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INVESTIGATION OF THE EFFECTIVENESS OF THE TEACHİNG COURSE GIVEN TO MIDWIVES-NURSES ABOUT NEWBORNS' APGAR SCORE

YENİDOĞANLARIN APGAR SKORU HAKKINDA EBE-HEMŞİRELERE VERİLEN EĞİTİMİN ETKİNLİĞİNİN ARAŞTIRILMASI

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Anahtar Sözcükler: Ebe-hemşireler, APGAR skoru, refleksler, vital bulgular, eğitim kursu

SUMMARY

777/s research is carried out in order to assess the knowledge of the midwives-nurses about the APGAR score and the education level of the staff, to correct the misuse and wrong application of APGAR score. This research is planned as a sectional, descriptive, analytical and prospective study. İt has been carried out between 1E>h Feb and 1E>lh May 1998 in İzmir Gynecology-Obstetric Hospital. This research included 404 pregnant women, 404 newborns and 20 midwives-nurses. As the result of this study; we obtained a significant increase in the knowledge level of the midwives-nurses about the APGAR score measurement by teaching course. By planned teaching course, the correct measurement of APGAR score was obtained. We also point out that the planned teaching course is one of the important ways for learning and application. W e also realized that the determination of APGAR score at the 1st minute after teaching course was stili wrong. According to our observations and results, there is reguirement for more teaching course and practical application skills.

ÖZET

Ebe-hemşirelerin APGAR skoru hakkındaki bilgi düzeylerini ve çalışan personelin eğitim durumlarını öğrenmek, APGAR skorunun yanlış uygulamalarını ve kullanımlarını düzeltmek amacıyla bu çalışma gerçekleştirilmiştir. Kesitsel, tanımlayıcı, analitik ve prospektif bir çalışma olarak planlanmıştır. 15 Şubat 1998 ile 15 Mayıs 1998 tarihleri arasında İzmir Kadın Hastalıkları ve Doğum Hastanesinde yapılmıştır. Bu çalışmaya 404 hamile kadın, 404 yenidoğan ve 20 ebe-hemşire alınmıştır. Çalışma esnasında uygulanan eğitim kursu sayesinde, çalışmanın sonunda, ebe-hemşirelerin APGAR skor ölçüm ve değerlendirmelerinde anlamlı gelişmeler sağlanmıştır. Verilen planlı eğitim sayesinde APGAR skorunun doğru ölçülmesi sağlanmıştır. Bu arada , planlı eğitimin, öğrenme ve doğru uygulamanın önemli bir yolu olduğu vurgulanmıştır. Ancak, tüm çabalara rağmen, eğitimden sonra dahi 1. dakikadaki APGAR değerlendirmesi hala tam istenen düzeyde değildir. Bu da, tek bir seferlik eğitimin yeterli olmadığını ve daha fazla eğitim ve beceri-uygulama kurslarının gerekli olduğunu ortaya koymaktadır.

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INTRODUCTION

The improvement and development of the societies are related to the quality of the people that make it, to a great extent in other words; only the powerful personalities by

character, wisdom and physical strength can improve the society (1).

APGAR score is the most important and effective way to evaluate the health position of newborn (2,3). İt has been used for a long time but there is some conflicting data indicating that the application of this scoring system is not always appropriate (3-5). The induction method, the type of labor, drugs and personal characteristics may affect the APGAR scoring system (6). The teaching course and knowledge level of the nurses or midwives is another important factor to evaluate the currency of APGAR score. In this study, our aim was;

1. To evaluate the knowledge level of the nurses in the obstetric departments with respect to APGAR score, neuromuscular development (reflexes), vital criteria of the infant, and, to complete the insufficient knowledge and to correct the wrong practice by giving appropriate teaching course.
2. To convert the knowledge and practical skills to behavior. If the nurses have enough and effective knowledge and can perform the practice in a correct way, healthy children and healthy society can be accomplished much easily.

MATERIAL AND METHOD

2.1.Patients

This study has been conducted in the obstetric department of Konak Gynecology-Obstetric Hospital, İzmir, Turkey. The cases that comprise the database have been evaluated between 15th Feb and 15th May 1998 and by using non-random sampling method, 440 of 1855 uncomplicated deliveries have been selected as the sample of the universe of the study. İn addition 20 midwives-nurses who are working in obstetric department have been included in the study.

2.2.Method

Four different investigational questionnaires have been applied. The first questionnaire including multiple questions about APGAR score, neuromuscular reflexes, newborns' vital signs were asked to nurses. İt was performed before and after the teaching course of the nurses. The second form comprised of the observations of the investigator about the evaluations of the nurses on the APGAR score and reflexes (neuromuscular reflexes with the number of 9) of the 404 newboms. The third questionnaire comprised of the socio-demographic and obstetric stories of 404 pregnant women by the investigator. The fourth questionnaire included APGAR scores and reflexes of 404 infants.

