacy; some with less side effects
Seems like all can be used with Parkinson's patients as well (may vary)

All this can be done before a GU Referral if PVR is not terrible.

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Bladder Relaxant Medications

Anti-Cholinergics:

Oxybutinin (Ditropan, Ditropan XL)
 Tolteridine (Detrol), Trospium (Sanctura), Fesoterodine (Toviaz)
 Solifenacin (Vesicare), Darifenacin (Enablex)
 SE: Dry mouth, constipation, worsening dementia, falls

All with equal efficacy, but can vary by patient - Oxybutinin with more common SE

Anti-Depressants:

Imipramine and Desipramine - these relax the bladder and tighten the bladder neck. Thus may relax the bladder but make voiding more difficult in some men.... (Best use then is for Urgency incontinence - M or F)
 SE: Drowsiness, lower sex drive, fatigue

Beta-3 Agonists:

Myrbetriq (Mirabegron) and Vibregon (Gemtasa)
 SE: HTN - usually pre-existing, less dry mouth and constipation
 Very expensive at present

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BPH

Surgical Management

Absolute Indications for Surgery:

Retention on alpha blockers
 Obstructive Uropathy (Elevated Cr and Hydro with some PVR)
 Bladder stones and poor emptying (*caveats)
 Recurrent UTI with poor emptying - high PVR
 Recurrent Gross hematuria due to BPH

Relative Indications for Surgery

Symptoms refractory to medication
 Benefitted by medications but poor tolerance, cost etc.

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Surgical Options for LUTS - BPH

"Minimally Invasive Procedures".....

Transurethral Microwave - marginal if any benefit

Urolift - no better than medical therapy

Robotic Waterjet - (Steaming) evolving, not yet....

Rezum - (Heating) somewhat comparable to other standard treatments;
significant period of bladder irritation (4-6 weeks) and longer catheter
duration after the procedure; but usually preserves sexual emission.

Standard Procedures with durable track record

Bipolar TURP

Laser Vaporization - removes tissue (Greenlight or Revolix)

Laser Enucleation - HOLEP - cuts out tissue, morcelated in the bladder and
then sucked out. (Histological sampling possible)

Open/Robotic Simple prostatectomy - for very large prostate glands

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Surgical Risks and Geriatric Concerns

Loss of seminal emission, scar tissue, re-growth

Failure to improve:

Symptoms not related to obstruction

Poor surgical technique

Incontinence - < 1%; but higher in poorly mobile or debilitated men - multiple
reasons for leakage....

Geriatric concerns:

Anesthesia is safe for these operations in well functioning

octogenarians.

Delirium with surgery - further decline in cognitive functioning

Poor mobility and incontinence

Cognitive deficiencies and incontinence

Outcomes in bed-ridden men with indwelling catheters - not good

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PROSTATE CANCER

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Prostate Cancer and Geriatrics (Pearls)

PSA screening is for men who would require aggressive treatment for PCA if diagnosed with localized disease

This is based on a projected survival, using age/health, of > 12++ years

In elderly men with either progressive urinary trouble, weight loss, bone pain etc; PCA is on the DDx; thus PSA testing should be in the evaluation.

There is no evidence that surgery or radiation improves survival at 8-10 years when compared to simple observation (**Watchful Waiting**)

Radiation should NOT really be used "because a pt is too old for surgery"

The cancer control benefit of surgery over radiation does not become evident until 10 years and beyond; thus surgery is preferred in younger men.

All treatment has negative impacts on HRQOL; but this is a topic for a different day :)

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Localized Prostate Cancer Risk Groups

Low Risk: PSA < 10, Gleason 3+3

Long-term* cure rates with surgery: 85-90%

Intermediate Risk: Gleason 3+4, 4+3

Long-term* cure rates with surgery: 60-75%

High Risk: PSA > 20, Gleason 4+4 to 5+5, Local Spread

Long-term* cure rates with surgery: < 10%

Active Surveillance: Follow men with Low Risk cancer and only “treat” them if they “re-classify” - get worse...

Maintain HRQOL for longer...

Rate of re-classification is 40-50% at 5 years

Will later treatment = Initial treatment in long healthy men?

See above :)

* Long-term - defined as 15-20 years

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Prostate Cancer: Watchful Waiting

The hope is to never have to use treatment in men with asymptomatic low or intermediate risk cancer....

