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INVESTIGATION OF THE ANXIETY LEVEL OF PARENTS OF PEDIATRIC PATIENTS PLANNED TO UNDERGO AN ELECTIVE OPERATION

ELEKTİF CERRAHİ PLANLANAN PEDİATRİK HASTALARIN EBEVEYNLERİNİN KAYGI DÜZEYLERİNİN İNCELENMESİ

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Abstract

Objective: Many surgical procedures are performed on children and variable reports have been made about the level of anxiety in parents whose children are hospitalized. Parents' knowledge of the disease and surgery, economic problems, care of other family members and problems related to their work life are situations that affect the anxiety of the parent. The aim of this study is to evaluate the anxiety level of preoperative parental anxiety and related factors. Additionally, the aim is to examine the correlation of The State-Trait Anxiety Inventory (STAI) and Amsterdam Preoperative Anxiety, Information Scale, and State Anxiety Scale (APAIS) tests.

Methods: The parents of the children whose operation was planned under general anesthesia were included in the study. A questionnaire was applied to 300 volunteers aged between 18-65. Four forms were directed to the volunteers: parent information form, child information form, STAI (STAI-I and II) anxiety forms and APAIS anxiety form.

Results: The groups formed according to the APAIS scale included n=187 in Group P and n=113 in Group N. When the anxiety scores of the groups were compared, there was a significant difference in STAI-I, APAIS-B and APAIS-T. There was no difference between the groups in the evaluation of the groups based on sex, income level, income pattern, family structure, child age, child sex, surgical grade and the number of children in the family. In the correlation evaluation with anxiety, positive correlation was determined in all STAI and APAIS tests, while negative correlation was found with parental age.

Conclusion: In this cross-sectional study on parents of children who had anesthesia and surgery, we revealed the level of clinical anxiety and the relationship of some factors with anxiety. Pre-operative parental anxiety continues to exist as an important and under-researched problem of parents. This study shows that the STAI and APAIS tests yield similar results. Low parent and child age are also independent risk factors for anxiety.

Key words: Parental anxiety, preoperative anxiety, thestate-trait anxiety inventory (STAI), amsterdam preoperative anxiety (APAIS)

Öz

Amaç: Çocuklara birçok cerrahi işlem uygulanmaktadır ve çocukları hastanede yatan ebeveynlerde anksiyete düzeyine ilişkin değişken raporlamalar yapılmıştır. Ebeveynlerin hastalık ve ameliyatla ilgili bilgileri, ekonomik sorunlar, diğer aile bireylerinin bakımı ve iş yaşamlarıyla ilgili sorunlar ebeveynin kaygısını etkileyen durumlardır. Bu çalışmanın amacı, preoperatif ebeveyn anksiyetesi düzeyini ve ilişkili faktörleri değerlendirmektir. Ek olarak, amaç, Durum-Sürekli Kaygı Envanteri (STAI) ile Amsterdam Preoperatif Anksiyete, Bilgi Ölçeği ve Durumluk Anksiyete Ölçeği (APAIS) testlerinin korelasyonunu incelemektir.

Materyal ve metot: Genel anestezi altında ameliyatı planlanan çocukların ebeveynleri çalışmaya dahil edildi. Yaşları 18-65 arasında değişen 300 gönüllüye anket uygulandı. Gönüllülere dört form yönlendirildi: ebeveyn bilgi formu, çocuk bilgi formu, STAI (STAI-I ve II) anksiyete formları ve APAIS anksiyete formu.

Bulgular: APAIS ölçeğine göre oluşturulan gruplar Grup P'de n = 187, Grup N'de n = 113'ü içeriyordu. Grupların anksiyete puanları karşılaştırıldığında STAI-I, APAIS-B ve APAIS-T 'de anlamlı farklılık vardı. Grupların cinsiyet, gelir düzeyi, gelir düzeni, aile yapısı, çocuk yaşı, çocuk cinsiyeti, cerrahi sınıf ve ailedeki çocuk sayısına göre değerlendirilmesinde gruplar arasında fark yoktu. Anksiyete ile korelasyon değerlendirmesinde tüm STAI ve APAIS testlerinde pozitif, ebeveyn yaşı ile negatif korelasyon tespit edildi.

Sonuç: Anestezi ve cerrahi operasyona maruz kalan çocukların ebeveynlerini konu alan bu kesitsel çalışmada, klinik anksiyete düzeyini ve bazı faktörlerin anksiyete ile ilişkisi gösterildi. Ameliyat öncesi ebeveyn kaygısı, ebeveynlerin önemli ve yeterince araştırılmamış bir sorunu olarak var olmaya devam etmektedir. Düşük ebeveyn ve çocuk yaşı ebeveyen anksiyete yüksekliği için bağımsız risk faktörleridir. Çalışmada ayrıca STAI ve APAIS testlerinin benzer sonuçlar verdiği gösterilmiştir.

