



Effects of Written and Visual Briefing on Parents' State and Trait Anxiety in Newborns with Pes Equinovarus (PEV) Treated by Ponseti Method: A Randomized Trial

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ABSTRACT

Objective: To assess the effects of written and visual briefing on parents' state and trait anxiety in newborns with newly diagnosed pes equinovarus (PEV) who were treated using the Ponseti method during the neonatal period.

Materials and Methods: Eighty parents (mother and/or father) of neonatal PEV patients who were treated using Ponseti Method between September 2014 and July 2017 were included in this study. Participants were assigned into two groups according to the written and visual briefing. Participants in both groups were asked to complete the State-Trait Anxiety Inventory (STAI) before the procedure. Then, written and visual briefing was given to the participants. All participants repeated the inventory after briefing to assess changes in state and trait anxiety.

Results: After visual and written briefing, parents' response was evaluated. In both groups, a significant decline was observed in trait and state anxiety after both written and visual briefing ($p < 0.05$). However, no significant difference was detected between groups regarding the effects of written and visual briefing on state anxiety.

Conclusion: The provision of detailed written and visual information about the risk of complications of the illness and treatment method increased the parents' knowledge but did not increase their levels of anxiety.

Keywords: Pes Equinovarus, trait anxiety, state anxiety

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INTRODUCTION

Congenital pes equinovarus, which is also referred to as club foot, occurs in one in 1,000 live births and is one of the most common birth defects that interests the musculoskeletal system (1). The aim of the treatment is to reduce the deformities, and the patient has a functional, painless-plantigrade foot, with good mobility and without calluses, and it does not necessary to wear modified shoes. The virtually universal agreement that the elementary treatment of idiopathic PEV should be conservative despite the severity of the deformity (2). The Ponseti method was represented many years ago and involves serial manipulation of cast application and a likely percutaneous tenotomy of the Achilles tendon (3).

The STAI is an instrument used to simplify the difference between state and trait anxiety. State anxiety (STAI-S) is described as a temporary emotional state, whereas trait anxiety (STAI-T) is considered to project comparatively stable variances in anxiety tendency. Each scale includes 20 items to define how the respondent feels at a particular moment in time (state anxiety) and how she/he generally feels (trait anxiety). STAI scores of ≤ 35 are indicated no anxiety, 36–41 indicate moderate and ≥ 42 indicate severe anxiety (4). Accordingly, it can be decided that the higher scores indicated that the higher anxiety levels and score range changes from 20 to 80 (4).

The present study aims to assess the effects of written and visual briefing on parents' state and trait anxiety in newborns with newly diagnosed PEV who were treated by the Ponseti method during the neonatal period.

MATERIALS and METHODS

Eighty parents of consecutive infants with PEV who were treated with the Ponseti method in the period September 2014–July 2017 were included in this study. The parents' of patients whose treatment started in the newborn period were included in this study. Parents were excluded from this study if the PEV was connected with other congenital malformation. This study conformed to the Turkish national recommendations of the ethics committees for human clinical research, in line with the 1975 Declaration of Helsinki, as revised in 2013. Locally Ethics Committee approval was obtained for this study (2014/463) and informed consent was obtained from the participants.

Participants were randomly assigned to one of two groups before the treatment starts. Group 1 consisted of the first 40 participants who received written briefing while group 2, with the second 40 participants, received a

Table 1. Trait and state anxiety scores of the groups

Groups	n	Trait anxiety			State anxiety		
		Before Mean±SD	After Mean±SD	p	Before Mean±SD	After Mean±SD	p
Written	40	43.5±7.7	41.2±7.5	0.007	40.9±13.1	36.8±10.1	0.035
Visual	40	41.3±7.7	39.2±8.6	0.023	39.0±9.9	36.4±10.0	0.027
p		0.211	0.254			0.461	0.824

SD: Standard deviation

visual briefing regarding the Ponseti method by the authors. After completing the STAI-S and STAI-T, in group 1, all participants received written information after that they again round out the STAI-S and STAI-T before the procedure. In contrast, in group 2, after completing the STAI-S and STAI-T all participants received visual information, and then they round out the STAI-S and STAI-T again before the procedure.

The written briefing was provided using a printed briefing form containing information about definition of club foot, the age for treatment, duration and method of treatment, complications of plaster, necessary to use foot abduction device after plaster and need for long-term follow-up to prevent a recurrence. The visual briefing was provided using personnel computer using sound media (approximately four minutes long), which contained the same data as given in the written briefing.

Statistical analysis was performed using SPSS for Windows (Version 22.0; SPSS Inc, Chicago, IL) software. Normality was tested using the Shapiro-Wilk test and graphical methods. Trait and State Anxiety Scores were compared between the groups using an independent-sample t-test. Before and after written and visual information, the Trait and State Anxiety Scores were compared in each group using paired t-test. $P < 0.05$ was considered statistically significant.

