〔ORIGINALI ARTICLE〕

Evaluation of the Relationship between a Face Anxiety Scale and the State-Trait Anxiety Inventory

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Abstract

To determine the degree of fear of dental treatment in general, we applied a Face Anxiety Scale(FAS) for pre-operative levels of anxiousness. The FAS is valuable as it is easy and fast. The FAS assess anxiety at 6 levels, the lowest is 0, the highest 5. We assessed the pre-operative(minor dental surgery) anxiety of patients subject to intravenous sedeation, without psychosedation. To establish the reliability of the FAS, an evaluation of the relationship between the FAS and the State-trait anxiety inventory (STAI) was made.

The pre-operative FAS ranged from 4 to 0 Anxiety with STAI (A-state) had a highest score of 72, and a lowest score of 23 The relationship between FAS and anxiety state with STAI was $Y=30.22+8.87X, R^2=0.69 (P<0.01)$ The FAS was significant correlated with state anxiety of STAI. The results suggest that FAS is a reliable measure for state anxiety in dental treatment.

Key words: Face Anxiety scale, Pre-operative anxiety, Dental phobia, Dental surgey, Stai

Introduction

Fear of dentistry in general, and especially of particular aspects of dental surgery, afflicts a significant proportion of people of all ages and social classes. Wardle[1] found that extraction procedures elicit high levels of anxiety, and that anesthetic injections and drilling are particularly feared. Extreme anxiety apparently caused frequent premature ventricular contractions

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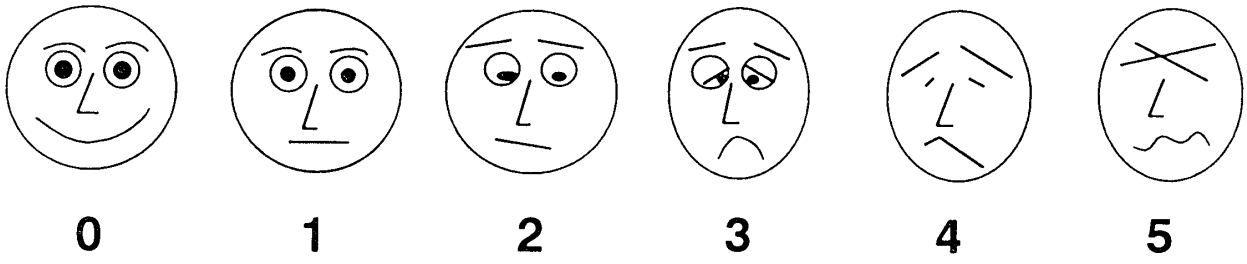

Fig 1 The Face Anxiety Scale (FAS)
FAS is a 6 grade estimate, the minimum score is 0 and maximum score is 5 Five points is the highest anxiety

in a patient[2] It is impotant to reduce pre-operative anxiety of patients even in minor dental surgery to improve safety One method of investigating levels of anxiety is the manual of Spielberger[3] with the state-trait anxiety inventory (STAI) It is however quite troublesome and time consuming for patients Therefore, we developed a Face Anxiety Scale (FAS) to determine pre-operative levels of anxiousness in dentistry This FAS is simple and reguite only little time, as it is easily performed with patients

The research presented have was performed to clarify the relationship between FAS and the anxiety state with STAI, and also the reliability of FAS as designed by us

Subjects and methods

1 Subjects

Subjects for the statistical study were patients of the Health Sciences University of Hokkaido Dental Hospital during the year from January 1994 to December 1994 Patient consent to carry out STAI and FAS was obtained Without patients of anthropophobia and autonomic imbalance, the informed consent to operate was confirmed

2 Assessment of anxiety

The FAS and Japanese edition of the STAI[4,5] was administered immediately before the minor dental surgery in the waiting-room The patients themselves filled in the entries of the FAS and STAI The FAS is shown in Fig 1 It involves six grades of anxiety, and the minimum score is 0 and maximum five points The five points is the highest anxiety level (Fig 1) The STAI estimate of anxiety has a maximum score of 80 and a minimum of 20 points