Anahtar Kelimeler: Ebeveyn anksiyetesi, preoperatif anksiyete, the state-trait anxiety inventory (STAI), amsterdam preoperativ eanxiety (APAIS)

Introduction

Surgical procedures are performed on millions of children every day, and variable reports have been made about the level of anxiety in parents whose children are hospitalized[1,2]. Parents' knowledge of the disease and surgery, economic problems, care of other family members and problems related to their work life are the situations which affect the anxiety of the parent[3]. There are factors reported to have an effect on anxiety such as age, type of surgery, sex, profession, general anxiety level, and being a single child[2,4-10].

However, surgical interventions are a negative life experience for individuals and their family members, whether it is large or small, urgent or planned. The child's illness and hospitalization cause important changes in the life of the entire family. The child's illness completely changes the life of the family. Along with the child who is sick, due to the increase in financial expenses and tension caused by the treatment process, the child's parents, siblings and close friends are also adversely affected by the disease[11].

Increased anxiety in parents can result in somatic and psychological symptoms that may affect the normal functions of the parents[12]. When parents' anxiety becomes excessive, the child's care will be negatively affected[13]. Additionally, children of parents with high anxiety have been reported to have more postoperative pain[14].

Awareness of anxiety, its treatment, determining its causes, and taking preventive measures are extremely important for the health of both parents and children. The aim of the study is to evaluate the anxiety level of preoperative parental anxiety and related factors. It is also to examine the correlation of The State-Trait Anxiety Inventory (STAI) and Amsterdam Preoperative Anxiety,

Information Scale, and State Anxiety Scale (APAIS) tests.

Material and Methods

Setting and participants

After the decision of the Ethics Committee (2015/344), the study was carried out on the applicants to the Anesthesia Preoperative Preparation Policlinic of XXX University XXX Medical Faculty Department of Anesthesiology and Reanimation. It was done by taking the voluntary informed consent of all parents who agreed to participate in the study, after receiving written and verbal information. A questionnaire was applied to 300 volunteers between the ages of 18-65, covering the mother or father of the children to be treated with general anesthesia. Parents of all pediatric age groups (0-18 years) who were referred to the anesthesia outpatient clinic for the preparation of anesthesia were informed about the study. Parents who participated in the study were asked to fill the questionnaire in a room where they would not be disturbed during the preparation of anesthesia, or with the help of the nurse in charge for the questionnaire.

Questionnaire Study

Parent information form: Individual characteristics of the parents were evaluated with the first group of questions. Age, sex, family structure, income level, and income pattern of the parents who participated in the survey were determined.

Information form for children whose operation is planned: It was recorded the age, sex and surgical grade of planned procedure of the children.

State-Trait Anxiety Inventory (STAI-I, STAI-II): State-Trait Anxiety Inventory consists of State and Trait anxiety subscales. While evaluating the state anxiety levels, the total score of inverse expressions (STAI-I question no 1, 2, 5, 8, 10, 11, 15, 16, 19 and 20) (STAI-II question no 21, 26, 27, 30, 33, 36, 39) are subtracted from the total score of direct expressions, and the anxiety score is calculated by adding the constant number to the result (50 for STAI-1 and 35 for STAI-2)[6].

Amsterdam Preoperative Anxiety and Information Scale (APAIS): This is another test used in the evaluation of anxiety before the operation. For APAIS, each question is given a score between 1 and 5, and the sum of these answers constitutes the APAIS score. APAIS-A is calculated by giving points to questions 1 and 2, APAIS-C to questions 4 and 5. APAIS-T is calculated by adding the APAIS-A and APAIS-C scores. APAIS-B is calculated with the points given to the 3rd and 6th questions.

Determination of Groups

For the APAIS T score, a score of 13 was defined as the cut-off value (15). According to this information, two groups were created in the study. Those with an APAIS score of 13 and above were identified as having anxiety (Group P) and those with scores below 13 were determined as not having anxiety (Group N).

Statistical Analysis

Statistical evaluation was done using the SPSS 20.0 statistics program. Spearman correlation analysis was used to examine the relationships between variables. Mann-Whitney U test was used for comparisons. In cases where the differences between two or more independent groups were requested to be tested, the One Way Anova test was used. Data are given as arithmetic mean ±

standard deviation. The significance level for all statistics was p <0.05.

