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Current practices and needs regarding perinatal childhood immunization education for Japanese mothers

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ABSTRACT

Background: Accurate, standardized information on childhood immunization is not available in Japan. We investigated current practices in perinatal childhood immunization education in the community and the needs and interest for such education among Japanese mothers.
Methods: This cross-sectional, descriptive study evaluated pregnant and postnatal women at four institutions in Niigata, Japan from May through July 2014. Data were collected using questionnaires inquiring about demographics, immunization education received, intent to receive childhood vaccines, and needs regarding information on childhood immunization.
Results: Questionnaires were distributed to 300 women, and 116 (38.6%) were returned; 70 (59.6%) of the respondents were pregnant women and 46 (40.3%) were postnatal women. Fourteen (20%) of the 70 pregnant women reported receiving some form of immunization education; in contrast, 34 (73.9%) of 46 postnatal women had received such education within 1 month of delivery. The rates of respondents who felt that the information was insufficient were high: 78.6% among pregnant women and 52.9% among postnatal women. Pregnant women reported that the most important information was general concepts of immunization; in contrast, postnatal women desired more-detailed information, e.g., on immunization scheduling.
Conclusions: Japanese women do not receive sufficient perinatal immunization education. The information needed during the prenatal and postnatal periods differs. Thus, educational approaches may need to provide carefully targeted information.

1. Introduction

The immunization program in Japan has progressed more slowly than those in other developed countries, a phenomenon sometimes referred to as the "vaccine gap" [1]. Nevertheless, some advances have been made during the last few years. Nine new vaccines have been licensed in Japan since 2008: a *Haemophilus influenzae* type b vaccine, 7- and 13-valent pneumococcal conjugate vaccines, rotavirus vaccines (monovalent and heptavalent), human papillomavirus vaccines (bivalent and quadrivalent), an inactivated Salk-derived polio virus vaccine, diphtheria, tetanus toxoid, acellular pertussis, and inactivated Sabin-derived polio vaccines, and inactivated Vero cell-derived Japanese encephalitis vaccines [2]. Although vaccine availability has improved considerably, these changes in the Japanese immunization system have increased confusion among providers and recipients, as these groups need to know how to deliver and receive vaccines in a timely manner. The Japan Pediatric Society recommends that six different vaccines (15–16 shots) be administered during infancy. However, no unified immunization education system is currently available. As a result, immunization information is not well distributed among parents responsible for making decisions regarding intent to receive immunizations and the need to receive recommended vaccines at appropriate times for their children.

It is important to determine the optimal timing and content of education programs for parents [3,4]. In the United States, infant immunization education is provided systematically and routinely [5]; however, lack of time devoted to education has been described

Abbreviation: VPDs, vaccine-preventable diseases.

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as the greatest barrier to disseminating information on vaccine risks and benefits [5,6]. Mothers reported that they do not have sufficient information on immunization [7–9]. Effective perinatal educational interventions were recently shown to improve maternal knowledge, attitudes, and beliefs regarding vaccination [10–13]. Studies have confirmed that early intervention programs provide useful educational information at the best teachable moment to highly motivated parents [14,15]. Unfortunately, very little is known regarding which educational content is most efficient and interesting, and how such content should differ during the prenatal and postnatal periods, for parents in Japan.

We investigated current practices in childhood immunization education in the community and the needs and interest for such instruction among Japanese mothers in Niigata, Japan.

2. Methods

2.1. Study design and setting

This study was a cross-sectional, descriptive survey of prenatal and postnatal women. The participants were recruited at four obstetrics hospitals in Niigata, from May 1, 2014 through July 31, 2014. Niigata city is located about 200 miles (322 km) north of Tokyo and has a population of about 800,000 people. The participating hospitals included a university hospital, a city hospital, and two private hospitals. The annual numbers of deliveries at the hospitals were approximately 500, 600, 800, and 300, respectively.