Results

1 Subjects

There were 33 subjects (14 femdes, 19 males) The average age of the subjects was 24 4 (±5 1 S.D) years, the youngest 19 and the oldest 49 years of age

Most of the minor dental surgery were extraction of the wisdom tooth (difficult extraction) The dental history of patients were no previous extraction of permanent teeth, previous

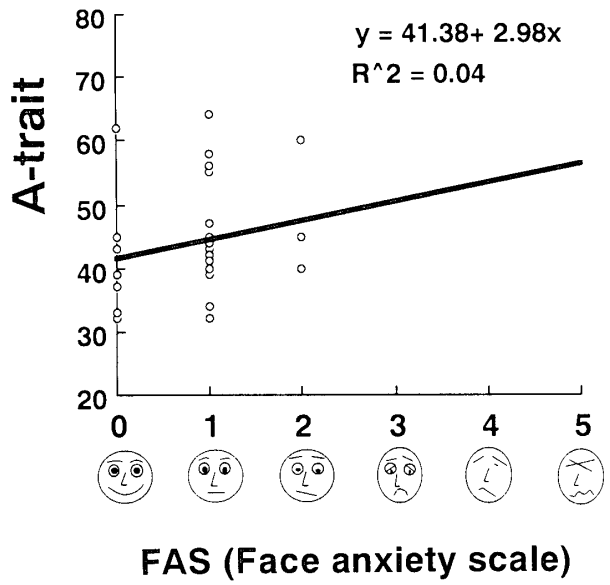

Fig 2 Relationship between FAS and STAI (A-trait)

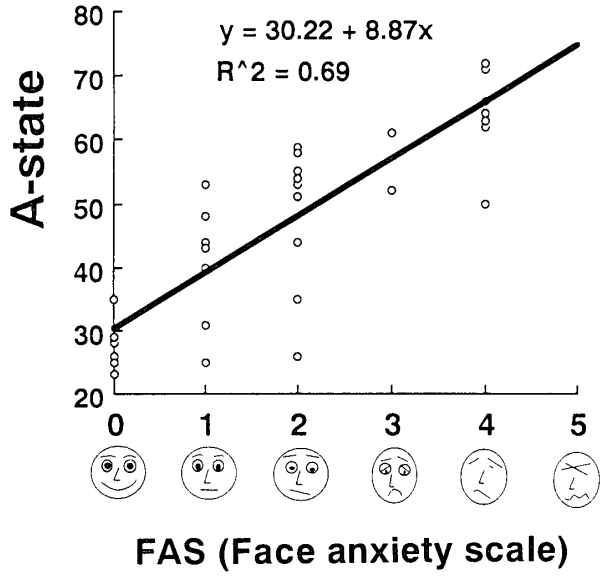

Fig 3 Relationship between FAS and STAI (A-state)

experience of extraction of permanent teeth, dental phobia and previous extraction of permanent teeth with inhalation sedation and of intravenous sedation. Then we carried out intravenous sedation (Flunitrazepam, 0 015mg/kg) for a half of patients.

2 Relationship between FAS and STAI

The scores of trait anxiety, for pre-operative FAS was 0 to 2, 0 80±0 53 (mean±S.D) and for STAI (A-trait) it was 32 to 64, 43 46±8.29 (mean±S.D.) The relationship between FAS and STAI (A-trait) was Y=41 38+2 98X, R^2=0.04 (Fig 2)

The anxiety state scores, the pre-operative FAS was a highest score of 4, and a lowest score of 0, 1 94±1 35 (mean±S D) With STAI (A-state), the highest score was 72, lowest 23, and the mean 47 46(±13 92 S D) The relationship between FAS and anxiety state of STAI was Y=30 22+8 87X, R^2=0.69 ($p<0$ 01) (Fig 3) The FAS was significant correlated with state anxiety of STAI

