

## January 1999 Pipeline - Contents

[Erectile Dysfunction](#)  
[The Role of the ED Nurse](#)  
[The Assessment and Diagnosis](#)

[Journal Club ; Research of Note](#)

*A Small Pilot Study done on URACYST-S (sterile sodium chondroitin sulfate) to assess relief of Interstitial Cystitis symptoms on Potassium sensitive bladders.*

*A Comparative Analysis of Urinary Cytology and Point-of-Care Immunoassays for Screening and Monitoring of Bladder Tumor Analytes*

[UNC Award of Merit](#)  
[Latex Allergy: Risk for Urology Patients](#)  
[UNC Corporate Sponsorship Program](#)  
[UNC News](#)  
[UNC Executive Board](#)  
[UNC Urology Resources](#)  
[UNC Standards of Practice](#)  
[How to form a UNC Group](#)

### Erectile Dysfunction

**Note from editor:** UNC members were invited to attend the symposia *Education on Erectile Dysfunction* offered in Toronto, Montreal and Vancouver in November 1998. The following excerpts from this symposia have been reprinted with the permission of Pfizer Canada. This medical education symposia was presented by Canadian Male Sexual Health Council; supported by an unrestricted educational grant from Pfizer.

#### Physiology and Prevalence

Normal erectile function requires a complex series of coordinated physiologic events permitting full erection and complete detumescence. Innovative human experiments and animal models have provided important new insights into the underlying pathophysiologic causes of erectile dysfunction in man. Erectile function is a vascular event dependent on the cavernous nerves signaling the penile circulation to increase blood flow up to 30 times basal levels. Armed with sensitive diagnostic tests and dramatically improved pharmacologic therapy designed to improve blood flow, most men with erectile dysfunction can be effectively treated in a non-surgical manner. Advances in our understanding of the role played by nitric oxide in inducing penile vascular smooth muscle relaxation has been the fundamental step allowing new therapeutic approaches.

Epidemiological surveys have demonstrated that erectile dysfunction is extremely common in North America (MMAS) and worldwide. High risk groups such as diabetic men can reach incidences of 50%. Smoking, elevated cholesterol, vascular disease, neurogenic causes and medication are all well documented potential etiologic contributing causes to erectile dysfunction.

*Gerald Brock, MD, FRCS(C)*  
*University of Western Ontario, London, Ontario*

#### The Assessment and Diagnosis

The assessment and diagnosis of erectile dysfunction has been altered considerably in the past few years due to the revolutionary change in the treatment of the disorder. A proper work-up for ED still consists of complete sexual and medical history and physical exam. The sexual history is crucial as it will direct the assessment and effectively guide therapy at an early stage. Questions to consider: Is the ED the primary concern, or does it present as another sexual concern, pain, or concomitant Peyronie's. Is the ED situational for example, is the erection defined as being sufficient in rigidity and duration for the act of intercourse, but only in certain situations, such as with masturbation and not with a partner, or is it generalized (difficulty with morning, self and

partner induced erections)? The latter indicates that the penile reserve is so altered by one or more of vascular, neurogenic, or anatomical etiologies that the erection cannot be induced even when optimum conditions are met. The rest of the sexual response (sexual intensity, ejaculatory force and volume) may signify a conglomerate of symptoms pointing to a diagnosis (e.g. depression, hypogonadism). Partner response (including dysparunia) and current relationship status must be asked, so as not to miss contributing factors that will potentiate treatment failure or undue harm to the relationship due to misdiagnosis. The patient expectations and motivation for treatment also dictate the time and nature of the assessment. Medical assessment is done to seek factors which could be altered; medications, reversible causes of ED, lifestyle and disease status. The physical exam is essential and therapeutic but is limited in its scope to prove an etiology. Investigations are only indicated in selected cases, and usually only if they alter management. Morning serum testosterone should be done if there is suspected hypogonadism (especially with the additional symptom of low drive) and free or bioavailable testosterone is preferred over total. Additional gonadotropin levels, prolactin and TSH may be required as will additional screening tests as clinically indicated. The trigger for more extensive investigations are unusual cases such as lifelong primary ED, acute traumatic ED, or therapy failures etc. The urological role in the diagnosis of ED is evolving more into a resource role where specific expertise is sought amongst the team formed with primary care. Referrals to other health care professionals and physicians may be necessary for further assessment.

*Jeremy Heaton MD  
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### **Therapeutic Procedures for Erectile Dysfunction**

Over the past few years, research has produced several new therapies for erectile dysfunction. General practitioners and specialists should be familiar with all of the new or available therapies, so they can appropriately counsel their patients. A systematic approach should be used.

When the patient is assessed, correctable medical problems should first be diagnosed and treated, e.g. a change in antihypertensive medication, improved blood sugar management or appropriate sex therapy can sometimes improve or even correct the problem. If there are no correctable factors, or if these measures fail, a number of therapeutic options currently exist or will soon be available to correct problem. These should be explained to the patient. The patient can then decide if he wishes to be treated and, if so, he can choose the therapy that corresponds to his expectations. It is best to start with noninvasive or less invasive therapies which are simple and reversible, before contemplating the use of invasive therapies. Noninvasive therapies include modification of organic and sexual risk factors, as well as sex therapy. Less invasive therapies include oral pharmacotherapy (androgens, yohimbine, trazodone and sildenafil (VIAGRA™), transurethral pharmacotherapy (MUSE™), intracorporeal injections and mechanical systems (veno-occlusive mechanisms and vacuum constriction devices). Lastly, the most invasive therapies include arterial or venous surgery and semi-rigid or inflatable penile implants.

