Variations Between Family Physicians and Obstetricians in the Evaluation and Treatment of Preterm Labor

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BACKGROUND. The purpose of this study was to examine and compare the approaches of family physicians and obstetricians when evaluating and managing women with preterm contractions or labor.

METHODS. A survey questionnaire examining physician practice characteristics was sent to a random sample of specialists in obstetrics and family practice in 10 states. Responses were received from 54% of individuals in active practice.

RESULTS. When asked their three most common treatment strategies for women with preterm labor, family physicians were more likely than obstetricians to select beta-agonists and hydration. Obstetricians were more likely to include magnesium sulfate and nifedipine in their treatment plans. For women with preterm contractions and no change in cervix, obstetricians were more likely to select either of the two short-term tocolytic therapies, while family physicians were more likely to select less aggressive therapy approaches. When adjusted for the facility in which they practiced and the number of years of experience, family physicians were nearly one half as likely as obstetricians to use tocolytics to treat women who had contractions but no cervical changes.

CONCLUSIONS. In general, obstetricians were more likely to select more aggressive therapy for women with premature contractions without changes in cervix. Since it is unlikely that patient preferences would influence the choice of strategies for preterm labor, it is likely that these results reflect true differences in physician practice patterns based on physician specialty.

KEY WORDS. Labor, premature; tocolysis; physician's practice patterns; obstetrics; physicians, family. *(J Fam Pract 1997; 45:336-340)*

Studies indicate that significant differences exist when maternity care is provided by family physicians as opposed to obstetricians.[1-10] Despite this variation, outcomes for maternity care are equally good for both specialties.[11,12] Differences in practice behaviors persist even after stratification for patient risk status.

One factor that could alter practice behaviors for physicians, but cannot be controlled for by adjusting data, is the effect of patient expectations on physician behavior. Because many patients discuss their wishes for delivery with their providers, and most prior studies have focused on outcomes surrounding delivery, the impact of patient expectations on outcomes could be magnified. To separate the effects of patient expectations from true practice variations between family physicians and obstetricians, this study examined treatment decisions for a relatively uncommon event in pregnancy over which patients generally have little influence, ie, preterm labor.

The study's purpose was to determine whether family physicians' approach to preterm contractions was similar to that of obstetricians or if significant differences existed between the specialties. Based on results from previous studies suggesting

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that family physicians use less invasive techniques during labor and delivery, the hypothesis for this study was that family physicians would treat preterm labor more conservatively with measures such as observation, whereas obstetricians would be more likely to utilize aggressive strategies such as tocolytic agents, which are of unproven value.[13-19]

METHODS

To generate a national sample of physicians who provide obstetric care, a sample of board-certified obstetrician-gynecologists and board-certified family physicians was selected from 10 states (Arizona, California, Washington, Colorado, Minnesota, Missouri, Alabama, North Carolina, Ohio, and Connecticut). These states were chosen to provide representation of physicians from all 10 census districts throughout the United States. Using the 1995 directory of board-certified physicians published by the American College of Obstetrics and Gynecology and American Board of Family Physicians, a random sample of obstetricians and family physicians was chosen based on a computer-generated random-number scheme. The total sample numbered 700 obstetricians and 1000 family physicians; family physicians were oversampled, since it was assumed that only 30% of these physicians would be offering obstetric services.[20]

An initial mailing was sent to all physicians that included a letter explaining the purpose of this study, a survey questionnaire, and a business reply envelope. This mailing was followed by a post card reminding them to complete the questionnaire. Those who had not responded within 3 weeks were sent a second copy of the survey materials.

The questionnaire, which had been pilot tested, elicited information on physicians' use of different strategies, their opinions about how well different medications worked, and other facets of their approach to preterm labor. The questionnaire also included information about physician demographics, their practice location (rural versus urban), the intensity of services offered at their hospital (Level III neonatal intensive care unit versus no neonatal intensive care unit), and type of practice organization (eg, solo, group). The final copy of the survey questionnaire was approved by the University of Wisconsin Human Subjects Committee.

From the original 1700 physicians surveyed, a total of 310 survey packets (130 intended for obstetricians and 180 for family physicians) were returned because the physician could not be located, had died, or had retired from practice. Of the remaining 1390 questionnaires, 749 were returned (54% response rate). The response rate for family physicians was significantly higher than that for obstetricians (65% [n=537] for family physicians, and 38% [n=208] for obstetricians, $P<.001$). Three hundred eighty-seven (72%) of the family physicians indicated that they did not perform obstetrics, and 34 (16%) of the obstetricians did not include obstetrics in their practice. This left a final sample size of 174 obstetricians and 147 family physicians.