Discussion

The patient's past experience with dentists is an important part of the history. It is helpful to discuss which particular aspects of tooth extraction causes the most distress[1]. The majority of patients, have experienced local analgesia and injections of anesthetics related to operative dental treatment

Excessive anxiety induced to a patient has an apparently caused frequent premature ventricular contractions (PVCs)[2] We[6] have reported patient who was administered 30% nitrous oxide in oxygen to reduce the incidence of PVCs. Psychosedation has been found useful in dental surgery and in avoiding fear and anxiety in patients[7]. To ensure successful treatment there is a need for reductions in the pre-operative anxiety of patients even in minor

dental surgery Therefore, an attempt has been made to assess pre-operative anxiety levels in patients undergoing dental surgical procedures If possible, such an investigation should be simple and objective In the present study, we applied our FAS to establish pre-operative levels of anxiousness about dental treatment The FAS is valuable in the short time it takes to administer, as it consists of only six grades

The average age of patients was 24.4 years and almost all the dental surgery was extraction of wisdom teeth (difficult extraction) Patient trait anxiety with STAI (A-trait) was 43 46± 8 29 (mean±S D), approximately similar to Spielberger[3]and Kishimoto[5] This suggests that the patient anxiety level was that ordinarily encountered, and supports the validity of our experiments

The anxiety state pre-operative score was 47 46±13 92 (mean±S D), lower than the Spielberger[3](mean 55 7) and Kishimoto[4](mean 57 6) scores in stressed situations This research involved the extraction of permanent teeth with intravenous sedation, and as the score was before sedation it was lower than the reported scores[3,4]

The relationship between FAS and STAI (A-trait) was Y=41 38+2 98X, R^2=0 04, and between FAS and the anxiety state of STAI was Y=30.22+88 7X, R^2=0.69($p<0$ 01). The FAS was significant correlated with STAI (A-state)

In conclusion , results suggest that the FAS developed here yields reliable scores for anxiety state in dentistry Further investigation of the relationship between FAS and STAI is being planned, and we assess for state anxiety in dental treatment

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抄　　録

我々は簡単に短時間で患者の不安の程度を把握するために，我々が考案した顔不安スケール（Face Anxirty Scale FAS)を臨床で使用している。今回の研究はこのFASが不安をアセスメントする心理テスト，すなわちState-traıt anxiety inventry (STAI)の得点に相関するのか検討した。FASとSTAIは歯科診療(口腔外科処置）前に待合室で実施し，患者自身に記入させた。尚，対象から対人恐怖症および自律神経失調症の患者は除外した。

その結果，対象は33名(女性14名，男性19名)，平均年齢は24.4才(19才から49才)。対象患者の多くは智歯の抜歯手術だった。歯科に関する既往歴は永久歯の抜歯経験が無い患者から歯科診療恐怖症の患者，精神鎮静法下に難抜歯の経験有る患者など，いろいろであった。今回は対象患者の約半数に対して，静脈内鎮静法（フルニトラゼパム投与）を施行した。

特性不安はFASが0から2点，0.80±0 53 (mean±S.D)であった。STAI(A-trait)は32から64，43.46±8.29(mean±S.D.)となった。FASとSTAI(A-trait)の相関関係はFig 2に示したように，Y＝41.38＋2.98X，R^2＝0.04であった。(Fıg. 2)。

歯科診療前の状態不安はFASが0から4点，平均1.94±1.35 (mean±S.D) であった。STAI(A-state) は23から72，47.46±13.92 (maen±S.D.) となった。FASとSTAI(A-traıt)の相関関係はFig 3に示したように，Y＝30.22＋8.87X，R^2＝0.69(p＜0.01)であった (Fıg. 3)。

以上の結果から，FASとSTAIの状態不安尺度は相関を認めた。従って，FASは歯科患者の状態不安を客観的，簡便に評価する事が認められた。また，我々が考案したFASは歯科治療に対する患者の不安評価方法として，有用性が示唆された。