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Note from Editor: The following explores the role of the ED nurse and was not part of the symposia.

### **The Role of an ED Nurse**

My role as an ED nurse clinician is simple and straight forward. It is to guide the patient and his partner toward a safe and satisfying treatment outcome – namely attaining and then maintaining an erection sufficient for satisfactory intercourse.

Following the initial physical assessment and sexual history by the Urologist, the patient is most often prescribed a first-line treatment option based on the patient's needs. This is most often in the form of oral medication. The client is then referred to the nurse clinician.

When making the follow-up appointment, I request his partner accompany him. Our studies assessing failure of long-term treatment identifies low compliance as correlating with lack of communication between partners, or

misunderstanding and/or conflict between patient and partner goals. Thus, while partner accompaniment is not mandatory, it is nevertheless highly encouraged.

When I initially see the patient, he can respond to the efficacy of the initial treatment. If non-efficacious, then further details are necessary. I review the initial assessment and in addition do an in-depth evaluation of erectile quality and an appraisal of his psychosocial needs. Several factors affect treatment outcome. These include the duration of the sexual problem, and the current health of both the patient and his partner.

My role is to present the treatment options that are suitable for each individual patient, taking his social and emotional situation and his physical condition into the equation. My role is to help define and validate the patient's goals, not create new goals.

There is no "gold standard" in ED treatment options. Treatment must be tailored to meet the needs of the individual couple. It is important to determine the motivation and expectations of the couple. This will in turn determine the suitability of certain options. In guiding the couple toward a treatment choice, clients have a need to know the cost of the treatment, the simplicity or ease of the therapeutic option, and the potential side effects. Good education regarding both ED and the chosen treatment is essential for patient compliance and satisfaction. And consequently it is this need that defines the role of the nurse clinician.

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## **Journal Club: Research of Note**

### **A Comparative Analysis of Urinary Cytology and Point-of-Care Immunoassays for Screening and Monitoring of Bladder Tumor Analytes**

Cystoscopy has been and still remains the gold standard for bladder cancer detection and surveillance providing not only visual information but also crucial histological evidence of grading and staging of bladder tumors. Urinary cytology (UC) is the most widely used noninvasive test for diagnosis and monitoring. It is highly specific (>90%) but has been proven to have low sensitivity (typically at about 30%). The value of UC is currently being reassessed because of the wide range of alternative markers; laboratory based tests and point-of-care diagnostics that are purported to be more sensitive and specific than cytology.

At the North East Section of the American Urological Association Meeting in Toronto on October 21, 1998 our group reported on a single center, prospective trial that was designed to simultaneously evaluate two traditional diagnostics (Hemastix and UC) along with two new point-of-care diagnostics (FDP\* and BTA Stat). The FDP device detects fibrin/fibrinogen degradation products and the BTA Stat detects bladder tumor associated antigen. A total of 122 urine samples were evaluated (56 bladder cancer positive samples and 66 samples from patients with other urological diseases).

The bladder tumor diagnostics were evaluated under the following criteria: sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and overall accuracy. Sensitivity is the number of truly positive bladder cancer patients classified as positive by a test. A highly sensitive test gives few false negative results and for this reason high sensitivity is the most important characteristic of a good diagnostic test for bladder cancer. These patients require a cystoscopy unless a test can exclude the presence of tumor.

Specificity is the number of truly negative patients classified as negative by a test. PPV is the probability that the patient had bladder cancer given the test was positive. NPV is the probability that the patient did not have bladder cancer given the test was negative and overall accuracy looks at the number of true positive and true negative patients in the total group.

As previously indicated, sensitivity is the most important characteristic of a good diagnostic test for bladder cancer. The FDP device was superior in sensitivity (71%) and overall accuracy (70%) while UC again proved to be the most specific (91%). The BTA Stat performed better than its predecessor (BTA) did although the sensitivity was still disappointing at 52%. As traditionally shown in previous studies, the Hemastix was sensitive (70%) but lacked specificity (52%). Also of value in a diagnostic is the ability to predict the absence of disease or the negative predictive value (NPV). The FDP device performed best at 74% for NPV.

Currently there are no good studies that compare point-of-care diagnostics with laboratory based tests. There is a need for well-designed, comparative, multi-center trials with all bladder cancer diagnostics. Although possible alternatives to UC such as the FDP device appear promising; they must be clearly defined before being adapted into clinical practice.

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**A Small Pilot Study done on URACYST-S (sterile sodium chondroitin sulfate) to assess relief of Interstitial Cystitis symptoms on Potassium sensitive bladders.**

Patients with urinary frequency and/or bladder pain were randomly selected as they were referred to the clinic. They were examined by Dr. Gary Steinhoff, a Victoria B.C. urologist, to determine that there were no obvious cause for their symptoms including bladder infection, urethral stricture and cystitis cystica. If the findings were negative, the patient was given the potassium test. The standard potassium test (as outlined by Dr. Lowell Parsons) has been used to objectively determine GAG permeability in patients with leaky bladders.

The first six patients to report a positive response to the potassium test were selected. The patient was given a bladder instillation of 40 ml of Uracyst-S to neutralize the potassium induced symptoms. All six patients reported improvement to their potassium-induced symptoms ranging from complete improvement to moderate improvement. This instillation-was considered their first treatment. These patients are now at month six. Five of the six patients have significant improvement in their baseline symptoms. The sixth patient has some decrease in frequency and nocturia but no relief of pain. We are now starting a clinical trial.

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