Results

The study included 300 volunteers between the ages of 18-65, 186 (62%) were male and 114 (38%) were female. Of the children who will receive anesthesia, 198 (66%) were boys and 102 (34%) were girls.

The groups formed according to the APAIS scale included 187 people in Group P and 113 people in Group N. When the anxiety scores of the groups were compared, there was a significant difference in STAI-I, APAIS-B and APAIS-T (Table 1).

In the evaluation between the groups based on age, a significant difference was determined in terms of anxiety based on the ages of both the parent and children. No difference was observed between the groups in the evaluations based on gender, income-expense balance, income plan, type of family structure, child age, child gender and surgical grade (Table 2).

Table 1. Anxiety scores of the groups

	GRUP P (n=187) (mean±sd)	**GRUP N (n=113) (mean±sd)**	**P value**
STAI-I	45,35±8,02	38,91±9,57	**0,008***
STAI-II	46,05±7,92	40,63±7,98	0,631
APAIS-A	8,11±1,21	4,88±1,46	0,079
APAIS-C	8,50±1,37	4,78±1,61	0,443
APAIS-B	8,54±1,58	6,02±2,04	**0,029***
APAIS-T	16,60±2,02	9,66±2,49	**0,024***

*: statistically significant difference (p<0.05)

In the correlation evaluation with anxiety, there was a positive correlation with all STAI and APAIS tests, while a negative correlation was found with parental age. Child age was not significant in the correlation analysis (Table 3). To determine the independent risk factors that are effective in the development of preoperative parental anxiety, logistic regression analysis including parental age and child age was performed. Low parental age was determined as an independent risk factor for parental preoperative anxiety level (OR;0.959, P=0.026, 95% CI=0.924-0.995). Low child age was determined as an independent risk factor for parental preoperative anxiety levels (OR;0.920, P=0.030, 95% CI=0.853-0.992).

Discussion

In this cross-sectional study on parents of children who underwent anesthesia and surgery, we revealed the level of clinical anxiety and the relationship of some factors with anxiety[15]. Regardless of the preoperative diagnosis, we included the parents of all the children who will undergo anesthesia and surgery, and those with an APAIS score of 13 and above were considered to have high anxiety.

Table 2. Comparison the groups based on related factors

	GRUP P (n=187)	GRUP N (n=113)	P value
Age			
Parent (mean±sd)	31,76±5,59	34,16±7,74	**0,001***
Child (mean±sd)	1,16±0,37	1,23±0,42	**0,013***
Gender			
Male (n/%)	65/57,5	121/64,7	0,222
Female (n/%)	48/42,5	66/35,3	
İncome-expense balance			
İnsufficient (n/%)	26/23	58/31	0,146
Enough (n/%)	87/77	129/69	
İncome plan			
Regular (n/%)	83/73,5	131/70,1	0,599
İrregular (n/%)	30/26,5	56/29,9	
Type of Family Structure			
Nuclear (n/%)	93/82,3	144/77	0,288
Extended (n/%)	16/14,2	39/20,9	
Single parent (n/%)	4/3,5	4/2,1	
Child age			
Preschool (n/%)	95/84,1	144/77	0,182
School (n/%)	18/15,9	43/23	
Child gender			
Boy (n/%)	78/69	120/64,2	0,451
Girl (n/%)	35/31	37/35,8	
Surgical grade			
Grade 1 (n/%)	34/30,1	46/24,6	0,576
Grade 2 (n/%)	65/57,5	117/62,6	
Grade 3 (n/%)	14/12,4	24/12,8	

*: statistically significant difference ($p<0.05$)

Table 3. Correlation evaluation with anxiety

Anxiety	r	P value
STAI-I	0,328	**<0,001***
STAI-II	0,314	**<0,001***
APAIS T	0,824	**<0,001***
APAIS A	0,752	**<0,001***
APAIS C	0,765	**<0,001***
APAIS-B	0,547	**<0,001***
Age Of Parent	-0,164	**0,004***
Age Of Child	-0,085	0,142

r: Spearman Correlation Coefficient - *: statistically significant difference ($p<0.05$)

In the study, 187 (62.3%) parents had anxiety and 113 (37.7%) parents were found to have no anxiety, and the majority of the parents who prepared their children for anesthesia and surgery were shown to have high levels of preoperative anxiety. Significant differences were detected in the STAI-I, APAIS-B and APAIS-T scores between the groups.

The main purpose of this study is to examine the anxiety level of parental anxiety and related factors. STAI and APAIS anxiety scales were evaluated together to evaluate the parents' general anxiety status and their anxiety through the anesthesia process. In addition, the evaluation of the correlation of the STAI and APAIS tests was determined as a secondary objective.

