

The Awareness of Family Physicians About Cocooning Strategy

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AMAÇ:

Aşılama pratiğinde koza stratejisi “herhangi bir nedenle kendisi aşılamanamayan duyarlı bireylerin çevresindekileri bağışıklayarak onları enfeksiyonlardan korumak” olarak tanımlanır. Etkin aşılama yanıtının henüz oluşmadığı bebeklerin, bağışıklığı baskılanmış bireylerin yakın çevresindeki kişiler aşılansak enfeksiyon hastalıklarının bu duyarlı bireylere bulaşması önlenir. Günümüzde daha çok küçük bebeklerin influenza ve boğmacadan korunması için uygulanmaktadır. Aslında sağlık personeli ve toplu ortamlarda çalışanları da içeren daha kapsamlı bir kavramdır. Bu çalışmada amaç, aile hekimlerinin koza stratejisi hakkındaki farkındalığının değerlendirilmesidir

YÖNTEM:

Çalışma Orta Karadeniz’de küçük bir il merkezinde aile hekimlerine yönelik olarak planlandı. Elektronik posta yoluyla uygulanan anket içeriğinde sosyodemografik özellikler kayıt edildi ve “koza uygulaması” tanımlandı, hekimlerin bu konuda farkındalık ve tutumları soruldu. Veriler SPSS v15.0 (Chicago, IL) istatistik programıyla değerlendirildi, tanımlayıcı istatistikler, ki-kare, Fisher Exact test, Mann Whitney U testleriyle analiz edilerek sunuldu. P<0,05 değeri istatistiksel olarak anlamlı kabul edildi.

BULGULAR:

Çalışmaya 35’i kadın (%36,4), 62’si erkek (%63,6); yaşları 25-61 arasında değişen (ortalama 39,70±7,70; ortanca: 40 yıl) 97 aile hekimi katıldı. Katılımcıların %47,5’i (n=46) koza stratejisi hakkında yeterli bilgiye sahip olmadıklarını belirttiler. Bu uygulamanın yararlı olduğunu düşünen hekimlerin oranı %16,5 (n=16) idi. Hekimlerin yaklaşık %60’ı konuyla ilgili olarak uzman görüşüne başvurmak istediklerini bildirdi.

SONUÇ:

Koza uygulamaları aşıyla önlenabilir hastalıklara duyarlı; ancak aşılamanamayan bireyler için önemli bir korunma aracıdır. Bağışıklama hizmetlerinin sahadaki kaptanları olan aile hekimlerinin konu hakkındaki farkındalık ve bilgilerinin artırılması küçük bebekler kadar risk gruplarındaki erişkinler, gebeler ve yaşlılar içinde yararlı olacaktır. Maliyet ve klinik etkinliğin sağlanması için birey, hastalık, aşı ve uygulama zamanlaması açısından kişiye veya gruba özel takvim oluşturmak gereklidir. Bu çalışmanın sonuçlarına göre aile hekimlerinin büyük kısmı koza uygulamaları konusunda çekimserdir. Uygulanacak eğitimler farkındalık ve uygulama sıklığının artışına katkıda bulunacaktır.

Anahtar sözcükler: Koza stratejisi, aile hekimi, bağışıklama

AIM:

In vaccination practice cocooning strategy is defined as “immunizing the close contacts of the vulnerable individuals who cannot be vaccinated for any reason to protect them from vaccine preventable diseases”. It is usually applied for the protection of young infants from influenza and pertussis. In fact it is a more comprehensive concept that includes healthcare workers and people working in crowded settings. The aim of this study was to evaluate the awareness of family physicians about cocooning strategy.

METHODS:

The study was conducted in a small provincial centre in the Middle Black Sea region of Turkey. It was designed for family physicians based on surveys. In the questionnaire via e-mail, sociodemographic features were recorded and “cocooning strategy” was defined, the awareness and attitudes of the physicians were asked.

Statistical analysis was performed using SPSS v15.0 (Chicago, IL). Data were presented with descriptive statistics and analyzed by chi-square, Fisher Exact and Mann-Whitney-U tests. A p-value of less than 0.05 was considered statistically significant.

RESULTS:

Thirty-five women (36.4%) and 62 men (63.6%) from a total of 97 family physicians aged between 25-61 years old participated to the study. Forty-six (47.4%) of the participants stated that their knowledge about cocooning strategy was insufficient and the rate of physicians who thought that this application as beneficial was 16.5 % (n=16). Approximately 60% of the doctors stated that they needed expert consultation in case of cocooning decision.

