COVER PAGE

Title: Use of Baxter Animated Retching Faces (BARF) Scale to Measure Nausea in Children Who Speak Spanish

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Institutional Review Board for Baylor College of Medicine and Affiliated Hospitals

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Section Aa: Title & PI

A1. Main Title

USE OF BAXTER ANIMATED RETCHING FACES (BARF) SCALE TO MEASURE NAUSEA IN CHILDREN WHO SPEAK SPANISH

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Section Ab: General Information

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A5. Funding Source:

Baylor College of Medicine (Internal Funding Only)

A6a. Institution(s) where work will be performed:

TCH: Texas Children's Hospital

A6b. Research conducted outside of the United States:

Country:
Facility/Institution:
Contact/Investigator:
Phone Number:

If documentation of assurances has not been sent to the Office of Research, please explain:

A7. Research Category:

A8. Therapeutic Intent

Does this trial have therapeutic intent?
Not set yet

Section B: Exempt Request

B. Exempt From IRB Review

Not Applicable

Section C: Background Information

Pediatric research in the management of nausea has been limited by the absence of a reliable method to quantify the intensity of this subjective symptom. In adults, the visual analog scale (VAS) is an accurate tool, but this has not been shown to be reliable in young children. A scale is a series of points made on a line that will be used for measurement; a mark on the far left of the line shows liitle pain and the mark on the far right means alot of pain. By default the most common objective outcome measure used in pediatric studies has been the incidence and number of emetic episodes. This measure, however, correlates poorly with the somatic subjective symptom of nausea. Apfel et al have shown that 30-40% of adult patients undergoing surgery have post discharge nausea and / or vomiting while 12% have vomiting. These data on nausea in adults were based on a visual analog scale for nausea. There are no data on the incidence of postoperative nausea in children since the severity of symptoms are difficult to measure as younger children are known to be unable to use the VAS reliably. Recently a pictorial scale for measuring nausea, the Baxter Animated Retching Faces (BARF) scale, has been developed and shown to have construct, content and convergent validity as an instrument to measure nausea in children. This was a two center study that was limited to chidlren who could speak English. The clinical usefulness of this scale in determining the incidence of postoperative and post-discharge nausea in children has yet to be determined including the lowest age where it can be used reliably, the score associated with a patient's perception of a need for treatment, the minimum change in the scores of clinical relevance and the test-retest reliability when nausea is rated as not having changed. The score has also not been validated in children who speak Spanish. This study is designed to provide the missing information and will specifically look at the Spanish speaking population.

Section D: Purpose and Objectives

This study in the pediatric Spanish speaking patient population is designed to determine: (1) The validity of the scale to measure nausea in Spanish speaking children (2) the incidence of postoperative nausea as compared to postoperative vomiting in the Post Anesthetic Care Unit (PACU) and on discharge (Post Discharge nausea and Vomiting) in this population (3) The minimal clinically relevant differences in nausea on

the BARF and VAS scales. (4) The BARF and VAS scores associated with a patient?s perception of the need for treatment. (5) The test - retest reliability of the VAS and BARF scores when nausea is rated as unchanged.

Section E: Protocol Risks/Subjects

E1. Risk Category

Category 1: Research not involving greater than minimum risk.

E2. Subjects

Gender:
Both

Age:
Adolescent (13-17 yrs), Child (3-12 yrs)

Ethnicity:
All Ethnicities

Primary Language:
Spanish

Groups to be recruited will include:
Patients

Which if any of the following vulnerable populations will be recruited as subjects?
Children

Vulnerable populations require special protections. How will you obtain informed consent, protect subject confidentiality, and prevent undue coercion?

Potental subjects will be identified from the surgery schedule at Texas Children's Hospital that is routinely available to Pediatric Anesthesiology for the purposes of case assignment. Parents of potential subjects will be approached by study staff in the waiting area prior to surgery. After the study is verbally explained, a written consent form will be provided and time given to allow consideration of study enrollment. The consent process will be conducted with emphasis on the voluntary nature of participation and that there is no direct benefit from enrollment. If the parents agree, a signed consent will be obtained along with a written assent from the child when age appropriate.

All research data will be kept secured and locked up in the office of the research co-ordinator. This office is located inside the office of the Department of Anesthesiology at Texas Children?s Hospital. This office is only accessible by a personal digital access cards. Unauthorized individuals would not be able to enter these facilities. Any electronic data will be kept in password protected computers at the Texas Children's hospital, Department of Anesthesiology. The likelihood of such events is minimal.