A booklet was distributed to the nurses during the planned teaching course. İt was prepared by the investigators and included information on APGAR score, neuromuscular development and vital signs of the newborn. In this period, lots of methods including reading, talking, showing, application and discussion were used. The hospital director supplied the materials for the numerical determination.

Two thousand two of ali pregnant women (50%) were evaluated before the teaching course and the remaining half were evaluated after this course by the same nurse group. These two groups were similar with the respect to age, number of pregnancies, duration of delivery, duration between previous and last pregnancy and working conditions.

2.3.Statistical analysis

Chis-square test, student t test and Wilcoxon paired two sample tests were applied to data for the statistical analysis. Results were given as mean ±SD (standard deviation), frequency and percentage.

RESULTS

Sixty percent of midwives-nurses in this study were at age between 18 and 24, mean 23.5±4.1 years, sixty percent of the graduated from senior high school for health sciences. Fifty five percent has been working in the obstetric department for 1-4 years. None of them were graduates of university level.

By utilizing the pre and posttest questionnaires before and after the planned teaching course, the knowledge level of midwives-nurses with respect to APGAR score, infant reflexes and vital signs, were determined.

The evaluation of the midwives-nurses for the above mentioned criteria of the infants were observed by the investigator.

The number of infants evaluated before and after teaching course was 202 for every evaluation. The results were compared before and after the teaching course. Eventualiy, the conditions of the midwife-nurses in practice were recorded. The distribution of the correct APGAR score application pre and post teaching course was 31.2% and 52.4% respectively. The difference was statistically significant (x^2: 39.460, $p<0.05$, Figure 1).

Test	Correct application Number	%	Uncorrect application Number	%	TOTAL Number	%
Pre-E.	63	31.2	139	68.8	202	50.0
Post-E.	126	52.4	76	37.6	202	50.0
Total	189	46.8	215	53.2	404	100.0

Figüre 1. The APGAR score measurements of midwives-nurses before and after teaching course (Pre-E.:pre-teaching course, post-E: post-teaching course, *y2* = 39.460, SD = 1, $p < 0.05$)

The mean total knowledge points increased from X: 21.90 to X: 34.25 with respect to post test results. There was a 12.55 points knowledge gain. In the statistical analysis of

Wilcoxon correlated double sampling test, there was a statistically significant difference between mean total knowledge points with a a=0.01 importance level (z: 3.91, p=0.01, Figüre 4). İt can be told that there was a positive change in the knowledge level at post-teaching course.

The mean knowledge level related to APGAR score in the pre and post test of the midwives-nurses are evaluated and the mean points are increased from X=19.33 to X=21.70. A net gain of 2.32 is obtained. A statistically significant difference is determined between the mean knowledge points in the Wilcoxon's paired two sample test with a cx=0.01 importance level (z=3.02, p=0.001, Figüre 4).

The mean knowledge points of the midwives-nurses related to the reflexes are anaiyzed. Mean point is increased from X=2.53 to X=9.98, and knowledge gain as 7.45. Wilcoxon's paired two sample test demonstrated an a=0.01 importance level and statistically significant difference between the mean knowledge points (z=3.91, p=0.001, Figüre 4). İt can be suggested that the applied planned teaching course is effective.

When the mean points of the midwives-nurses in the obstetric room related to the vital signs of the newborn are anaiyzed, mean point is increased from X=0.15 to X=2.55, with a gain of 2.40, at a=0.01 importance level and the difference is significant (z=3.70, p=0.001, Figüre 4).

The mean points of the midwives-nurses related to application of APGAR score, newborns' reflexes and vital signs are increased from X=1.33 to X=11.08 by planned teaching course with a gain of 9.75 points at a=0.01 importance level and the difference is significant (z=3.91, p=0.001, Figüre 4). This result is very important to show the effectiveness of the planned teaching course. Demographic factors including age, graduation levels, working duration at labor room, have no effect on pre and post-teaching course points level.

An APGAR score measurement at 1^{st} minute which is performed by observer is statistically different from midwives-nurses' measurement before teaching course (X=7.34±1.44 vs X=7.98±1.25, t=10,35, p<0.05). There is stili statistically significant difference after the course period (X=7.68±1.05 vs. X=8.04±0.99, t=7,82, p<0.05, Figüre 2). An APGAR score measurement at 5^{th} minute which is performed by observer is statistically different from midwives-nurses' measurement before teaching course (X=9.76±0.87 vs. X=9.55±1.03, t=4,96, p<0.05). There is no statistically significant difference between two measurements performed before and after the teaching course (X=9.68±1.06 vs. X=9.78±1.06, t=7,82, p<0.05, Figüre 3). The correct APGAR score measurements at 5th minute by midwives-nurses can be obtained by teaching course as planned.

The examination of neuromuscular reflexes such as sucking, rooting, Babinsky, Glabella, Push-traction, Tonic-neck, Grasping and Stepping by midwives-nurses are also evaluated in this study. Before the teaching course, midwives-nurses could perform only the examination of Moro, Gallant and Babinsky reflexes with the same percentage of teacher. Also, they could perform Glabella, Push-traction, Tonic-neck, Grapping and stepping reflexes after teaching course with the percentage near 100%.

