Knowledge and awareness about chickenpox vaccine among parents with children under the age of 5 years in Kuwait health centers in 2014

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INTRODUCTION

Chickenpox (varicella) is a viral infection that causes an itchy, blister-like rash. Chickenpox is highly contagious to people who have not had the disease nor been vaccinated against it. Before routine chickenpox vaccination, virtually all people had been infected by the time they reached adulthood, sometimes with serious complications. Today, the number of cases and hospitalizations is down dramatically.\(^1\,^2\)

Signs and symptoms, which may appear 1 to 2 days before the rash, include fever, loss of appetite, headache, tiredness, and a general feeling of being unwell (malaise). The disease is generally mild in healthy children. In severe cases, the rash can spread to cover the entire body, and lesions may form in the throat, eyes and mucous membranes of the urethra,
Anus, and vagina. New spots continue to appear for several days. For most people, chickenpox is a mild disease. Still, it is better to get vaccinated. The chickenpox vaccine is a safe, effective way to prevent chickenpox and its possible complications.

Chickenpox is considered as a mild or moderate illness in immunocompetent children. Nevertheless, serious complications include CNS involvement, pneumonia, and secondary bacterial infections can arise. Furthermore, mortality rate of 2-3 cases per 100,000 affected people has been reported. In the United States, an accurate estimate of chickenpox complications is not clearly established; ranging from 40.7% to 83.3% of children hospitalized for this illness from 1988 to 1999.

To obtain more accurate information, another study in Italy shows that the data collected in children hospitalized from complicated or uncomplicated chickenpox during a 4-year period in three pediatric hospitals. 349 children were admitted for complicated or uncomplicated chickenpox, 47.3% children were hospitalized in Florence, 30.4% in Ancona and 22.3% in Turin; 54.2% of which were males. 261 (74.8%) children had complicated chickenpox with the age of 41 months. Neurological complications were the most common followed by the skin and soft tissue infections. 88 (25.2%) children had no complications. The mortality rate was 0.4% in children with complicated chickenpox.

A vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body’s immune system to recognize the agent as foreign, destroy it, and “remember” it so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters.

Varicella vaccines are attenuated vaccines based on the Oka VZV strain that has been modified through sequential propagation in different cell cultures. The attenuated strain is grown in cell culture, purified and lyophilized. Reconstituted vaccine is injected subcutaneously. Varicella vaccine has also been included in a combination vaccine with Measles-Mumps-Rubella-Varicella (MMR-V). A vaccine that contains higher level of the virus has also been developed for the prevention of shingles in the elderly.

To reduce general morbidity as well as the number of severe cases, several countries outside Europe, as well as some European countries have introduced routine varicella vaccination during the last two decades.

The United States was the first country to implement routine varicella immunization for all children in 1995. Vaccination coverage in children 19-35 months of age reached 85% by 2003, immunization was highly affective in reducing varicella associated morbidity, hospitalization, and mortality.

Germany was the first country in Europe to introduce funded nationwide varicella vaccination as part of routine vaccination schedule. In July 2004, the German Advisory Committee on Vaccinations (STIKO) recommended vaccination in children of age 11-14 months. A combined MMR-V vaccine, licensed for all ages group was available in 2006. In July 2009, the STIKO recommendation was modified for children of age 15-23 months. From 2005 to 2009, nationwide voluntary sentinel surveillance of about 900 pediatricians and general practitioners estimated a reduction in varicella cases by 63% in children below 5 years of age, and by 55% in all age groups.

What made us choose this interesting topic of the research is because Kuwait government is thinking of introducing the varicella vaccine into the health centers, so we put in thought that it is critical to measure the awareness of parents with children below 5 years, before they do. This is to provide sufficient data that could make them design the proper campaign in different regions in the country that inversely correlates with the knowledge and awareness of the parents. This is to gain the maximum profits from this decision.

While checking previous researches, we found out a lot of misperception of parents toward the chickenpox vaccine in specific. In New York, 2002, a research concerning our case was conducted. 1011 parents with children between the ages of 4 and 12 were found to be more reluctant in vaccinating their children against chickenpox more than vaccinations against other diseases such as mumps and rubella. We further tried to look for the main reasons behind this misperception; it was surprising that most parents had a poor knowledge about the seriousness of the disease. This was because that 90% of parents knew that there was a vaccine but just 67% had taken action to children for vaccination and another 48% of the parents did not vaccinate their children because they did not believe that chickenpox was a serious disease.

By looking further, we figured out that most parents did not have accesses to information, which shows that parents must have a motivator to take the vaccine. This made us wonder if there is another reason for this misperception about the seriousness of the disease. The same research showed that 32% of the parents thought that it is better to contract the disease naturally not knowing the complications, while 16% were concerned that the disease may still develop which is true but with lesser complications.

The aim of this study is to provide basic data to about the knowledge and awareness of parents about the chickenpox vaccine to help in dealing with chickenpox vaccination and disease in Kuwait.
MATERIALS AND METHODS

This is a cross-sectional study that was conducted in a selected health centers in all six governorates of Kuwait.