While evaluating general anxiety and state anxiety with STAI, evaluations can be made regarding anesthesia anxiety (APAIS-A), surgical anxiety (APAIS-C) and desire to obtain information (APAIS-B) with APAIS[15,16].

Preoperative parental anxiety is affected by many factors[3]. Preoperative parental anxiety is a common condition and there are studies demonstrating that the age of the child is considered important[17-19]. Çağıran E et al.[20] reported that preoperative parental anxiety was not affected by the age and sex of the child. The children of the parents included in our study were divided into two groups as preschool and school children according to their age. There was no significant difference in anxiety between the two groups. In the correlation analysis, while child age did not create significant changes, negative correlation was detected between parental age and anxiety (r=-0.164). In logistic regression analysis, low child age (OR; 0.920, P = 0.030, 95% CI = 0.853-0.992) and low parent age (OR; 0.959, P = 0.026, 95% CI = 0.924-0.995) were determined to be independent risk factors for anxiety.

There are different results in the literature about the relationship between sex and anxiety. In some studies, in the preoperative period, the level of anxiety of female patients were found to be higher than male patients[21-25], the other studies, it was found that gender was not a determinant in the preoperative period[26,27]. In some studies, it was found that preoperative anxiety level was high in male patients[28]. When economic factors are evaluated, livelihood problems have been reported to increase the level of anxiety of parents[3,29]. There are also studies reporting that income level does not affect parental anxiety[20]. Familial

factors were also effective on parental anxiety[30,31].

In the study, there was no statistically significant difference between the sexes in the evaluation made according to parental sex. Two questions were asked, questioning the adequacy of income and income pattern. According to the answers, there was no significant difference between the groups. When the family structure was questioned, 237 (79%) out of 300 volunteers who participated in the study reported that they lived in a nuclear family type. There was no significant difference in anxiety in the evaluation made according to the family structure between the groups.

When the literature is examined, it is seen that the incidence of preoperative anxiety ranges from 11% to 92% due to the different risk rates of surgical procedures[32,33]. Generally, it is accepted that patients' anxiety is higher in tumor surgery or operations that will result in organ loss[34]. In some studies, it has been reported that the type of operation does not affect the level of anxiety[22,35]. In the literature, it has been observed that different evaluations are made according to the clinical presentation and the duration of the surgery when grouping the surgery that the children will undergo. In this study, the grouping of children was made according to the surgical grade classification[36]. There was no significant difference between the surgical grades in terms of anxiety.

Although STAI, one of the tests used in the measurement of preoperative anxiety, is shown as the gold standard in the literature[37], searches for determining cause-related anxiety continue. The APAIS test, developed by Moerman et al.[15], which measures the desire to obtain information along with anxiety and is mostly used by anesthesiologists, was also used in studies[38]. In the study of Moerman et al.[15], the correlation of the STAI score with the APAIS-A anxiety score was reported as 0.74, and the APAIS-B with the information acquisition score was reported as 0.16. Previous studies have shown a significant correlation between STAI and APAIS[21,26]. There are also reports of correlation in our country[22,28]. In our study, there was moderate correlation of anxiety with STAI subgroups (STAI-I r = 0.382; STAI-II r = 0.314) and a strong correlation with the APAIS subgroups (APAIS-A r = 0.752; APAIS-C r = 0.765; APAIS-B r = 0.547).

Conclusion

In our study, we investigated the presence of parental anxiety and related factors in the preoperative preparation phase in our hospital. Our study contains some findings that are compatible and some that are incompatible with the literature. Anxiety may differ regionally, culturally, periodically, and the fact that the data in the literature are from different regions may cause inconsistency of the results. Also, it is seen in the literature that anxiety comparisons are mostly carried out based on test scores. In our study, this comparison was made between the two groups separated according to the known cut-off value for the APAIS score. It can be said that the differences with the literature arise from these points. The children of the parents who participated in the study had very different diagnoses. Therefore, it was not possible to investigate the effect of specific diagnoses on the level of anxiety. In addition, parents' anxiety level may change depending on the time and place in the preoperative period.

Pre-operative parental anxiety continues to exist as an important and under-researched problem of parents. Our study shows that the STAI and APAIS tests yield similar results. Low parent and child age are also independent risk factors for anxiety. Operations personnel should not ignore the effects of anxiety in communicating with parents from the

preoperative preparation period to the perioperative period. These factors should be taken into account when interacting during the perioperative periods of their children's anesthesia and surgery.

Conflict of Interest

The authors declare that they have no conflict of interest

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