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Letter to the Editor

Comment on: Seroprevalence of *Bordetella pertussis* Antibody in Pregnant Women in Iran

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Dear Editor-in-Chief

We read with interest the article entitled: Seroprevalence of *Bordetella pertussis* antibody in pregnant women in Iran¹. In their article, Hashemi et al., have seriously detected a large number of pregnant women with no immunity against *B. pertussis*.

The authors have indicated that 95% of objects have had complete immunization records against *B. pertussis* but only 35% had protective antibody against *B. pertussis*¹. It has been proven that there is no accurate method to analyze the protection level after *B. pertussis* vaccination, so what does seropositive mean? It means that the object has recently caught the natural infection. Knowing this fact, it could be concluded that 35% of pregnant women have recently experienced pertussis infection. Impact of pertussis vaccine begins to wane 4 years after vaccination and is unmeasurable after 12 years, while average age of the subjects was 27.5 years old, about 15 years after the last dose of *B. pertussis* vaccine in Iran current vaccination schedule^{2,3}.

The interesting point of this result is recent suffering from pertussis infection in about one third of their participants and it could reflect the prevalence of disease in adult population. Moreover, as the authors pointed out, the most important source of disease for newborns and infants are adults with pertussis in whom the disease might just present as a chronic cough². ACIP (Advisory Committee on Immunization Practices) in 2005 presented two protocols of saving newborns from pertussis and start to find out which of them has the best results: 1-prenatal vaccination 2-postpartum vaccination or Cocoon strategy⁴. It is a protocol based on postpartum vaccination of mothers, all family members and caregivers who are in close contact with the newborn^{5,6}. The latter was the first choice for CDC, however presenting the problems in cocoon strategy, they changed their recommendation to the first one "prenatal vaccination during pregnancy"⁴. There were two major problems with cocoon strategy: First, newborns lack immunity during the first two week of life if post-partum vaccination was the choice, because this time is needed to reach a protecting level of antibody. Second, cocoon strategy even in the USA missed

all family members for vaccination and it showed difficulty in practice. Hence, assuming the Iranian culture and the large number of family members who might visit the newborn in the very first days of life, it seems that cocoon strategy in Iran would not either be successful.

The authors have demonstrated that 35% of participants had protective antibody against *B. pertussis* which means recent natural infection in about one third of participants. This is the valuable data that the researcher have accurately showed.

We believe these findings show the necessity of injecting a shot of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis (Tdap) vaccine in adult population, pregnant or non-pregnant, in Iran, specially by addressing on the mean age of their objects that has been 27.5 year which is about 15 years after the latest pertussis vaccination time in Iran's vaccination schedule and we should remind that the impact of pertussis vaccination does not remain more than 12 years^{2,3}.

To sum up, considering Hashemi et al. article, it could be concluded that 65% of Iranian pregnant women are not protected against *B. pertussis*. They are also in a great risk of suffering from pertussis because 35% of adult people in their age range are suffered. The other problem is the difficulty of cocoon strategy in Iran. Therefore, it seems it is necessary to consider a shot of Tdap not only for pregnant women, but also for all adult people to lessen the spreading rate of this disease in Iran.

Iraj Sedighi (MD)^{a*}, Taravat Sadrosadat (MD)^b

^a Department of Pediatrics, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

^b Department of Pediatrics, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Correspondence to: Iraj Sedighi (MD)

E-mail: sedighi@umsha.ac.ir

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Reply

We would like to thank the interested reader for his/her comments on our article.

While we agree their comments on CDC recommendation for acellular pertussis vaccination after delivery, we have also mentioned the CDC recommendation in Introduction and Discussion sections.

In our study 35% of pregnant women had protective antibody either due to vaccine or disease. Differentiation between post-vaccinal immunity and protection after disease was not possible and was not our goal in this study.

Like previous related studies in other parts of the world, we concluded that the level of immunity against *B. pertussis* in pregnant women in our region is low and vaccination before or during pregnancy may lead to protection of newborns.

Ebrahim Nadi (MD)^a

Department of Internal Medicine, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

E-mail: nadi@umsha.ac.ir