Kuwait is divided into six governorates: Al Ahmadi with 679,527, Al Asimah with 511,001, Al Farwaniyah with 932,859, Al Jahra with 449,350, Hawalli with 764,299, and Mubarak Al Kabeer with 210,475.

The following formula was used to determine the sample size.

$$N=\left(\frac{Z^2 \times P \times (1-P)}{E^2}\right)$$

Where, N = sample size; Z = critical value (1.96); P = prevalence (expected to be 50%); E = error (considered to be 5%).

The above-mentioned figures applied on the equation and a sample size of 385 was estimated which was rounded to 400.

The sample size than distributed proportionally to the total population of each governorate as follow:

<table>
<thead>
<tr>
<th>Governorate</th>
<th>Al Farwaniyah</th>
<th>Al Ahmadi</th>
<th>Al Asimah</th>
<th>Mubarak Al Kabeer</th>
<th>Hawalli</th>
<th>Al Jahra</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (in thousand)</td>
<td>(26.3)</td>
<td>(19.16)</td>
<td>(14.4)</td>
<td>(6)</td>
<td>(2154)</td>
<td>(12.7)</td>
<td>(100)</td>
</tr>
<tr>
<td>(%)</td>
<td>932.859</td>
<td>679.527</td>
<td>511.001</td>
<td>210,475</td>
<td>764,299</td>
<td>449,350</td>
<td>3,547,51</td>
</tr>
</tbody>
</table>

The following health centers were selected randomly from each governorate:

- Hawalli Health center for Hawalli
- Fahaheel Health center for Al Ahmadi
- Ardhiya Health center for Farwaniyah
- Khalidiya Health center for Al Asimah
- Al Qurain Health center for Mubarak Al Kabeer
- Al Jahra Health center for Al Jahra.

The participants were selected conveniently from parents of children under the age of 5 years of age who attended the selected health centers during the study period in June 2014.

The parents were interviewed using a questionnaire that the researchers developed. The questionnaire contains demographic data, knowledge about chickenpox, knowledge about chickenpox vaccine and attitude toward the vaccine.

All parents (the father or the mother) with a child under the age of five, Kuwaiti and non Kuwait, Arabic and non Arabic will be included in the study. Participants that do not speak, neither English nor Arabic, will be excluded from the study.

A verbal consent was taken from all participants before starting the interview. Ethical approval has been received from Arabian Gulf University Ethical Committee. The researched also received an agreement to conduct the study from the Department of Health information and Medical Records at the Ministry of Health in Kuwait.

RESULTS

We interviewed 400 parents who met the established criteria. The demographic data included both genders in which 152 (38.0%) were males and 248 (62.0%) were females. The age group between 26 and 35 years old were the most to answer the questionnaire; 188 (47.0%). The research contains the six Kuwaiti governorates (Al-Ahmadi, Al-Farwaniyah, Al-Asimah, Al-Jahra, Mubarak Al-Kabeer, and Hawalli). The majority of the sample was from Al-Farwaniyah governorate.

The study targeted parents with children under the age of five in which 336 (84.0%) were working parents. 156 (36.5%) had a monthly income between 1000 and 1500 KD. 256 (64.0%) had a university degree (Table 1).

369 (92.25%) of the candidates knew what a vaccine is. 326 (81.5%) agreed that the role of a vaccine is to protect against disease, 42 (10.5%) thought it’s to protect family members against diseases and 25 (6.25%) choose that it’s for the treatment of diseases (Table 2).

365 (91.25%) know about chickenpox disease. 208 (52.0%) thought chickenpox is dangerous, and 192 (48.0%) thought it is not. 358 (64.5%) chose itchy rash as the symptom of chickenpox. 266 (66.5%) heard about chickenpox vaccine and 97 (24.25%) have had their children vaccinated (Table 3).

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286 (71.5%) are interested in giving their child the vaccine and 114 (28.5%) were not interested. A 135 (33.75%) are not willing to pay for it but 314 (78.5%) will give the chickenpox vaccine if it’s available for free (Table 4).

On evaluating the relationship between the knowledge level and different variables the results showed that there is no significant difference by gender or age. On the other hand, the level of education and region there was a difference seen. The higher the level of education the more knowledge about chickenpox vaccine they had. Hawalli was the highest while Al-Jahra was the lowest (Table 5).

DISCUSSION

This study shows majority of the sample had a good knowledge about the seriousness of the chickenpox. More than half of the parents knew about the vaccine, but less than one-third of them had already vaccinated, and most of the parents did not vaccinate their children.
The reason why most of parents in other studies are not interested in vaccinating their children against chickenpox is divided between the parents that thought that it is better to contract the disease naturally not knowing about the complications, and the parents that concerned that the disease may still develop but with lesser complications. [4]

In our research, more than one-third thought that the vaccine might affect their child’s immunity and one-forth of the sample never heard about the vaccine. [4]
In our study, we thought that the cost of the vaccine is the reason behind why parents were reluctant to use the vaccine. However, our research shows <10% of the sample are not interested to vaccinate their children because of the vaccine is costly.

**CONCLUSION**

The majority of the sample had a general knowledge about vaccines and a specific knowledge about chickenpox disease. One-third of them had already vaccinated their children and a major group is willing to vaccinate their children in the future if the vaccine is more readily available.

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