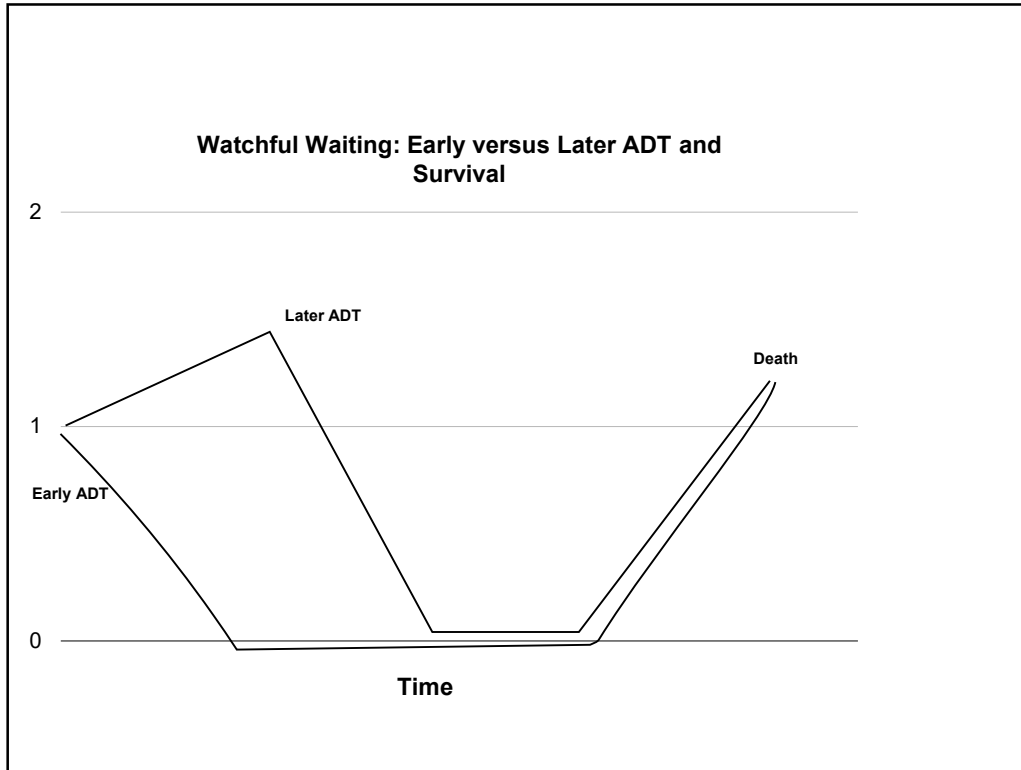
Androgen Deprivation Therapy (ADT) - lowering testosterone, is the mainstay of Watchful Waiting; if treatment is ever necessary.

The basis of Watchful Waiting: The timing of initiation of ADT does not effect survival: Early = Later - counter-intuitive but true!

The longer a patient is on ADT the more negative impact on his HRQOL

The medical art is to intervene with ADT prior to symptomatic cancer progression; this is really the primary role for PSA monitoring in elderly men with cancer.

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Androgen Deprivation Therapy (Hormone Therapy)

Lowering Testosterone

Standard: Orchiectomy, LHRH Agonists, LHRH Antagonist - all equal
Bicalutamide reserved to block a "flare" - 30 days of treatment

Newer additional medications:

Abiraterone + Prednisone

Enzalutamide.....

Rapidly evolving area with new medications

The newer medications, given with standard treatment, have prolonged survival about 12-18 months. (Median survival for new metastatic disease now 3.5 yrs)

Very expensive - Cost per adjusted life year gained > \$500,000

May be used at initial treatment, or at time of progression after standard therapy

Endpoint Scam: "Cancer-free progression" versus "Overall survival" - good marketing tool! (See prior graph)

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Renal Masses and Renal Cancer

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Renal Masses in the Geriatric Population

Bosniak Criteria for Renal Lesions (U/S, MRI..)

- I - Simple Cyst (10% of population, rarely a problem)
- II - Not quite a simple cyst, but of no concern
- IIIf - "Follow" - interval imaging recommended; but recent reviews show 95% of these are clinically insignificant
- III - Some solid component that is concerning for cancer
- IV - Solid: Highly likely it is cancer

Benign solid renal masses: Angiomyolipoma (AML) and Oncocytoma

AML - contain fat, thus usually identifiable

Oncocytoma - difficult to call on imaging; biopsy fairly accurate

Malignant Renal Cancers - over a dozen sub-types

Clear Cell Cancer

Papillary Renal Cell Cancer - two types

Sarcomatoid Renal Cell Cancer

Chromophobe Renal Cell Cancer

Etc.....

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Renal Masses

AML and Oncocytomas can be followed; surgical / IR intervention if > 5 cm as risk of bleeding increases.

