

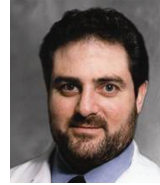
# Obstetric practice changers 2014

Hypertension and pregnancy and preventing the first cesarean delivery: A peer-to-peer audiocast with **John T. Repke, MD, and Errol R. Norwitz, MD, PhD**

## SPEAKERS:



**John T. Repke, MD**, is University Professor and Chairman of the Department of Obstetrics and Gynecology at Penn State University College of Medicine, and Obstetrician-Gynecologist-in-Chief at the Milton S. Hershey Medical Center in Hershey, Pennsylvania.



**Errol R. Norwitz, MD, PhD**, is the Louis E. Phaneuf Professor and Chairman of the Department of Obstetrics and Gynecology at Tufts Medical Center and Tufts University School of Medicine in Boston, Massachusetts.

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## Peer to Peer

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Dr. Repke, author of the June 2014 Guest Editorial on low-dose aspirin and preeclampsia prevention, recently sat down with Dr. Norwitz, author of the June 2014 Update on operative vaginal delivery. Their discussion focused on individual takeaways from ACOG's Hypertension in Pregnancy guidelines<sup>1</sup> and the recent joint ACOG–Society of Maternal-Fetal Medicine report<sup>2</sup> on emerging clinical and scientific advances in safe prevention of the primary cesarean delivery.

### Changing diagnostic tools for preeclampsia

- The 24-hour urinary protein estimation: When is it necessary?
- Use of magnesium sulfate for seizure prophylaxis

### Preventing the first cesarean delivery

- Redefining the stages of labor: When is the second stage too long?
- The lost skill of forceps delivery
- Is cesarean delivery rate the optimal metric for measuring neonatal outcome?

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## ACOG guidelines on hypertension and pregnancy raise some questions

**John T. Repke, MD:** So, Errol, I was impressed over the first couple of days of being at the meeting. As you know, we had a postgraduate course, and one of the items that we talked about was the new hypertension and pregnancy document that was released by the Task Force on Hypertension and Pregnancy<sup>1</sup> charged by the American College of Obstetricians and Gynecologists. I've got to say that while the goal of the document was to provide some standardization and clarification, there still seems to be a lot of confusion in my audience about how to interpret some of the guidelines. Have you found that?

**Errol R. Norwitz, MD, PhD:** Yes, I have. I found it interesting that it was put out as an executive summary, and not as a practice bulletin, which will probably follow in months. That document, which came out in November 2013, helped to address many of the issues we've had over the years of preeclampsia, in terms of its definition and some of the management issues. But, it also raised a number of questions that still need to be resolved.

**Dr. Repke:** Yes. I think one of the things to keep in mind, and I've tabulated all of the recommendations, is that about 60 recommendations came out of that document and only six of the 60 were accompanied by a strong quality of evidence, or rather, a high quality of evidence, and a strong recommendation. And a lot of those things were addressing issues that I think most practitioners already did, in so far as using antenatal steroids for maturation; using magnesium sulfate for patients with preeclampsia with severe features; and using magnesium sulfate as a treatment of

eclampsia. But a lot of the other recommendations really were based on either moderate- or low-quality evidence, and had qualified recommendations. And, I think that's what has led to some of the confusion.

## Changing diagnostic tools for preeclampsia

**Dr. Repke:** What sort of specific things are your practitioners asking you about as far as, "Is this gestational hypertension or is this preeclampsia?" The guidelines say proteinuria is not required anymore. How are you dealing with that?

### Should we still do the 24-hour urinary protein estimation?

**Dr. Norwitz:** The biggest change, in my mind, is the statement that you no longer require significant proteinuria to make the diagnosis of preeclampsia, and, indeed, of severe preeclampsia. So, if you do have significant proteinuria, then that would confirm the diagnosis. But, you can also have preeclampsia in the presence of other endorgan injuries, such as kidney injury and liver injury in the absence of significant proteinuria.

So, one of the questions that comes up is, "Should we actually do the 24-hour urinary protein estimation?"

And, my answer is, "yes." If you have significant proteinuria, then that would confirm the diagnosis. If you don't, you can still make the diagnosis in the setting of low platelets, elevated liver enzymes, or abnormal renal function. So, the issue is, and I'd be curious to hear your answer, if you have someone with platelets of, let's say, 78, a new onset of sustained elevation of blood pressure, would you do the 24-hour urine estimation or just defer it?

**Dr. Repke:** We wouldn't perform the 24-hour urine test under those circumstances. And, we would consider that nuance of hypertension with a severe feature that is now preeclampsia with severe feature, and the management would be based on gestational age. With a platelet count that low, the management would be stabilization and delivery. Although, if stabilized, I think that's the type of patient that potentially could have delivery delayed until you could get an effective antenatal steroid if she was less than 34 weeks' gestation.