E3. Pregnant woman/fetus

Will pregnant women and/or fetuses (as described in 45 CFR 46 Subpart B) be enrolled in the research?
No

E4. Neonates

Will neonates of uncertain viability or nonviable neonates (as described in 45 CFR 46 Subpart B) be enrolled in the research?
No

E5. Children

Will children be enrolled in the research?

Yes

Section F: Design/Procedure

F1. Design

Select one category that most adequately describes your research:

d) Questionnaire/survey/interview

Discuss the research design including but not limited to such issues as: probability of group assignment, potential for subject to be randomized to placebo group, use of control subjects, etc.

The study design is a cross sectional study of Spanish speaking patients undergoing surgery. There will be no group assignment, no placebo group and each patient will be his or her own control. Patients will receive standardized care according to the Attending Anesthesiologist?s opinion of the clinical requirements for the specific situation. No changes in clinical practice or care of patients will occur solely for the purpose of the study. All patients will be asked to assess their pain and nausea using the visual analogue scales, the modified faces scale and the BARF scale as described below in the preoperative and postoperative areas. However, the order in which the scales are presented to the patient for assessment will be randomized to reduce the potential for an order effect where the patient choice of a response on one scale may influence the response on other scales. For example, having chosen a response two-thirds of the way up one scale, there will be a tendency to choose a response two-thirds of the way up the next scale.

Inclusion Criteria:

(1) Spanish speaking children (2) Age > 7 years but below 18 years (3) Elective surgery (4) American Society of Anesthesiologists physical status 1-3 (Free from major concurrent disorders) (5) Free from nausea and / or vomiting in the previous 24 hours (6) Cognitive and communicative ability to rate the intensity of symptoms as described below.

Exclusion Criteria:

(1) Inability to understand or speak Spanish (2) Developmental delay (3) Blindness (4) Impaired cognitive or communicative abilities including inability to rate the intensity of symptoms (5) Surgical procedure where vision or hearing is anticipated to be impaired in the immediate postoperative period (6) Nausea and /or vomiting within 24 hours of procedure, (7) Patient or parental refusal to participate (8) Pregnant females

F2. Procedure

The subject will be consented before further inclusion criteria is determined. We will determine if the child speaks Spanish. We will then determine if the child qualifies for the study by showing 6 cut out shapes of different sizes and asking the child to first choose the largest size, then the smallest, then the largest remaining size until no more shapes are left. The child will then be asked by a Spanish speaking investigator to rate the comparative severity of pain in 3 vignettes -(a) when the doctor is listening to the chest, (b) when the child scraped a knee on the playground and (c) when receiving an injection. If the child can perform the tasks he / she will be considered to have qualified for the study. If they and the guardian agree to participate, we will obtain baseline values as described below.

Baseline Values: Baseline assessments of nausea before the procedure would be obtained from the awake child using both the visual analogue scale and the BARF scale. The order in which the first scale is presented to the patient for assessment will be randomized to reduce the potential for an order effect. The script for the scales would be standardized in keeping previous studies and would be a Spanish translation of the previously used English script. For the nausea scales, the script would be: ?Have you thrown up or felt like you were going to throw up before? How did your tummy feel then? We call that feeling of being sick to the stomach as nausea. VAS Scale: On this line the far left indicates ?No nausea? and the far right? Worst nausea ever.? Can you show me on this line how much nausea you have right now? For the Faces Scale, the script would be: ?These faces show children who feel no nausea at all, who feel a little bit nauseous, who feel even more nauseous, and these are children who have a lot of nausea.? (Point to the each face at the appropriate time). Which face is more like you right now?? The evaluator will assess if the child has understood the instructions and has the ability to provide a reliable response.

Intraoperative Care After providing baseline values in the preoperative holding area, the patient's anxiety would be assessed using the validated modified Yale Preoperative Anxiety scale (mYPAS) [see attachment], while the child is in the holding area, at the time of separation and when the face mask is applied during induction of anesthesia. The child would receive general anesthesia. The choice of drugs, techniques and perioperative management, including the need (if any) for preoperative medication, will be determined by the Attending Anesthesiologist according to the clinical needs and will not be changed for the purposes of the study. The patient will be monitored in keeping with the standards and policies of the department of Anesthesiology, Texas Children's Hospital. We will record these drugs, techniques and perioperative management.