CONCLUSION:

Cocooning strategy is important to prevent vaccine preventable diseases of vulnerable individuals. Raising awareness and knowledge of family physicians, who are the captains of immunization in the field, will be beneficial for adults in risk groups, pregnant women and the elder population as well as young babies. In order to ensure cost and clinical effectiveness, it is necessary to create a personal or group-specific schedule in terms of individual, disease, vaccination and timing of administration. According to the results of this study, most of the family physicians are abstained about cocooning applications. Trainings will contribute to increase awareness and frequency of implementation.

Key words: *Cocooning strategy, family physician, immunization*

INTRODUCTION

“Cocooning” is a word which means to protect someone or something from danger or harm by surrounding it with a protective layer. In public health, it is a strategy to protect the vulnerable individuals from infectious diseases indirectly by reducing the possibility of infection (1). The target population to be protected is under risk of severe infections, but cannot be vaccinated for some reasons such as immunosuppression, continuing treatments, pregnancy or being too young to have vaccination or active immunization response. To be a vaccination strategy, it means to administer vaccines to the close contacts of the susceptible population to protect them from vaccine preventable diseases (1). In practice, the term “cocooning” is usually used for the pertussis and influenza protection of the neonates and young infants younger than 6-12 months. The centre of the cocoon is the infant and the components are the baby’s household contacts, healthcare workers; all people spending time with the baby. Pertussis and influenza are both droplet borne infections that can be severely complicated in young infants, resulting in high morbidity and mortality with long hospital and intensive care unit stay. By immunizing the

close contacts of the infants we protect them from pertussis or influenza so that transmission of the infection is prevented. The prevalence of the infection is reduced and contribution to eradication efforts is provided through herd immunity (1, 2). The Global Pertussis Initiative recommends adolescent vaccination, immunization during pregnancy and cocooning as the appropriate control strategies to control pertussis (3). Maternal immunization and cocooning are also valid for influenza (1)

The immunity to pertussis does not last lifelong either by natural infection or immunization (4, 5). Pertussis immunization coverage is high, but in the first six months of life since the baby has not or just has completed the primary vaccination series of diphtheria, pertussis, tetanus (DTaP), immune response is not efficient to protect the baby from acute infections; in addition maternal antibodies providing passive immunization wane (6-8). Influenza immunization can be implemented after the sixth month, at the earliest, so the first six month of life becomes challenging for lower respiratory tract infections. To get rid of this problem two strategies are in current affairs: The first one is to “cocoon” the infant by immunizing the household and all close contacts around or to vaccinate the expectant mother during pregnancy to provide protection by passive antibody transmission through placenta and the mother herself as the closest contact. It is a known fact that the source of infection in young infants is the asymptomatic adults (9,10). However cocooning is difficult in daily practice because it is efficient when enough number of people is vaccinated. It is not easy to persuade everyone to get vaccinated and cost affectivity is a challenging problem (11, 12).

In this study we aimed to learn the family physicians’ point of view about cocooning strategy. The captains of immunization in the field are family physicians and their knowledge and attitude may provide new insights for the prevention of severe lower respiratory tract infections of young infants.

MATERIALS and METHODS

This cross sectional study was conducted in a small city in the Middle Black Sea Region of Turkey in a period of six months (June 1st and December 31st 2016). It was based on a survey applied by e mail or face to face interviews with family physicians. One of the authors contacted with the physicians and written consent forms were signed before filling the questionnaires. Family physicians working at family healthcare centres participated to this study. The surveys had two parts: In the first part, information about the age, gender, working place, active working time in the profession, number, acceptance of vaccination and rejection rates were questioned. In the second part of the questionnaire, cocooning was defined and the physicians were asked whether they recommend this strategy to their patients and believe in its benefit or not.

Ethics:

The study was approved by the ethical committee of Gazi University with the decision number: 77082166-604.01.02 and by the regional committees of all collaborating local public health institutions.

Statistical analysis:

Statistical analysis was performed using SPSS version 15.0(SPSS, Chicago, IL). The variables were tested using visual (histograms, probability plots) and analytical methods (Kolmogorov Smirnov test) to determine whether they were distributed normally or not. Sociodemographic and professional features of the participants were presented by descriptive statistics. Categorical variables were compared using Pearson's chi-square test, Yate's corrected chi-square test and Fisher's exact test, Mann Whitney U test where appropriate. Results for $p < 0.05$ were considered as statistically significant.