**Dr. Norwitz:** So, that's one issue I think needs to be clarified. If there's other evidence of endorgan damage, then you can defer the 24-hour urinary protein. That's another question that comes up. I'm pleased they could resolve the issue of repeated 24-hour urinary estimations. Once you have your 300 mg suggestive of the diagnosis of preeclampsia, there's no reason to then repeat it looking for elevation and increased leakage of protein into the urine, because it doesn't correlate with adverse outcome for the mother or fetus. So, that issue was clarified.

**Dr. Repke:** I think that two questions that came up in our course, and I think they were very legitimate, are, "Do we even need to do urine protein at all?" Because if you look at the guidelines

for management, the only difference between preeclampsia management without severe features and gestational hypertension is frequency of antenatal testing until you decide to begin delivery. Now, in the old days, one would say, "Well, another difference would be that the preeclamptic would get magnesium sulfate." But the current Hypertension in Pregnancy Guidelines<sup>1</sup> suggest that preeclampsia without severe features doesn't necessarily have to be managed with magnesium sulfate. So, I'm still wrestling with whether, other than the fact that it might be for study purposes or for categorization or research, whether proteinuria adds anything to the equation.

And, then the second question is, "How do you resolve the issue of disagreement?" So, the example is protein:creatinine ratio allows for a more rapid diagnosis of significant proteinuria. If that patient doesn't have to deliver immediately and a 24-hour urine sample is obtained, which do you believe if you have a protein:creatinine ratio greater than 0.3, but now your 24-hour urine is 212 mg/dL? And, I don't have the answer to that, but that's another area of confusion.

**Dr. Norwitz:** And, I think that confusion will persist. I don't think this document is going to resolve it.

### New terminology: Preeclampsia with or without severe features

**Dr. Norwitz:** I do like the difference in terminology between preeclampsia with severe features and preeclampsia without severe features. I think the old terminology of severe and mild preeclampsia was somewhat confusing. I certainly appreciate that alteration in terminology, although it may take a while for it to catch on. I'm still seeing the term "mild preeclampsia" used quite widely.

### Use of magnesium sulfate for seizure prophylaxis

**Dr. Norwitz:** You did raise the issue of magnesium sulfate for seizure prophylaxis in the setting of severe preeclampsia without severe features. And I was struck by the statement. Not only is it not necessary to give it, but in the Executive Summary, as you suggest, it is not indicated and you recommended against starting it. Is that how you interpret it as the well?

**Dr. Repke:** Well, I might have interpreted the statement the way I wanted to interpret it. And, as you know, in our institution, because we feel we are a teaching program, people can progress very quickly intrapartum from not having severe features to having severe features, and we don't want to miss that window of opportunity. Our practice in that regard does not follow the guidelines. We use intrapartum magnesium prophylaxis for all patients with the diagnosis of preeclampsia, and continue it for 24 hours postpartum.

**Dr. Norwitz:** And I would have to say we decided do the same. So, once a diagnosis of preeclampsia is made, we would give intrapartum, and then postpartum magnesium seizure

prophylaxis for 24 hours, regardless of whether there's evidence of severe features or no severe features.

**Dr. Repke:** And there again, I think it's why, for you and I, it will still be important to assess the proteinuria because that diagnostic difference between preeclampsia and gestational hypertension is going to alter management. But if you follow the document word for word, if you're not going to use magnesium without severe features, I'm not really sure what proteinuria adds. I guess, at the end of the day, you've got to be a good doctor. And, you've got to be physically assessing your patient on a very regular basis.

### Preventing the first cesarean delivery. Will cesarean rates decline?

**Dr. Repke:** So, speaking of guidelines, the Society for Maternal Fetal Medicine (SMFM) just came out with a document trying to address this issue of the cesarean-section rate in the United States and are there things that we can be doing to lower the primary C-section rate.<sup>2</sup> My feeling is probably disseminated from the recognition that vaginal birth after C-section never got to the levels of acceptance that anybody hoped back when Healthy People 2010 was first written. And, we could eliminate that issue or, at least significantly reduce that issue, if the first C-section never took place.

And, I guess I'd like some of your thoughts about some of the things in that document, some of the things we need to be reconsidering in terms of how we define labor and so on.

**Dr. Norwitz:** It is true, I think, that there's been an epidemic of cesarean deliveries in the last decade in the US, but also throughout the world, I think, even in countries that have traditionally had very low cesarean delivery rates, the classic one being Ireland and the UK countries. Their rates are now increasing significantly.