RESULTS

Eighty parents of consecutive infants with PEV who were treated with the Ponseti method were included in this study. Mean age was found as 27.7 (18–35) years in group 1 and 29.5 (18–42) years in group 2. There was no significant difference in age between groups.

Before the briefing, the mean STAI-T score was found to be 43.5±7.7 in group 1 and 41.3±7.7 in group 2. No significant difference was presented between groups regarding STAI-T scores. Based on the scores obtained, there was severe trait anxiety in group 1 while there was moderate trait anxiety in group 2 (Table 1).

Before the briefing, the mean STAI-S score was found to be 40.9±13.1 in group 1 and 39.0±9.9 in group 2. No significant difference was presented between groups regarding STAI-S scores. Based on the scores obtained, there was moderate state anxiety in both group 1 and 2 (Table 1).

In group 1, the mean STAI-S and STAI-T scores were found to be 40.9±13.1 and 43.5±7.7 before written briefing while it was

found to be 36.8±10.1 and 41.2±7.5, respectively after a written briefing, that is indicating a significant difference (respectively $p=0.035$; $p=0.007$). Given the scores obtained, it was seen that there was severe anxiety in participants before a written briefing, which was relieved after a written briefing (Table 1).

In group 2, the mean STAI-S and STAI-T scores were found to be 39.0±9.9 and 41.3±7.7 before visual briefing while it was found to be 36.4±10.0 and 39.2±8.6, respectively after visual briefing, indicating a significant difference (respectively $p=0.027$; $p=0.023$). Given the scores obtained, it was seen that there was moderate anxiety in participants before the visual briefing, which was relieved after the visual briefing (Table 1).

No significant differences were found between groups in STAI-S and STAI-T scores indicating state and trait anxiety before and after written and visual briefing (Table 1).

DISCUSSION

This study was undertaken to explore further the potential role of both written and visual briefing on parents' anxiety levels of PEV treated with the Ponseti method. The major purpose of the present study was that written and visual briefing decreased the state anxiety levels of the participants.

PEV is a condition which, if untreated, causes children to walk on the sides of their feet instead of the soles, resulting in infections, callus formation, arthritis and significant limitations in mobility and employment opportunities. Consequently, these chronic physical defects may pose significant physical, social and psychological challenges to children and their parents.

Before any treatment procedure, patients and their parents should be provided with sufficient information so that levels of anxiety are diminished (5–7). However, the ideal way of providing this information is still unclear. Although visual information given by the clinician is the most common method, written materials or visual education have also been proposed (8, 9). Thus, in this study, we aim to investigate the effects of written and visual briefing on participants' state and trait anxiety. To our knowledge, this is the first report evaluating the effects of written and visual briefing on anxiety in the parents of children with PEV.

Parents of children with physical impairments experience more stress and anxiety than the parents of physically normal children. Parents are the main caregiver of their children, and because of this, they are more exposed to illness-related conditions (10). Par-

ents' behaviours and attitudes can play a role in the success of the management of children with PEV. Parents' problems, such as anxiety, may have an effect on the outcome of the disease. In our study, it was seen that there was severe trait anxiety in the participants in group 1, while there was moderate trait anxiety in participants in group 2. Although trait anxiety decreased after the written and visual briefing, severe and moderate anxiety persisted. When state anxiety was considered, it was seen that there was severe state anxiety in group 1, while there was moderate state anxiety group 2. State anxiety was relieved after the briefing. Thus, we think that the patients exhibited complete adherence to treatment due to the reduction in state anxiety that arises from the disease despite the persistence of trait anxiety.

There are various methods of considering anxiety. The STAI is the standard method of evaluating both situational (STAI-State) and general (STAI-Trait) anxiety (4). Also, the STAI has higher internal stability and test-retest reliability (11). We preferred to use the STAI to investigate state and trait anxiety as it is easy to apply, reproducible and comprehensible for participants.

There are some limitations to our study. The first limitation is the restricted number of patients. Secondly, the study participants' state and trait anxiety scores were measured only once. Further studies are needed with large populations and measurement of anxiety levels applied more than once.

It is essential that parents receive education about disease and treatment methods. Increased awareness of the clinical presentations of anxiety may help clinicians to develop effective prevention and intervention strategies to improve the long-term outcome.

CONCLUSION

The provision of detailed written and visual information about the risk of complications of the illness and treatment method increased the parents' knowledge but did not increase their anxiety levels.

Ethics Committee Approval: The Erciyes University Clinical Research Ethics Committee granted approval for this study (date: 18.07.2014, number: 2014/463).

Informed Consent: Written informed consent was obtained from individuals who participated in this study.

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