Data were entered into a computerized epidemiologic database (Epi Info, Version 6). Where data were compared across groups, chi-square was used for noncontinuous variables and *t* test was used for continuous variables with equal variances. When the variances of samples were not homogeneous, the Wilcoxon rank-sum test was used for continuous variables. Logistic regression analyses were performed using True Epistat (Epistat Services, Inc, Richardson, Tex, 1992). Statistical significance was set at $P<.05$.

RESULTS

Demographics, workload, and practice characteristics of respondents are shown in Table 1. Compared with obstetricians, family physicians were younger, worked fewer hours, and had less experience. Family physicians were also less likely than obstetricians to belong to a single specialty group and more likely to locate in rural areas. In contrast, obstetricians were more likely to be practicing in either a tertiary care center or a hospital that included direct access to a neonatal intensive care unit (18% vs 40%, $P<.001$).

When respondents were asked to select from a list of seven options the treatment strategies that they used most often, the selections varied by provider specialty (Table 2). Compared with obstetricians, family physicians were more likely to include beta-agonists (97% vs 89%, $P<.001$) and hydration (97% vs 87%, $P=.002$) in their top three choices for initial therapy of women with preterm contractions. Obstetricians were more likely to select nifedipine as one of the preferred treatments (13% vs 4% for family physicians, $P=.004$).

TABLE 1

Characteristics of the Respondents in the Preterm Labor Treatment Survey

Variables	Family Physicians (n=147)	Obstetricians (n=174)	*P* Value
Age, mean (SD)	40.9 (6.5)	50.5 (10.9)	<.001
Male sex, n (%)	96.0 (65)	129.0 (74)	.09
Hours worked/week, mean (SD)	57.1 (13.0)	62.1 (31.1)	<.001
Years of experience, mean (SD)	10.3 (6.8)	19.2 (10.4)	<.001
Type of practice, n (%)			<.001
Single specialty	28 (19)	97 (46)	
Multispecialty	87 (59)	91 (43)	
Academic	15 (10)	16 (8)	
Other	17 (12)	8 (4)	
Most common payment source, n (%)			.15
Fee for service	35 (24)	44 (21)	
Managed/capitated	75 (51)	126 (61)	
Medicaid/none	36 (25)	36 (17)	
Location of practice, n (%)			<.001
Urban/suburban	53 (36)	159 (75)	
Small town or city	37 (25)	41 (19)	
Rural	57 (38)	11 (5)	

When physicians were asked to choose one strategy that best represented how they deal with patients who have preterm contractions without any changes in cervical effacement or dilatation, family physicians tended to choose observation or hydration, while obstetricians were more likely to select strategies that used tocolytic agents (Table 3). Neither group was likely to use sedation. Only a minority of physicians stated that they used ongoing tocolytic therapy under these circumstances.

Because differences in physician practice patterns could have reflected different practice environments or time in which training took place, a logistic regression model was constructed to adjust physician specialty for experience and the type of hospital in which the physician practiced. Regression analysis showed that the selection of a beta-agonist as initial therapy was not associated with specialty after adjustment for hospital type and location or years of experience (adjusted odds ratio [OR] = 2.83, 95% confidence interval [CI], 0.71 to 7.84, P=.17). Even after adjustment for hospital type and experience, however, family physicians were more likely than obstetricians to use hydration (adjusted OR=4.89, 95% CI, 1.38 to 17.27, P=.01) and less likely to use nifedipine (adjusted OR=0.21, 95% CI, 0.06 to 0.69, P=.01) in the initial management of patients with preterm labor.

Logistic regression was also used to adjust for possible effects of hospital type and physician experience on the selection of treatment strategies for patients with preterm contractions without cervical change. For this analysis, responses were dichotomized into aggressive strategies (use of tocolytics) vs nonaggressive strategies (observation or hydration). When adjusted for the type of hospital and years of practice experience, being cared for by a family physician as compared with an obstetrician remained associated with the use of less aggressive strategies (adjusted OR= 0.57, 95% CI, 0.32 to 1.00, P=.05).

Other differences between obstetricians and family physicians were that family physicians were more likely to report that they sought consultation either often or nearly all the time for patients in preterm labor (108 [73%] vs 48 [27%], P<.001), and less likely to report that they transferred preterm labor patients either often or nearly all the time (18% vs 6%, P=.001); after stratification of physicians based on those who worked in tertiary care centers, however, the difference in transfer rates was not significant.