And there are a number of different reasons as to why this may be. I think, certainly the obesity epidemic has contributed to this. You want to deliver patients who have an elevated BMI prior to the postterm period. But, it's often difficult to monitor these patients, and the cesarean-delivery rate overall is much higher in that population. So, that might be one reason why cesarean-delivery rates overall are going up. But, certainly there are many others.

**Dr. Repke:** Yes, I think you're absolutely right: the demographics of change. Childbearing is being delayed. We know that uterine contractility dynamics alter with advanced maternal age. We've got a higher incidence of multiple gestations with advanced maternal age. We have more patients that require induction because of supervening medical complications of pregnancy, whether that be Class A2 gestational diabetes, or whether that be pregnancy-induced hypertension.

### Redefining the stages of labor

**Dr. Repke:** I think some of the intriguing data, to me, is a willingness to re-look at how we define the stages of labor. And

what are acceptable norms? And, while I have some concerns about how that may be interpreted in the rank and file, I think it's at least heightened the awareness of my faculty that we just can't tolerate the C-section at 4 cm, or whether the latent phase of labor should be allowed to go to 6 cm. I don't think we really have the data for that. But I'd be happy if I could just start to see a reduction in "failure to progress at 4 cm."

And then the issue of second stage, I think, is also important. What do you think about the guidelines' recommendation that there may not really be an upper limit of allowability for second-stage labors?

**Dr. Norwitz:** Well, certainly I think it's important to think back to the historical context of where the labor curves developed. The original labor curves were actually developed in Zimbabwe (at that time it was Rhodesia) by an obstetrician working in the community called Philpott. And he was trying to determine when it was appropriate to send patients into the tertiary care center. So he designed the labor curve and said if patients failed to progress over a certain number of hours, those are patients that are likely to need an operative delivery, and he would then send them into the tertiary care center.

And, then Dr. Freidman picked up on that idea and developed the Freidman Curve in Boston. But that was an era, again, many years ago when the population demographics were very different, when not many patients received regional anesthesia. I think if you look at the current guidelines, there is a huge discrepancy between women who get epidural anesthesia and those that don't in terms of the progress of labor, both the first stage and the second stage.

### Is it anesthesia?

**Dr. Repke:** One of the things that, you know, I haven't looked at this paper in a long time, but you remember at Brigham and Women's Hospital, probably 20 years ago, we were winding down the Active Management of Labor Study<sup>3</sup> that was designed to try to replicate what had gone on at the Dublin Maternity Hospital,<sup>4</sup> and if I'm remembering correctly, one of the remarkable things about that is that in Dublin, there were virtually no C-sections in the second stage. And so people assumed that while they were more aggressive with forceps, the operative vaginal delivery rate was no different between Brigham and Women's Hospital and the Dublin Maternity Hospital. And so there needed to be another explanation.

And, I know I'm going to incur some of the ire of our anesthesia colleagues, but I really wonder whether there is a contribution of regional anesthesia to some of the labor dystocias that we see, and whether that's a new demographic that we haven't really adequately assessed. Even though I recognize some of the anesthesia literature<sup>5</sup> seems to suggest very strongly that it has no effect. You know, if you were to plot a graph of regional anesthesia rates and cesarean section rates, they would probably parallel each other.

**Dr. Norwitz:** I think they do. I think we've long known that epidural anesthesia slows down the second stage of labor. These analyses

suggest that it also has a significant effect on the first stage. And, I think that needs to be taken into account.

### The lost skill of forceps delivery

**Dr. Norwitz:** I personally think that the skill set, in terms of operative vaginal delivery with forceps and vacuum, has really been lost. And I do feel that's one of the factors contributing to the increase in cesarean delivery rates. I certainly see that in my practice: that I'm comfortable doing rotational forceps and mid-cavity forceps deliveries, where many of my colleagues have lost that skill, and rely now on the vacuum, which in certain circumstances is a less-than-ideal instrument. So, I believe that's part of the reason why the cesarean delivery rates have gone up.

### Lengthy second stage

**Dr. Norwitz:** But, certainly, I think, epidural anesthesia has made a difference, and I think we need to be cognizant of the fact that there is no "hard stop" now, in terms of the length of the second stage. If you get to 3 hours, even 4 hours, I would say, and there's continued descent with pushing and fetal heart-rate tracing is reassuring, it's reasonable to continue beyond those cutoffs.

**Dr. Repke:** I agree. I also have a concern about that, and I'm going to use a little bit of a parallel example of, you know, 7 or 8 years ago, there was a big push, and I think it was an appropriate push, to try to avoid elective deliveries prior to 39 weeks.<sup>6,7</sup> What ended up happening was that people forgot about the term "elective," and all they heard was 39 weeks. And what we would see on Board Examinations was, "Why do you have this placenta previa delivering at 39 weeks?"