Malignant renal masses (Localized)

Role for biopsy - varies

Size and natural history (Small is < 4.0 cm) - Surveillance in the elderly is very reasonable, if not preferred.

Treatment Modalities:

Cryotherapy (CT guided vs Robotic)

Partial Nephrectomy (Robotic technique)

Total nephrectomy (Laparsocopic, Robotic or Open - technical)

Partial versus Total Nephrectomy (Lesions < 7 cm)

No difference in cancer survival

Partial preferred if total would result in the need for dialysis, or with bilateral lesions at presentation.

Otherwise; no benefit to "renal function sparing" partial over total as it relates to ESRD, Cardiovascular or other life issues.

BUT, because of the Robot - Partial is primary recommendation for masses that are amenable to partial nephrectomy.

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Metastatic Renal Cancer

CARMENA Study - essentially cytoreductive nephrectomy (removing the primary tumor) is of no benefit in those presenting with metastatic disease

Only curative treatment is high dose Interleukin-2 - highly toxic, 2-3% cure

Many other treatments can have a several month survival advantage; but none are curative

Some metastatic cancers behave with a very protracted course such that people may survive for 5-10 years, but this is a very small number.

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Bladder Cancer

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Bladder Cancer in the Elderly

Most present with gross or microscopic hematuria and/or irritative urinary symptoms.

Risks: Smoking history and Solvent/Dye exposures

Grade: High or Low (Defined at surgical resection)

Stage: (Defined usually at surgical resection)

Non-muscle invasive (85%) - Ta (mucosa only), T1 (Lamina propria)

Muscle Invasive and Beyond (15%): T2-4

Diagnosis - Operating Room surgical resection (TURBT) to completion and sampling of muscle as indicated

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Non-Muscle Invasive (Ta, T1)

Low Grade Ta

No threat to life; recurrence is common
 Surveillance (Office Cystoscopy) with intravesical therapy (IVT) for recurrence to lower need for future surgeries
 Best IVT when used: Gemcitabine

High Grade Ta

Rarely progress to T2; recurrence is common
 Surveillance and initial IVT - BCG is best

High Grade T1

Progression to T2 - **15% at 5 yrs**, 75% at 15 yrs
 Surveillance and IVT - BCG is best

Carcinoma-in-situ (High grade flat disease of the mucosa)

Same progression rates as HGT1
 IVT - BCG is best

There are a number of other IVT agents that can be used.

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Muscle Invasive Bladder Cancer (T2-4)

Life threatening: 3 yr survival with no treatment < 5%

Symptomatic local problems: Gross hematuria, pain, renal obstruction, urinary retention.

Primary Treatment: Bladder removal - cure rate < 30 but up to 75% based on pathological outcomes

Neoadjuvant chemotherapy - 5% benefit (1/20 patient's) - SOC now..

"Bladder Salvage" - Radiation + Chemo-sensitizing agent

Most suitable for a small, "completely resectable" tumor - but most commonly used in those not medically amenable to bladder removal. In this group, very unlikely to be beneficial.

Chemotherapy - Metastatic Disease : 55% response rate, but only 5% cure rate.
 (Gem-Cis, MVAC)

Pembrolizumab + Enfortumab now FDA approved

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Urinary Stones

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Renal and Ureteral Stones in the Geriatric Population : Treatment Pearls

Asymptomatic renal stones do not require treatment in the elderly.
 They might drop, and would then require treatment - rate ??
 Even renal stones that are too big to pass (> 6-7 mm) can be observed

Septic ureteral stones require emergent intervention
 Cystoscopy with stent placement or Nephrostomy Tube - either OK
 No treatment of actual stone at presentation - delay 3 weeks with
 appropriate antimicrobial treatment.

“Symptomatic” renal stones - beware!!
 < 2.0 cm - ureteroscopy with laser lithotripsy preferred
 Large stones require percutaneous approach with laser lithotripsy

Ureteral stones - regardless of size/location
 Ureteroscopy with laser lithotripsy preferred
 ESWL is reasonable for easily seen stones on treatment guidance in upper
 ureter or kidney, < 1.0 cm. (No anesthesia)

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Renal and Ureteral Stones: Continued

Medical Expulsive Therapy for ureteral stones (Flomax)
May hasten passage, but no difference at one month....
Is the standard of care presently; unless Flomax contraindicated

Metabolic Evaluation and future stone prevention

High urine output (can be a problem in the Geriatric population)

Based on Stone Type if captured

Metabolic Evaluation -

24 hour urine collection for Calcium, Oxalate, Citrate, Uric acid.

