Legend: Kotev Mehegan Tandon

Problem we might face:

Tip deflection: Trying to deflect tip without moving whole catheter out. When trying to move it, it will push the other direction moving left, the rest of catheter will move right. Need to stabilize it and ONLY move tip.

Types of catheters used:

CLS

EBU - Different sizes (Lumen and curve)

Everything is 6 french, virtually.

Everything shaped specifically.

Use different guide for different jobs.

Some are for left hand corner, some are for right.

Different shaped guides for point catheter.

You want your guide coaxial to artery, and tip pointing at artery to want to go into.

They do not use steerable tips.

The use pre-shaped bends. (Venture catheter) hollow tube to steer wire, so you can go down side branch.

Easiest type of catheter:

All catheters are all the same.

They have personal preferences, and they are all comfortable with what they started on.

They use trial and error, to find what can make the turn. All depends on geometry and angles. They start with what they are comfortable with, then if that doesn’t work, they try a different one to make the turn.

(6:55)

Not only would it be good to go left right and all turns, but also extend because sometimes they want to reach sometimes they use heat gun to make the catheter longer. Extend and shorten.

Use for steerable catheters more for ablations than they do for coronary procedures.

If it will be steerable, it should also have very good feedback. Whether you are against a wall, or have to push through something. Just good feedback. (8:30)

Catheters feel the same all the time, and when steering it you have a feel for what is right and what isn’t right.

NIGHTMARE for all physicians: Is dissecting off the origin of an artery. Left or right. (9:45)

The current catheters have softer tip to not cut the artery.

Don’t want to kink the catheter, should be flexible so that it doesn’t kink. And then it could get stuck at end of sheath. Then you have big problems.

Will have to redraw the catheter if kink it. Need to unknot it. Needs a certain degree of stiffness to transmit torque, but also softness to bend and move.

Any feedback on existing catheters? (12:00)

* You can just feel it,
* And if you are watching it on the screen, and if it bends you can see it.
* Pressure. If connected to pressure tubing.

Are any of your catheters reusable? (13:00)

* No. No reusable in the USA ever.
* Everything is disposable, except the console to see the image.

Is cost a concern? (13:50)

* Cost is always a concern for the hospital
* IVUS is at least $1000
* For the physicians it is not important. But truly matters to the hospital.

How important is one-handed use?

If you want to get a wire and introduce something else, one handed would be helpful.

Deflectable tip catheter would be nice because it would only require “one” bend rather than two to get tight angles/turns

How would having only “one turn” catheter (deflectable tip) decrease procedure time?

Would help decrease

They (physicians) know the geometry before going into the procedure. So they won’t need a steerable catheter for every case. But if you are going into it with a knowledge of the geometry and knowing that a sharp turn will be made, \*a steerable would be nice\*

How fine do you actually need the wire?

tortuosity is their enemy. Not just tortuosity, but also calcified areas. The steerable catheter tip can help get around tortuous segments.

The support of the catheter is big. When you have a tortuous area (or tight area) it will need to push through.

They are designed so that you can push through things, push balloons through, etc. The guides are designed so that they can bend, but also have support to get it through.

“Guidezilla” Guide in a guide that is sitting in so that in tortuous segments it can push through to get to the area that you want. (smaller caliber delivered through existing guide catheter, and can go deeper to the coronary artery.)

First reaction to electronically steerable catheter on the market:

Whatever helps them is a good idea.

They can be skeptical, but negative. If it helps to get their job done, Good. AND it CAN’T fail. Has to do its job.

Angioplasty procedures are 15 min in length. The longest it has ever taken Dr. Mehegan is 9 hours.

**Corindus- mechanically steerable machine.**

* It manipulates standard catheters.

TCT - Annual interventional meeting. (In San Francisco)

* Live shows
* Advances in techniques,
* Advances in devices

Anybody can watch the case:

* Need permission from patient and hospital
* But physicians are fine with it.

But undergrads need approval from Mercy.