"Well, that's our hospital policy. We can't deliver before 39 weeks."

And, I think, the complications started to arise, and that's what led to SMFM and ACOG coming out with guidelines for when it is acceptable to deliver prior to 39 weeks.<sup>2,6-8</sup>

So, the analogy is: I'm afraid that people are only going to see there is no upper limit for latent phase, there is no upper limit for second stage; that clinical judgment may not get its due in making these decisions. And we've all been in situations where, when you are trying to extract the head out of the pelvis, a cesarean section after a 5- or 6-hour second stage has its own set of complications. So my concern is that I hope we will recognize that we have to still use some clinical judgment, what I term the so-called "art of obstetrics," into managing these patients.

Are you optimistic that we're going to the lower C-section rate?

**Dr. Norwitz:** No, I think, it's going to continue to go up. I think, with the increasing number of multiple pregnancies, obesity, maternal age getting further and further along, I think this is only going to continue to rise. And to be honest, I don't know the correct cesarean delivery rate, or even if that is the metric that we should be measuring.

## What is the right metric to measure neonatal outcome?

**Dr. Norwitz:** Maybe we should be looking at perinatal outcome. If perinatal outcome is improved, then maybe the cesarean rate is less important. Obviously, the first cesarean does have implications for subsequent pregnancy outcomes, and if we do continue to see this rise in cesarean deliveries, we are going to end up with many more placental accretas and hemorrhages in women in years to come.

So, careful counseling is important. If patients plan to have one or two kids only, maybe a cesarean delivery is very reasonable. If they are planning on having six or seven kids, then maybe you have to have a more careful discussion.

**Dr. Repke:** Yes, I think, that's a very good point: the number of cesareans and the potential risks for abnormal placentation. I think societal expectations have changed in terms of what they want. Most mothers are willing to sacrifice maternal risk for presumed benefits to the fetus.

I think, where we've gotten into trouble as a specialty, though, is that we've had a hard time proving that neonatal outcome, in fact, has improved—despite an almost tripling of the cesarean section rate since, probably, the early 1970s. Although, anecdotally, what my pediatric and neonatal colleagues will tell me is they don't get the kind of damaged babies they used to get. So the neonatologists that are closer to my age that have been doing this for a long time, they're not seeing the really severe meconium aspiration syndromes; they're not seeing really severe forceps-related injuries, or vacuum-related injuries that they used to see. So, those may be data that we're going to need to accumulate with a little bit more rigor, and see if that's true.

But I tend to agree with you. I don't know what the right cesarean section rate is. I often tell people, I have yet to meet a patient who doesn't think her cesarean section was indicated. And that's where I think we hit the crossroads of individual patient-care management. So, we know across all other disciplines in medicine we're entering the era of personalized medicine, yet we want to make broad public health policy that may not apply to individuals, and run with that. So, that's also a concern. But, as they say, a story we will follow with interest.

**Dr. Norwitz:** I think so. I think the other part of that equation is the stillbirth rate, and the fact that there's a push now to avoid elective inductions before 39 weeks, which I think is very reasonable, with a focus there again on elective inductions.

There's also a push to induce patients before 42 weeks. And that bar has been pushed back, and in most practices around the country now, deliveries are being affected and recommended at 41 weeks. And clearly, if you take a nulliparous patient with an unfavorable cervix and induce at 41 weeks, you are going to increase the cesarean rate. I would argue that you are also decreasing the chance that there will be a stillbirth. But that data has not been forthcoming.

So this issue is by no means resolved. I think there are going to

be many more years of data and studies and consensus opinions before we have a much better sense of what the right cesarean rate is.

**Dr. Repke:** Yes, I think that's a great point. And, one thing that I think people aren't maybe that familiar with is when this push came, and again, it is an appropriate push to minimize elective deliveries before 39 weeks. When they looked at neonatal outcomes, all they looked at were the group that delivered at 37 weeks, and the group that delivered at 39 weeks. And they didn't look at what happened with the other ones.<sup>9</sup>

So, they did look at the stillbirths of fetal distress or the other complications that happened between 37 and 1, and 38 and 6. They just looked at neonates that were born at 37 weeks and compared them to neonates that were born at 39 weeks, and found reduced instances of things like transient tachypnea of the newborn, hyperbilirubinemia, and thermoregulation issues, and those sorts of things. But, never looked at the neonates in that window, so no question 39 is better than 37, but, 37 is better than not making it to 39. So that, as you said, we've got a lot more information we've got to gather.

Errol, good talking with you.

**Dr. Norwitz:** Thank you. 🚫

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