2.2. Study population

Prenatal and postnatal woman were surveyed. For the prenatal survey, pregnant women aged 20 years or older were recruited during gestational weeks 34–36 at antenatal classes or at prenatal examinations at participating hospitals. For the postnatal survey, postpartum women aged 20 years or older with 1-month-old infants were recruited at 1-month well-baby check-ups at participating hospitals.

All mothers who spoke Japanese were eligible for participation. Women with cognitive impairment and those for whom the investigation was an unacceptable physical or mental burden, as judged by the investigators or medical professionals, were excluded. Medical staff at each hospital approached all mothers to determine eligibility. At outpatient departments, obstetric department staff handed a letter explaining the survey to prenatal and postnatal women, who were then asked if they were interested in participating in the study. Women who expressed interest completed a survey after signing a consent form. The data were collected on-site, using self-administered paper-and-pencil surveys.

2.3. Survey questions

The survey required approximately 10 min to complete and included 45 items that used five-point Likert scales or multiple-choice, matching, or ranking questions to determine needs for immunization information. We measured demographics (maternal age, employment status, education, number of children, family structure), current immunization education (characteristics of prenatal/postnatal immunization education received), evaluation of immunization education received, intention to receive childhood immunization (three-point scale: 1—undecided, 2—yes, for a specific vaccine, and 3—yes), and immunization information needs and interest.

The entire survey questionnaire was developed by the study team. Before initiating this study, the questionnaire was pilot-tested among immunization specialists and nurses and physicians caring for perinatal women, newborns, and infants and then revised to improve clarity.

Table 1
Characteristics of study participants.

	Prenatal women ($n = 70$)	Postpartum women ($n = 46$)
Age (mean ± SD)	35.5 ± 6.4	32.3 ± 5.3
Education level		
Middle school/high school	14 (21)	9 (19)
Junior college	26 (37)	16 (34)
College graduate/graduate school	30 (40)	21 (43)
Number of children		
0	29 (41)	24 (52)
≥1	41 (58)	22 (47)
Employment status		
Unemployed	34 (48)	26 (56)
Employed	36 (51)	20 (43)

Numbers in parentheses are percentages of participants in each group.

2.4. Statistical analyses

Statistical analyses were performed using SPSS version 19.0 (Chicago, IL). Descriptive statistics were used to assess distributions of background characteristics and current immunization education status among survey respondents. The chi-square test was used for bivariate analyses of data distributions and associations between variables. All tests were two-tailed, and the significance level was defined as 0.05.

A scoring system was used to measure need for immunization information. Ten information items regarding immunization information, such as vaccine-preventable diseases, immunization schedule, and side effects (Supplementary Table 1), were listed and participants were asked to rank the top 5 items from 5 to 1, in descending order of interest. These scores were then summed to determine total scores for individual components.

3. Results

3.1. Study population

Questionnaires were distributed to 300 women, and 116 (38.6%) were returned: 70 (59.6%) from pregnant women and 46 (40.3%) from postnatal women. There were no statistically significant differences in background characteristics between prenatal and postnatal women (Table 1).

3.2. Immunization education

Participants were asked whether they had discussed childhood immunization with health care staff (e.g., midwives, public health nurses, nurses, doctors, clerks) and, if so, when, where, and with whom the discussion took place. The results are shown in Table 2 Fourteen (20.0%) of the 70 prenatal women reported receiving verbal immunization information while pregnant from obstetricians and nursing staff at a prenatal examination or antenatal classes. In contrast, 34 (73.9%) of the 46 postnatal women had received verbal immunization education within 1 month of delivery. In the postnatal group, physicians or nurses were likely to have discussed immunization at well-baby check-ups at age 1 month and midwives frequently explained immunization at regular home-visit check-ups for newborn babies. Among prenatal women, 52.9% of respondents had received written immunization information, as compared with 86.9% who had received such information by 1 month after delivery.