Midwives-nurses were also evaluated in the aspect of examination of newborns' vital signs. We observed that they could measure and record the body temperature, the pulse rate, the blood pressure and the inspiration rate of newborns correctiy.

DISCUSSION

In this study, we have tried to determine the effect of course given to midwives-nurses on the evaluation of APGAR score and related parameters.

The evaluation of the newborns after the labor in the early time is essential as pre-labor evaluation. The performance and skills of the midwives in the measuring the newborn's parameters are affected by external and personal factors such as education, working conditions, psychological situations and daily probiems. Some of them are changeable and can be corrected by appropriate methods. Regular education under the name of "teaching courses" is the most important way in this perspective.

Another aspect in the examination of the newborns is maternal satisfaction. According to Wolke's study, mothers were more likely to be satisfied with the newborn examination by a midwife than a junior pediatrician because midwives were more likely to discuss healthcare issues during the examination and were able to provide continuity of çare (7). At the same study, it was showed that midwives must correct some probiems in the examination of newborns. Having the skills for the midwives to evaluate the newborns' scores is also very important for the maternal satisfaction.

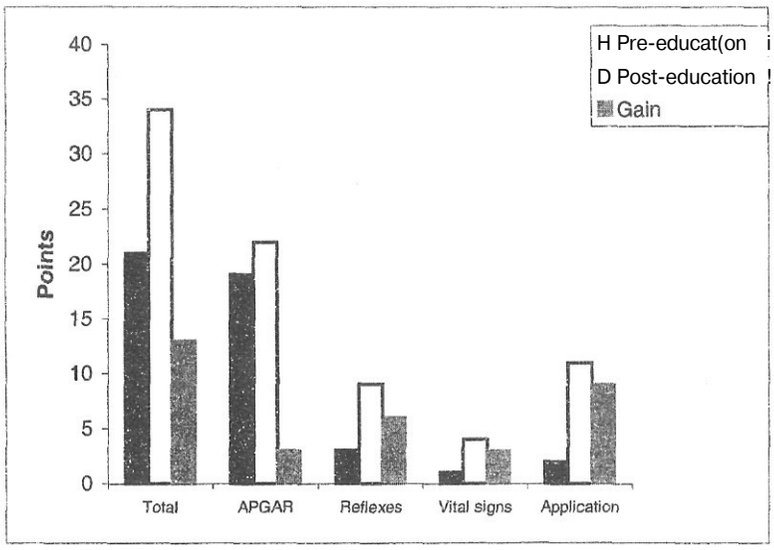
In our study, some improvements in the examination of APGAR score have been gained after teaching course but, the measurement of APGAR score by midwives-nurses at 1^{st} minute is stili not enough and we can not

Before teaching course APGAR score at 1st minute	n	X	±	S	SD	p	t
Midwives-nurses	202	7.98	+	0.88	1.24	P < 0.05	10.35
Observer	202	7.34	+	0.101	1.44		
After teaching course APGAR score at 1st minute							
Midwives-nurses	202	8.04	+	0.070	0.99	P < 0.05	7.82
Observer	202	7.68	+	0.074	1.05		

Figüre 2. The comparison of APGAR score levels at 1st minute measured by midwives-nurses and observer.

Before teaching course APGAR score at 5th minute	n	X	±	S	SD	P	t
Midwives-nurses	202	9.75	+	0.061	0.99	P < 0.05	4.96
Observer	202	9.54	+	0.072	1.058		
After teaching course APGAR score at 5th minute							
Midwives-nurses	202	9.72	+	0.071	1.01	P < 0.05	1.89
Observer	202	9.68	+	0.074	1.05		

Figüre 3. The comparison of APGAR score levels at 5th minute measured by midwives-nurses and observer.



Figüre 4. The mean of Knowledge-Application and Gain points oî midwives-nurses pre and post teaching course.

detect any reason underlying this. We only suggest that some personal factors may have effect on this mistake.

Letko also reported that the teaching course of the nurses affected the practice of APGAR evaluation considerably. They suggested that the experienced stuff and supervisors should control the APGAR score evaluation performed by inexperienced nurses-midwives. They noticed that teaching course and well-educated stuffs were essential in regular working activities and getting performance (8). Our results are in correlation with Letko's findings.

And also the results of this research supported the results of Clark's study and showed the efficiency of teaching course önce more (5).

Education given in the regular period may also have better results in the termination of the pregnancy and the health of both mother and newborn (9). İn many reports, there is some data supporting the idea that well-educated midwives are more successful than some physicians in gynecology and obstetric hospital (10).

As the result of this study, we found that the midwives-nurses working in labor room cannot perform some regu lar application such as APGAR score, neuromuscular reflexes appropriately and they need hinge course. We emphasize that regular and planned teaching course has a crucial effect in the correction of wrong application and informing the people working in labor room about the latest improvements. And also, continued and regular teaching courses are more irnportant than sectional teach ing courses for obtaining an effective and standard per formance from the working population.

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