U/A for pH, Serum Calcium and Uric acid levels

Most younger people with stones have an identifiable metabolic cause; but fairly uncommon in first time stone formers who are Geriatric.

Surveillance for renal stones - every 1-2 yrs

If rapidly enlarging (uncommon) - could push for treatment

CT versus U/S - either is reasonable, based on stone size, location and radiation exposure risks. CT is far more accurate

Most places have Limited Renal CT Protocols to reduce radiation.

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Hematuria:

Gross and Microscopic

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- Gross hematuria due to an infection is common in women, but very rare in men! This diagnosis requires a positive urine culture, NOT just symptoms.

In women, if infected and with a negative U/A in 3 months - nothing further

In men, even if culture is +; they require further evaluation.

History:

- Initial , total or terminal gross hematuria
- History of urinary stones
- Significant urinary problems baseline
- Smoking or solvent exposure

Labs:

- BMP, U/A with microscopic and culture (no need for urine cytology)
- Bladder scan PVR if possible

Imaging:

- CT IVP if Cr allows. - optimal imaging of entire GU tract
- If not possible, CT/KUB (miss very small renal masses and ureteral tumors)

Urology Referral!! We will decide on role for Cystoscopy - though most all.

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Asymptomatic Microscopic Hematuria (AMH)

Definition: ≥ 3 RBC/hpf (Some labs will be ≥ 4 RBC/hpf)

If in the face of a culture + infection; simply repeat U/A with microscopic in 3 months

Do NOT accept a dipstick + for "Blood" as an indication of AMH!!!

Repeat U/A in 2-3 months with no RBC - not sure - still evaluate.....???

Overall GU cancer risk for all AMH 2-3% (most are bladder cancers)

Risk Groups: Low, Intermediate and High Risk exist

Low risk may be the only group to avoid evaluation - cancer risk 0.2%
No Smoking, No solvents, No prior Gross hematuria, 3-10 RBC/hpf, Age < 50 women and < 40 men.

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AMH - Continued

Imaging - CT/IVP if Cr allows; otherwise CT/KUB (better than U/S as stones are common). Some are using Renal U/S for Low Risk evaluation...

Best done before GU Referral - we then can decide on office Cystoscopy or other. (Same as with Gross hematuria)

If evaluation is negative: Imaging, Cystoscopy and bladder wash cytology
Then indication for future repeat evaluation is not well defined:

For Intermediate and High Risk - any gross hematuria or significant increase in # of RBC (this definition is not clear)

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Urinary Catheters

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Catheters and Infections: Ugh????

"Urosepsis" must be a well paid diagnosis in an ER :)

Almost all men/women with indwelling catheters are "colonized"

Almost all men/women with indwelling catheters have catheter induced bladder irritability unrelated to infection - this is FAR MORE COMMON than a bacterial induced irritability that should be treated with antibiotics

Sediment, gunk, calcifications etc are normal catheter bag/tubing inhabitants

It is uncommon to have a symptomatic UTI in a pt. with a well functioning catheter.

That all said - Good Luck! Here are some tips....

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Catheters

Bladder stones in those with long-term foleys can be very symptomatic - so surgical removal can be beneficial.

Keep foley bag as low below the bladder as possible for optimal drainage.

18 fr foley or larger; change Q 4-6 weeks.

Change the strap on the control leg daily R or L.... Prevents urethra breakdown.

Maybe?

Acidify the urine: 0.25% Acetic Acid (White Vinegar) - 50-100 cc flush BID

Methanamine

Chronic daily low dose antimicrobials: Nitrofurantoin or Bactrim

Simple saline daily irrigation

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Catheters

Obtaining a culture: Occlude tube just below aspiration port, wait 15-30 min, wipe/sterile needle and 10 cc syringe to aspirate. Label it a Sterile Cath Urine for culture :)

Pulling out or on foleys: Use same size foley BUT a 30 cc balloon, put 40 cc of sterile water in the ballon - Problem solved.

Bloody urine: Upsize if necessary to 20+ Fr - flush in/out with 50-100 cc saline or water with a Toomey syringe until clot-free. PUSH P.O. Fluids!

Catheter falls out: Put 12-15 cc of sterile water in the balloon.

Silicone versus Standard - no difference unless latex allergy. Rare to have a reaction to a standard foley (without a latex allergy), especially short-term; but if so, change to silicone.

Clean intermittent self-cath: No benefit to single use catheters in lowering risk of "UTI"!!! (Can use the same one for 2-3 weeks - soap wash)

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QUESTIONS???

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