Knowledge, Attitudes and Practices of Maternity Care Providers concerning Prevention of Congenital and Neonatal Infections

Karagiannidou S.¹, Papaevangelou V.²

1 Collaborative Center for Clinical Epidemiology and Outcomes Research, Athens, Greece.

2 Professor of Paediatric Infectious Diseases, Third Department of Pediatrics, National and Kapodistrian University of Athens, School of Medicine, University General Hospital ATTIKON

Background: Pregnant women are at risk for influenza-related complications, while their children are at risk for influenza or pertussis associated morbidity¹. Influenza and pertussis vaccination is proven safe and effective during pregnancy, while recommendation from maternity care providers is strongly associated with vaccine uptakes^{2,3}. Moreover, counseling of pregnant women on congenital infections is important.

Objective: To investigate Greek providers’ knowledge, attitudes and practices around congenital and neonatal diseases’ screening, prevention and vaccination strategies.

Methods: A pilot questionnaire was distributed through Survey Monkey to a convenient sample of Obstetricians/Gynecologists (Ob/ Gyns). Moreover, it was completed by a convenient sample of Midwives, during their annual meeting.

Results :

- In total, 202 responded:
- 102 Ob/ Gyns (72.5% > 40 years old, 23.7% female) and
- 100 Midwives (23.5% >40 years old, 98% female).
- Both Ob/ Gyns and Midwives claimed discussing congenital infection prevention strategies during prenatal visits (90%), specifically hand hygiene (94.5%) and eating properly washed vegetables and well-cooked meat (97.5%). Fewer though advised pregnant women to avoid young children’s saliva (58.7%) and gardening without gloves (58.3%).
- The majority of providers tested pregnant women during the 1st trimester for antibodies against CMV and Toxoplasma and retested if seronegative (97% and 85% respectively).
- Regarding pregnancy, postpartum and family vaccination, many providers suggested influenza vaccine (73.8%, 65% and 61.4% respectively). Then again, most do not recommend pertussis vaccine (64.3%, 69% and 64.2% respectively).

•**Univariate analysis:**

- *Ob/ Gyns:* suggesting avoidance of young children’s’ saliva during pregnancy was associated with recommendation of gardening with gloves (p=0.016) and also providers who retested a seronegative woman were more likely to retest her every trimester (p<0.001).
- *Midwives:* age <40 years old was associated with non-recommendation of pregnancy, postpartum and family pertussis vaccination (p=0.008, 0.008 and 0.05 respectively), while Midwives believed that antibodies should be retested every trimester **and** at the end of pregnancy if CMV and toxoplasma seronegative (p<0.001 both).
- *Both specialties:* vaccinating pregnant women against influenza was associated with postpartum and family influenza vaccination (p<0.001 both).
- *Comparing the two specialty groups:* Ob/ Gyns were more likely than Midwives, to discuss congenital infection prevention strategies during prenatal visits, like suggesting gardening with gloves, to retest pregnant women for CMV and Toxoplasma antibodies if seronegative at 1st trimester and to suggest pregnancy, postpartum and family influenza vaccination, but not pregnancy pertussis vaccination (Table 1).

• **Multiple logistic regression analysis** revealed that specialty and suggestion of avoiding children’s saliva during pregnancy were independently associated with discussion of congenital infection prevention strategies during prenatal visits (Table 2). Specialty was not independently associated with any other parameters of the maternity care providers.

Conclusion: Despite these encouraging results, further education of maternity care providers is indicated to increase vaccine awareness and recommendation^{1,2}. Further research should focus on pregnant women to examine whether these results reflect actuality.

References:

1. Bödeker B., Walter D., Reiter S., Wichmann O., Cross-sectional study on factors associated with influenza vaccine uptake and pertussis vaccination status among pregnant women in Germany, Vaccine. 2014 Jul 16;32(33):4131-9.
2. Wiley K.E., Massey P.D., Cooper S.C., Wood N.J., Ho J., Quinn H.E., Leask J., Uptake of influenza vaccine by pregnant women: a cross-sectional survey, Med J Aust. 2013 Apr 15;198(7):373-5.
3. Maher L., Dawson A., Wiley K., Hope K., Torvaldsen S., Lawrence G., Conaty S., Influenza vaccination during pregnancy: a qualitative study of the knowledge, attitudes, beliefs , and practices of general practitioners in Central and South-Western Sydney, BMC Family Practice 2014, 15;102:1-9.

Table 1: Univariate analysis: Differences in demographics, knowledge, attitudes and practices between Obstetricians/Gynecologists and Midwives

variable		Obstetricians/ Gynecologists (n=102) N(%)	Midwives (n=100) N(%)	p-value
Age group (years)	20-30	7 (6.9)	40 (40.8)	p<0.001
	30-40	21 (20.6)	35 (35.7)	
	>40	74 (72.5)	23 (23.5)	
Male sex		74 (76.3)	2 (2)	p<0.001
Congenital infection prevention strategies		100 (98)	80 (81.6)	p<0.001
Suggesting gardening with gloves		67 (65.7)	49 (50.5)	p=0.011
Retesting pregnant women for CMV and Toxoplasma antibodies if seronegative at 1 st trimester		96 (94.1)	74 (75.5)	p<0.001
Suggesting influenza vaccine	During pregnancy	90 (88.2)	58 (58)	p<0.001
	Postpartum	79 (78.2)	50 (50.5)	p<0.001
	Family	72 (70.6)	53(53)	p=0.003
Suggesting pertussis vaccine during pregnancy		32 (31.4)	13 (13.4)	p=0.001

Table 2: The impact of specialty on congenital infection prevention strategies: Results of multiple logistic regression analysis

variable		β coef.	95% confidence interval for β		p-value
			Lower bound	Upper bound	
Age (years)	20-30 (ref.)				0.523
	30-40	1.218	0.292	5.072	0.786
	>40	0.619	0.163	2.348	0.481
Sex (males vs. females)		0.957	0.087	10.491	.0972
Specialty (Midwives vs. Obstetricians/Gynecologists)		10.53 6	1.13	98.202	0.039
Suggesting avoidance of children’s saliva during pregnancy (yes vs. no)		0.296	0.102	0.859	0.025