

Strategies for Enhancing Sperm Survival in Specimens Obtained From Patients With Retrograde Ejaculation

Androlog Summary

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Note: Postings to *Androlog* have been lightly edited before publication.

Retrograde ejaculation can be associated with a number of etiologies, such as nerve damage secondary to surgical intervention, diabetes, and the performance of surgical procedures that affect the bladder neck. If pharmacologic intervention fails to restore antegrade ejaculation, sperm retrieval from the postejaculatory bladder contents combined with sperm processing and insemination might be a viable option. It has long been recognized that urine has a negative effect on sperm survival. Accordingly, much discussion has taken place regarding methods for creating an environment within the bladder that will have a minimum effect on sperm survival until the sperm can be washed and used for insemination. In this edition of *Androlog* Summary, Beverly Sedensky posts an enquiry regarding strategies for alkalinizing the urine to enhance the survival of sperm in retrograde specimens.

I am looking for patient instructions for alkalinizing of urine in retrograde ejaculation patients. Can patients use household baking soda? If so, how much? This should be dissolved in how much water? Should this be taken the night before and the morning of the test or procedure? When should the bladder be emptied before ejaculation?

Gerald Matthews replied, giving suggestions not only for modifying the acidity of the urine, but also for a protocol for vaginal insemination.

I employ the following protocol for sperm recovery in men with retrograde ejaculation and acceptable sperm quality in the retrograde specimen:

Instructions for self-catheterization insemination:

- Begin Sudafed (30-mg tabs, 2 tablets 3× daily) on day 9 of wife's cycle
- Begin Urocity-K (10-mg tabs, 2 tablets 3× daily) on day 9 of wife's cycle
- Plan intercourse on days 11, 13, 15, and 17 of wife's cycle
- One hour prior to intercourse take 2 each additional Sudafed and Urocity-K

- Urinate immediately prior to intercourse
- Draw 10 cc of saline into a syringe prior to intercourse
- Ready the lubricant and catheter prior to intercourse
- Immediately following intercourse, catheterize and instill saline solution
- Allow to dwell briefly (30 seconds) and then drain into container
- Draw into syringe and deposit into wife's vagina
- Wife should be on back with pelvis elevated for 3 hours
- Rinse and clean catheter and container with warm water

Erol Onel then provided insight into his approach to achieving optimal sperm survival in this patient population as well as describing his preferred protocol for obtaining the specimen.

Yes, patients can use baking soda to alkalinize their urine prior to sperm retrieval procedures. However, this usually creates more hassle than it saves, especially surrounding the exact questions asked. I picked up a cheap, easy, and effective technique from Dr Craig Niederberger when I was the fellow at University of Illinois at Chicago:

- 2 Alka-Seltzer tablets the night before the event (bladder wash, intercourse, or whatever)
- 2 Alka-Seltzer tablets the morning of the event

This usually keeps the bladder pH sperm-friendly. Other tips to remember are:

- Use the media at room temperature
- Use a sperm-friendly lubricant (Replens is a cheap, easy, over-the-counter one)
- Use Sudafed 60 mg qid for 3 days prior to the event to close the bladder neck

With these instructions, we have the patient empty his bladder completely just prior to stimulation/ejaculation (the closer, the better). We then catheterize the bladder, drain it to completion, and administer a small volume of media. The patient then ejaculates and we collect this antegrade sample. We then recatheterize, collect this sample, and irrigate the bladder with media to collect the rest of the retrograde specimen prior to sending it all off to the lab for processing. Following this protocol, we have achieved successful pregnancies here at Tufts.

An *Androlog* member then enquired as to why it is important to alkalinize the urine if the majority of it is to be discarded and replaced with sperm wash instilled in the bladder. To this, Dr Onel replied:

Regarding the question as to why to alkalinize the urine of patients in whom the majority of urine is being discarded

anyway, there are actually 2 answers. First, although the vast majority of pre-ejaculate urine is indeed discarded in these bladder wash patients, there is a small but real amount of urine being produced and deposited into the bladder in the time interval from initial catheterization, through stimulation and antegrade ejaculation, and up to final catheterization for retrieval of specimen. In some patients, in a clinic setting, this can actually take a significant amount of time. While it is correct that this is a small volume of urine and would probably not compromise the sperm, alkalizing the urine to a more sperm-friendly level with 2 Alka-Seltzer the night before and 2 more on the morning of the procedure is so cheap, easy, and benign that I find it hard to justify not doing it. The second reason is that the same regimen works, of course, in alkalizing the urine to an appropriate level in procedures where the urine is not being discarded—which was the answer to the original question posed on *Androlog*.

Douglas Gliedt then provided a protocol that has been employed in his facility that involves both alkalization of the urine and combining of the retrograde specimen (and antegrade specimen if available) with media to enhance sperm survival.

The protocol we use is basically that found in David Mortimer, *Practical Laboratory Andrology* (1994, pp 289–292). One tablespoon of bicarbonate dissolved in tap water morning and evening prior to procedure and upon rising the day of. Void upon arrival at the laboratory. Wait until the feeling of “fullness” before masturbation. Upon ejaculation, immediately dilute the ejaculate and especially the postejaculatory urine 50/50 with mHTF + 20%SSS PRIOR TO CENTRIFUGATION. The sperm are in desperate need of protection at this time!!!