RESULTS

Thirty-five women (36.4%) and 62 men (63.6%); totally 97 family physicians aged between 25-61 years old (mean 39.70 ± 7.70 ; median: 40) participated to the study. Sixty-one (62.9%) of the participants worked in the rural areas and 49.5% (n=48) of them had been active in profession for more than 15 years. Thirty-seven percent (n= 36) of the participants reported that they met opposition to vaccination, but final decision was 98% acceptance because to obey the vaccination schedule of the Turkish Ministry of Health was a formal recommendation. Most of the family physicians thought that their general knowledge about immunization was sufficient, however 29.9% (n=29) declared willingness to take courses on new insights of immunization, such as cocooning strategy. Forty-six (47.4%) of the participants stated that they did not have sufficient knowledge about cocooning strategy, 16.5% (n=16) thought that it is beneficial for the protection of young infants, but none of them recommended vaccination for this reason, recommendations were usually related with vaccine receiver's health problems. Most of the caregivers stated that they had not investigate the task adequately or they needed expert consultation (56.7%; n=55). Non- routine immunizations were recommended to the patients when there was the history of a chronic illness or there was an epidemia or when the demand came from the patients (43.3%; n= 42). To be one of the ways of cocooning, Immunization during pregnancy was thought to be a risk as they could not estimate the outcomes for the foetus; only five (5.1%) physicians recommended adult type pertussis vaccine (Tdap) and 38 (38.2%) recommended influenza vaccination during pregnancy, but for maternal reasons; not for cocooning. Gender, age, working place active profession time had no significant effect on decision about **cocooning (Table 1)**

DISCUSSION

Cocooning strategy is a widespread entity, but in practice, it defines the protection of young infants from pertussis and influenza via breaking the infection chain by immunizing the people around them. It is difficult and expensive to administer, but high coverage provides herd immunity for the eradication of infection and reduces health care costs by decreasing the intensive care and hospital stay costs of the infants (12, 13). In developed countries it is administered via different ways and advisory committees about preventive health care recommend pertussis and influenza vaccinations to the pregnant women, house-hold contacts of the infants, adolescents and healthcare workers (14). However, in our country cocooning strategy is a new concept. In this study the family physicians, the captain of immunization procedures in the field, stated that although they thought cocooning was beneficial they did not recommend the process. The main concern to decide on adult immunization was the health problems of the vaccine receiver, not the protection of the young infants. The main reason for this excuse was not having sufficient knowledge about cocooning and administration of other new strategies about immunization. Approximately 30% of the participants stated that they needed to take courses about the improvements in immunization.

While deciding cocooning, the people who are to be vaccinated must be determined according to the social contact patterns of the infants. In Germany pertussis vaccination is recommended to every adult who has close contact with infants younger than 12 months and who has not received adult type pertussis vaccination in the last 10 years (15) A recent study from our country reported that an infant might have 1-18 social contacts daily. Although the longest contact was with the mother, 50.3% of the participants had contacts with non-house hold individuals. Attending crowded places, having schoolchildren siblings were important risk factors for respiratory tract infections. Therefore, the authors concluded that parents should keep their babies away from crowded places and school age siblings and their mother should be vaccinated primarily (16). These reports are necessary to determine the target populations of immunization, but our study concluded that health care professionals should be educated about

the new concepts of immunization such as cocooning strategy and adult immunization. Herd immunity can be provided by high vaccination coverage so that all vulnerable individuals can be protected from vaccine preventable diseases; not only the young infants. Immunization schedule for everyone must be planned individually for non- routine immunizations and cost affectivity must be always in consideration.

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Table 1. The sociodemographic characteristics and attitude about immunization strategies of the participants

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|--|---------------|----------------|-------------|
| GENDER | Male | Female | |
| | n=62; 63.6% | n= 35; 36.4% | |
| AGE | <40 years old | >40 years old | |
| | n=51; 53.1% | n=46; 47.4% | |
| WORKING PLACE | Urban area | Rural area | |
| | n=36; 37.1% | n=61; 62.9% | |
| PROFESSIONAL TIME | <15 years | >15 years | |
| | n=49; 50.5% | 48; 49.5% | |
| PERCEPTION IN IMMUNIZATION KNOWLEDGE | Sufficient | Insufficient | |
| | n=86; 88.6% | n=11; 11.4% | |
| ATTITUDE ABOUT COCOONING STRATEGY | Beneficial | Not beneficial | No idea |
| | n=35; 36% | n= 16; 16.5% | n=46; 47.5% |
| “ADULT IMMUNIZATION SHOULD BE APPLIED WHEN MEDICALLY NECESSARY FOR THE INDIVIDUAL HER/HIMSELF” | I agree | No idea | |
| | n=32; 33% | n=59; 60.8% | |