Preterm Contractions in Community Settings

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Introduction

The following 2 articles appeared in the “Green Journal” in 1998. I wrote a commentary on them at that time. Now, 9 years later, I find most of that commentary is still true. I have added a few additional comments and describe the “I once had a patient” syndrome. R. Daniel Braun, MD

I. Treatment of Preterm Contractions

Abstract

**Objective:** To explore how physicians in community hospitals (non-level III nursery facilities) diagnose preterm labor and treat with preterm contractions.

**Methods:** Chart audits were performed for women presenting with preterm contractions at a network of 11 Wisconsin non-level III hospitals.

**Results:** Ninety percent (239 of 266) of the women presenting with premature contractions agreed to participate. The average gestational age was 31.6 weeks. Only 44 (17%) of these women had any cervical change with their contractions. However, tocolytic agents were used frequently, regardless of whether cervical change had occurred (61%) or not (76%, p=0.10), and tocolytics were prescribed frequently upon discharge for those patients who left the hospital (54% of those with cervical change versus 62% in those without change, p=0.57). Examining the use of appropriate treatments for women who did deliver prematurely, we found that only 26% of women who delivered prematurely received antenatal antibiotics to prevent group B streptococcal disease in the newborn, and only 33% of those who delivered at 34 weeks gestation or earlier received corticosteroids to accelerate fetal lung maturity.

**Conclusion:** Women presenting at community hospitals with preterm contractions but no evidence of labor are over treated frequently with agents of equivocal benefit, whereas those who have active labors and deliver are not receiving agents such as steroids or antibiotics that have been shown to benefit outcomes.

II. Predicting Preterm Birth in Women With Preterm Contractions

Abstract:

**Objective:** To examine risk factors for preterm delivery in women who present to nontertiary care hospitals with preterm contractions.

**Methods:** Women who presented to a network of community hospitals in Wisconsin with preterm contractions were followed until delivery. The main outcomes were preterm delivery before completion of 36 weeks gestation and delivery within one week of initial presentation.

**Results:** Of the 266 women presenting with contractions over the two year study period, 90% (n=239) consented to participate. Multiple factors were associated with premature delivery, but when examined with a multivariate model, only four (ruptured membranes, multiple gestation, cervical effacement at least 80%, and nonwhite race) were associated with prematurity, whereas five (ruptured membranes, multiple gestation, cervical effacement at least 80%, dilation exceeding 1 cm., and being a nonsmoker) predicted delivery within one week. A decision model that combined the presence of ruptured membranes and effacement at least 80% could predict delivery at 34 weeks or less within 7 days of presentation with a sensitivity of 71% and a specificity of 98%.
**Conclusion:** Only two clinical cues (ruptured membranes and effacement of the cervix of 80% or more) can predict premature delivery within seven days. If these results are confirmed prospectively, women with either of these signs could be targeted for administration of steroids, antibiotics, or transfer to tertiary care facilities.

**Commentary**

As I was cleaning out some files on my computer, I ran across these 2 articles with a commentary that I had written when they came out in 1998. That original commentary follows. I have added a few more words after that to bring this 9 years into the present.

These two articles in the July “GREEN” journal are unusual, interesting, and important. They are unusual in that they only have one author. This seems to be a breath of fresh air in this day when the entire faculties of 8 different departments are frequently listed as the authors of an article. They are also unusual because the author is a Family Medicine physician and they are published in the “Green” journal. They are interesting and important because they look at how a common situation is managed in the community. They are also interesting and important because they reveal that the management in the community may be less than optimal.

The first article describe the management of the condition of preterm contractions in community hospitals. The fact that 61% of those with no cervical change received tocolytics, which have not been proven to be of benefit, is not surprising to me. This is because it mimics the pattern that I have seen arise over the years. The real surprising item to me is that only 26% of those who delivered preterm received Group B beta hemolytic streptococcus prophylaxis. This is part of all known to me protocols for prevention of early onset neonatal Group B infection. Not only is this a part of all the protocols, but it is a proven effective therapy. The even more surprising item is that only 33% of those delivering at less than 34 weeks received steroids. This treatment is not only proven to be effective but probably has the greatest impact on the outcome of these patients than anything else that can be done. If any shows up with any kind of symptoms of possible preterm delivery and there was only one thing I could do for it, I would definitely give her steroids. This is proven safe effective treatment.

I have never had a patient develop any kind of problem because she was given betamethasone as recommended by Liggins. I have seen multiple patients in pulmonary edema because they were given tocolytics. Why do we keep on giving tocolytics when they have no proven benefit and many proven complications?? I don’t really know, but it sure happens.

I must modify that previous statement slightly. Tocolytics have been shown to be able to stop delivery long enough for betamethasone to have its effect on the newborn. If I think the patient is likely to deliver within 24-48 hours, I will start tocolytics at the same time that I give the betamethasone. I will also then stop the tocolytics after 48 hours.

The author tells us that twice as many women are sent home on tocolytics as were given betamethasone. In other words, twice as many women are given a dangerous unproven therapy as are given a safe and effective therapy. From my personal observation, I think that these findings are not limited to Community hospitals in Wisconsin. I think these are common practices around the U.S. I chose to write this commentary after seeing these articles so that I could at least get an opportunity to make these comments and perhaps get a few more people out there to give betamethasone to these having contractions. Then if perhaps a few less of them got tocolytics for 8 weeks, it would be icing on the cake.

The second paper looks at what factors might be predictive of preterm delivery or of delivery within one week of presenting with contractions. The following tables presented in the paper are much more illuminatory than is the abstract.

Factors associated with Preterm Labor based on logistic regression modeling.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio</th>
<th>95% c.i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm birth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruptured Membranes</td>
<td>12.02</td>
<td>3.05-47.37</td>
</tr>
<tr>
<td>Multiple Gestation</td>
<td>4.63</td>
<td>1.47-14.61</td>
</tr>
<tr>
<td>Nonwhite Race</td>
<td>4.54</td>
<td>1.23-16.67</td>
</tr>
</tbody>
</table>
Don’t anybody tell my patients that being a nonsmoker has a fourfold increased risk for delivery within 7 days if you have Preterm contractions. WOW this is an interesting finding. It also goes against some of the older studies which showed that smoking is a risk factor for preterm delivery.

Results of a decision rule for predicting delivery within 7 days of presenting with contractions at less than 34 weeks.

<table>
<thead>
<tr>
<th>variable</th>
<th>sensitivity</th>
<th>specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruptured Membranes (A)</td>
<td>42%</td>
<td>98%</td>
</tr>
<tr>
<td>(A) or 80% Effacement(B)</td>
<td>54%</td>
<td>93%</td>
</tr>
<tr>
<td>(A) or (B) or Mult.Gest(C)</td>
<td>77%</td>
<td>86%</td>
</tr>
<tr>
<td>(A) or (B) or (C) or &gt;1cm.</td>
<td>85%</td>
<td>80%</td>
</tr>
</tbody>
</table>

So of those 26 patients who presented at < 34 weeks and delivered within 7 days, 8 had ruptured membranes, 18 were >80% effaced, 5 had a multiple gestation, and 10 were > 1 cm. Dilated. **But the thing to take home from this table and from this paper is that if the patient had none of these factors, her chance of delivering within 7 days of presentation was only 15%**.

Should we provide tocolytic agents to women who have a 15% chance of delivering within one week? I don’t think so. I feel that we should observe these ladies very closely and then re-evaluate if they rupture membranes or become 80% effaced or > 1 cm. dilated.