TABLE 2

Physicians' Selection of Initial Treatment Strategy for Preterm Labor

Treatment Strategy	Family Physicians (n=147) No. (%)	Obstetricians (n=174) No. (%)	*P* Value
Beta-mimetic agent	143 (97)	155 (89)	.005
Hydration	142 (97)	151 (87)	.002
Magnesium sulfate	89 (61)	137 (79)	.001
Observation	23 (16)	22 (13)	.44
Sedation	16 (11)	17 (10)	.74
Nifedipine	6 (4)	23 (13)	.004
Indomethacin	3 (2)	6 (3)	.51

TABLE 3

Physicians' Selection of Management Strategy for Preterm Contractions Without Cervical Changes

Management Strategy	Family Physicians No. (%)	Obstetricians No. (%)
Hydration	70 (47)	65 (37)
Observation	32 (22)	28 (16)
Tocolysis, then observe	30 (20)	64 (36)
Ongoing tocolytics	13 (9)	11 (6)
Sedation	3 (2)	8 (5)
Total	148 (100)	176 (100)

P=.01 for comparison of obstetricians and family physicians.

Finally, obstetricians and family physicians varied regarding their opinion about and use of antepartum steroids in preterm labor patients. Obstetricians were more likely than family physicians to believe that steroids were somewhat or very effective (97% vs 89%, *P*=.01) and were more likely to administer steroids to all patients in labor at less than 34 weeks' gestation (67% of obstetricians vs 49% of family physicians, *P*=.002). Family physicians were more likely than obstetricians to defer this decision to a referral site (16% vs 1%, *P*<.001).

DISCUSSION

Previous studies examining differences in physician behavior in maternity care have found interspecialty differences in such procedures as induction of labor,[7-9] cesarean delivery,[2,4,5] episiotomy use,[1,8,9] and epidural use.[3,6,9] All of these decisions, however, could be influenced by patient expectations. Patients may select physicians whose practice style matches their own wishes, or they may communicate their own desires to their physician and alter the clinical decision. Since it is unlikely that patients have preconceived opinions about how they would like to be treated should they have preterm labor, the practice variations observed in this study are more likely to reflect true differences in the care delivered by obstetricians and family physicians.

Differences in the selection and use of tocolytics is probably based on familiarity with drugs and practice culture. Since most data do not demonstrate that beta-agonists are beneficial at prolonging gestation or preventing low-birthweight deliveries,[13-19] and studies show no benefit of magnesium sulfate over beta-agonists,[21-23] there is little clinical justification for differences in drug selection. The observation that nifedipine is also more commonly used by obstetricians than family physicians probably reflects the fairly recent addition to the armamentarium for preterm labor treatment. The increased use of nifedipine by obstetricians may reflect dissemination of information about this agent in the obstetrics literature and slower dissemination to family physicians. The role of nifedipine is still unresolved, however.[24] The observation that 13% of obstetricians use nifedipine as one of their top three choices suggests that further inquiry into the situations where nifedipine is preferred and how it is used might be warranted.

The variations in the attitude toward and use of antenatal steroids by family physicians and obstetricians are of some concern. Antenatal steroids are associated with significant decreases in respiratory distress syndrome when given more than 24 hours and less than 7 days before delivery.[2,5] Use of antenatal steroids is also associated with reductions in length of neonatal stay and costs of neonatal care.[26,27] Despite the evidence of benefit from steroid use, this treatment is underutilized.[28,29] The study reported here suggests that the reluctance of family physicians to administer steroids and the decision to defer this treatment to referral institutions could contribute to the underuse of antenatal steroids in preterm labor.

These conclusions should be interpreted in light of the limitations in the study design. First, the survey relied on self-report of practice behavior without verification that physicians actually practiced in the manner described in their responses. For example, if family physician respondents believed that it was more socially desirable to be perceived as being conservative in managing preterm contractions, this belief could have influenced them to answer questions differently from their true practice behaviors. Second, physicians are often not good judges of how they actually practice and often overestimate their use of tests or procedures.[30] Since there was no independent validation of physicians' responses, there is no way to ascertain whether physicians' responses were truly indicative of their actual practice patterns.

CONCLUSIONS

Family physicians and obstetricians report important variations in their approach to the woman with preterm contractions but without cervical change and in their selection of initial tocolytic agents. While these variations may not be indicative of important influences on patient outcomes, they do imply that variations in maternity care between family physicians and obstetricians involve more than just patient population or the self-selection biases.

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