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Pancreaticoduodenectomy and placement of operative enteral access: Better or worse?☆

DR. MARGO C. SHOUP (Warrenville, Illinois): I congratulate the authors for performing this retrospective review of the use of enteral feeding tubes following pancreaticoduodenectomy. You know, this practice of placing feeding J tubes during Whipple surgery has largely fallen out of favor in this country, and this paper helps to demonstrate why. The authors found that those patients in whom a feeding tube is placed, there was a significant increase in delayed gastric emptying, almost twice the rate of pancreatic fistula, and a trend towards increased mortality and readmission. In our practice, as with many others in this country, we very selectively and seldomly place feeding tubes after this surgery for various reasons. And that's only if the patients are really severely malnourished or if we have any reason to believe they are going to have a difficult time eating or tolerating early PO intake. We're feeding patients day two. You know, when they're hungry, they eat. Their NG tubes either aren't placed at all or come out the next day. So I have question for you.

In this study you had 69 patients that were evaluated, and, as you said the groups were remarkably similar regarding indications and demographics. Were the patients in this study consecutive and it just happened to be that they looked the same, whether or not they got a feeding tube, or was there some kind of match by other factors? Next question is, why were feeding jejunostomy tubes placed at all in those 33 patients? Do you have data regarding their nutritional status or other comorbidities that would have led to this decision. I would think there'd be a selection bias in this group, but it was half our patients, so I'm just not sure why.

And as you also said, the majority of your patients had cancer and a little over half had pancreas cancer. Only a third received neoadjuvant therapy, which is becoming standard of care for pancreas cancer regardless of stage or presentation. Did neoadjuvant therapy play a role in any of your outcomes or in the decision to place a feeding jejunostomy?

We and others have also found that giving neoadjuvant therapy actually gives us the opportunity to prehab our patients during the neoadjuvant treatment so that they're actually in better physical shape and nutritional status at the time of surgery than they are at the time of diagnosis. This decreases the need for feeding tubes anymore. So they meet with their dietitians, they meet with physical therapy. They actually get stronger, not weaker during their neoadjuvant therapy, and I'm wondering if you have anything like that in place?

And, finally, your study, it shows literally no benefit from routine feeding tubes at the time of surgery. So have you changed your protocol at the Henry Ford so that this practice is now abandoned except for in very select patients?

DR. LI: To address your first two questions, all of our patients did undergo pancreaticoduodenectomy in a consecutive fashion. And I also like to review the background of how pancreaticoduodenectomy was performed at Henry Ford. Previously, feeding jejunostomy tubes were placed in all patients. And in an attempt to address the morbidity that was related to feeding jejunostomy tubes, we actually in March of 2017 chose to omit feeding tubes during pancreaticoduodenectomy. We have looked at several variables in order to address the patient's nutritional status. That's something that we actually hope to be able to addend into the manuscript or present in the near future. We did find that there was no one variable that was really definitive in looking at the patient's nutritional status. So we actually hope in our future studies to also incorporate radiologic findings such as muscle changes over time in addition to laboratory findings as well in order to provide an overall picture of the patient's nutritional status.

In regards to your question regarding neoadjuvant chemotherapy, we do agree with the sentiment that providing the patient neoadjuvant chemotherapy does give them an opportunity to optimize their nutritional status. It does introduce an inherent selection bias in those patients who are fit enough to undergo surgery and do relatively well without a feeding tube. One of the things that we have started doing – that we have done at our hospital is to identify those patients who are high risk in accordance with a dietician at the time of initial consultation. We offer them neoadjuvant chemotherapy similarly to optimize their nutritional status and prehabilitate them prior to surgery.

At this time, we have changed our protocol to now omit feeding tube placement during pancreaticoduodenectomy. Our current criteria for selective placement do include patients who have a history of gastric weight loss procedures as well as patients who undergo intraoperative vascular reconstruction.

In addition, we do take into account the recommendations of our dietitians at the time of initial consultation, as well as the surgeon gestalt during the time of surgery.

DR. LAURENCE McCAHILL (Wyoming, Michigan): I discussed this a couple times with David Kwon, your senior author. I think the reason people have always put in feeding jejunostomy tubes is that, you know, not just pancreatic fistula but delayed gastric emptying. You can have a perfect operation, a CT scan and a normal white count afterwards, it shows no problem, yet still have people, you know, unexpectedly vomit a thousand CC's and it's very difficult to send them home in that circumstance. And that, of course, is delayed gastric emptying and in as many papers as I've read about it, to my understanding to-date, there's still no predictive model in

☆ (Presentation given by Amy Li, M.D.)

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terms of who's going to get DGE nor do we understand DGE.

So the feeding tube, while you seem to implicate there's an association with putting the feeding tube in a higher incidence of DGE, I don't know if that makes any sense to me or maybe you are proposing that. Margo, you can enlighten me a little bit, too, in terms of how do we predict delayed gastric emptying, and are we competent enough that now we're pulling the NG tube out quicker with enhanced recovery protocols that suddenly DGE has disappeared from practice. Because that was the whole purpose of putting the feeding tube in.

DR. LI: Right. We, even in our patients that do have feeding tubes, we do suspect that, so when we place a feeding tube in, we place it in a Whipple fashion and we do inflate a balloon.

We suspect that a component of the nausea that our patients also experience may be related to the balloon providing – the balloon possibly creating a partial obstructive picture that may lead to more nausea and confound some of that DGE.

DR. SUKAMAL SAHA (Flint, Michigan): Are you telling us that you think there is a mechanical obstruction causing all these symptoms? I can't buy that, because you can easily take that water out from the balloon and it still doesn't –

DR. LI: Right, so we do – sorry, go ahead.

DR. SAHA: So my question to you is, did you look into pathophysiology of this possible delayed gastric emptying? Because whether or not we put a feeding tube, why it does affect that and how does it affect that.

Once you solve the problem, then we can see whether or not we should use the feeding tube. Do you follow.

DR. LI: Yes.

DR. SAHA: Because most of the surgeons definitely have a bias why he or she puts the tube in or sometimes he doesn't. But I don't think you have given us the answer why it causes that?

DR. LI: Okay. I don't think the feeding tube itself is the cause for DGE. We suspect that it may be providing part of the picture that is leading to delayed gastric emptying. We do actually around postop day two or three try to deflate the balloon of the size in order to help improve the symptoms, but I don't think we can fully explain DGE with the feeding tube itself. I think it's something that probably lends to symptomology of DGE.

DR. MARGO C. SHOUP (Warrenville, Illinois): Are you doing pylorus preserving or not on your surgeries?

DR. LI: In our surgeries, we are doing classical, with an enterectomy gastrectomy.

DR. SHOUP: We just don't see delayed gastric emptying of 20% in our patients. We just don't. But we're very aggressive in putting them on prokinetic agents the night of surgery.

DR. LI: Okay.

DR. SHOUP: And maybe that's part of it.

DR. GERARD ABOOD (Maywood, Illinois): That's a lot of feeding tubes. I know we've talked about this quite a bit. So when we talk about what was the indication, that's the part that I'm most interested in, because you have a split of nearly 50/50.

So clinical gestalt is one thing. But I getting down to why was Dr. Kwon doing it this way.

DR. LI: So like I had mentioned previously, the practice at Henry Ford was to routinely place feeding jejunostomy tubes. So of the patients from January 2016 through March 2017 were all patients who received feeding jejunostomy tubes. And then it was at March 2017 that we had changed the practice and starting omitting feeding tubes mand that's where the split had occurred.