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# Feline Urethral Obstruction

DRIP 4

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So obviously we're asking that question because we're about to talk about how we treat hyperkalemia. And so the medicines that we often reach for are fluids. Without question, fluids are going to be what you reach for. It's going to resolve the vast majority of hyperkalemia in your patients. And you're not going to need anything else.

But for patients who have moderate to severe hyperkalemia, you may want to reach for some other drugs. And those are Humulin R regular insulin, causing a transcellular shift of potassium from the extracellular space to the intracellular space.

That's usually concurrently given with diluted 50% dextrose. Why? To prevent iatrogenic hypoglycemia. And very, very rarely, usually only in patients with severe acidosis, bicarbs less than 8, pH is less than 7.15 to 7.2, depending on what you read. Some will even go as low as 7.1. You may reach for the oldie but goodie that is sodium bicarbonate.

So I hear you now saying, well, why the heck is calcium gluconate on your slide? Why is it even being mentioned if it does not treat hyperkalemia? We use it because it is a cardio protectant medicine.

It actually will protect the myocardium from the effects of the hyperkalemia. So even though it doesn't do anything for the potassium, it buys you a little bit of time to institute these therapies, makes the heart happier while you're getting your fluid set up, while you're giving them their insulin and their dextrose.

And hypocalcemia does happen, again, not as nearly as commonly as hyperkalemia. But if you document hypocalcemia, usually if you're looking at total calcium, we start to worry when we're less than 7 milligrams per deciliter, ionized. If you're measuring an ionized calcium in your hospital because you have an i-STAT or a Nova, we usually worry when we're getting to be less than 0.8. That's when we consider giving them some calcium.

So let's switch now to the most obvious thing, which is needing to de-obstruct the cat with a feline urethral obstruction. And you might say, why didn't you start with that? I didn't purposely because we need to be thinking about a whole system that's happening. Multiple things are happening. Your whole team is working on this patient, because it's potentially life-threatening.

So lots of things are happening at once. And so I don't like to start with it because, by starting with the obstruction, a lot of people forget the importance of getting intravenous fluid therapy on board for these patients. So it's important to really immobilize these patients.

A lot of times we're just going to use brief but adequate sedation. But if you're having a really, really hard time, yeah, there's all these tricks to the trade, certainly extending the penis caudally, but when all else fails, if you haven't placed a patient with urethral obstruction under general anesthesia, you haven't achieved full muscle relaxation, OK?

So make sure that if you're ever having trouble, you say, OK, I've got to place them under general anesthesia to really get full relaxation. But I usually don't have to go that route. Usually give them their analgesia, I give them oxygen, just out of standard operating procedure, out of best practice.

And then I give them benzodiazepine, like Valium. And I'll induce sedation and intubate under the influence of Alfaxalone. And I will always attempt to place a coccygeal epidural.

So what are we doing there? Obviously, you're going to have them in sternal recumbency. And you're going to find that space between the sacrum and the first coccygeal space. Some people actually like to go between the first and the second coccygeal space. Tomatoes, tomahtoes, OK? No big deal.

Shave. It's an aseptic preparation, just like for any other area on which you're about to puncture. And you're going to use a 25-gauge 1-inch needle. And you're going to target going into your selected space at between a 30 and a 45 degree angle. And you're going to insert until you hear a pop. You feel that pop, which is your needle tip going through the interarcuate ligament.

Then you're going to attach a syringe and aspirate, make sure that you don't have any blood. And if it's clean, you're going to infuse this very small volume of 2% lidocaine that does not have epinephrine in it. And then pull the needle out. In 10 to 15 minutes, you're going to have nice perineal anesthesia.

So what catheters do we use? I'm going to go up here so you can see everything. So shave and aseptically prepare the perineum. And then extrude that penis.

And as Dr. Lulich codifies in his SAFE acronym, make sure you're extending that penis caudally to fully eliminate that S-curve. Use lots of lube, and slowly insert that catheter. And hydropulse with-- usually people reach for saline. You could use [INAUDIBLE], you could use LRS, whatever fluid you have available that's isotonic. And go slow, go slow, go slow. And vast majority of the time, you're going to be successful.

What do I use for unblocking? It's actually a little bit different than what I use for maintenance of a urethral catheter. But there's nothing set in stone. I'm just sharing with you what's worked well for me, and that is using an open-ended Tomcat.

I like them as polypropylene. I like the firmness, the stiffness of a polypropylene catheter. And having the open end with the hydropulsion lets me get direct pressure right at a plug to blow open a spasm enough that I can pass the catheter through. And then I'll do my urinary bladder lavage.

And I won't leave a polypropylene catheter in. Don't leave them in. They cause a lot of urethral epithelial reaction. So if I'm going to use an indwelling catheter, because a patient is azotemic and need some diuresis, then I'm going to reach for something that's a little bit longer, a little bit softer, something like a Slippery Sam, which is polytetrafluoroethylene.

A lot of people just have red, rubber catheters. That's polyvinyl. It's fine. The point is don't use a polypropylene indwelling catheter unless it's the only thing that you have.

And if it's the only thing that you have, then it's the only thing that you have, and you're still going to help the patient. But in terms of substances that have the least tissue reaction, polypropylene wouldn't be your first choice for an indwelling catheter.

Size is often a question. And we know from this recent study that we really should only be reaching for 3 and 1/2 French. If we reached for 5 French catheters, meaningful, significantly higher risk of re-obstruction within 24 hours of removing the catheter.

So even if it is a big kitty and you think you can fit a 5 French in there, or if you don't put a 5 French, you think you're going to have some fluid leaking around it, still best to use the 3 and 1/2 French to reduce this risk of obstruction.