Postoperative Care: In the Post Anesthetic Care Unit (PACU) patients will receive standard care, including analgesic or antiemetic therapy as prescribed by the Attending Anesthesiologist based on his opinion of the clinical needs of the situation. When awake, the patients will be asked to rate their pain and nausea on both scales (VAS and FPS for pain, VAS and BARF for nausea). The order of presentation of scales will be the same as in the preoperative area. If a child receives analgesic or antiemetic therapy, he/she will be asked to rate the pain and nausea immediately before receiving the drug and 30-60 minutes after receiving treatment. In summary, patients will rate their pain and nausea using the VAS and the FPS-R for pain and the VAS and BARF scales for nausea at these time points: (1) before induction of anesthesia, (2) when awake in the PACU, (3) just before and (4) 30-60 mins after receiving analgesic or antiemetic therapy. The order of presentation of scales will be randomized but the same for all time points for an individual subject. After the first assessments are done in the PACU, patients will also be asked to rate their nausea on a 5 point Likert scale as: (1) Much worse than before, (2) A little worse than before, (3) The same as before (4) A little better than before and (5) Much better than before. They will also be asked if they want any treatment of their nausea. Another set of assessments will be done just prior to discharge. All other aspects of patient management will be the standard care given to such children at the Texas Children?s Hospital. Patients will be discharged from the PACU when they have achieved the standard criteria set for discharge at the TCH. At the time of discharge we will give the parents a diary to record the the MAXIMUM nausea on the VAS and BARF scales and mail it back in a stamped envelope. We will phone them about 24 hours after surgery and ask if the child had any nausea, vomiting and what medications were used after going home. We will ask the parent to rate their satisfaction with the control of nausea and with the entire perioperative experience on a 010 scale.We will remind them to mail the nausea assessments back and to state which face represented the maximum nausea after discharge.

Section G: Sample Size/Data Analysis

G1. Sample Size

How many subjects (or specimens, or charts) will be used in this study?
Local: 240 Worldwide: 240

Please indicate why you chose the sample size proposed:

The power analysis was calculated conservatively for the following hypotheses:

Hypothesis 1: Nausea scores on the BARF and VAS scales would be lower in children after the administration of an antiemetic. A reduction in the VAS by 2 cms and by 1 face on a faces scale is considered a clinically important reduction in symptoms.(13) Assuming that the SD of nausea on the VAS scale in children is similar to that in adults (2.5 cm) (14), a sample size of 27 would have a 90% power at the 0.01 level of significance in detecting a 2.0 cm difference in the VAS following antiemetic therapy. Hypothesis 2: Children who received rescue antiemetics in the postoperative period will have higher postoperative nausea scores on the BARF and VAS scales than those who did not receive rescue antiemetics. In addition, children who required rescue antiemetics will have higher nausea scores at the time they received the rescue drug in the postoperative period than before they developed nausea. In other words, nausea scores in the postoperative period will be higher than scores prior to induction of anesthesia in children who received rescue antiemetics. (12) The power analysis for hypothesis 2 is similar to that for hypothesis 1, and a sample size of 27 would have a 90% power at the 0.01 level of significance in detecting a 2.0 cm difference in the VAS.

Hypothesis 3: There will be a good correlation between the BARF and VAS scores for nausea. A sample size of 127 would be estimated for an estimated maximum r of 0.8, a half-width of the confidence interval of ? 0.1 at an alpha of 0.01. (15) These estimates of r are in keeping with previous studies of the correlation between

pain scores on the VAS and the FPS-R scales. (6)

Allowing for a 10% rate of dropouts and incomplete data,we plan to recruit 240 patients in the preoperative area for the study to obtain data to test all hypotheses.

G2. Data Analysis

Provide a description of your plan for data analysis. State the types of comparisons you plan (e.g. comparison of means,comparison of proportions,regressions,analysis of variance). Which is the PRIMARY comparison/analysis? How will the analyses proposed relate to the primary purposes of your study?

Visual analogue scores for pain and for nausea,and FPS-R scores for pain and BARF scores for nausea will be examined for normal distribution by the Kolmogorov-Smirnoff test,but it is anticipated that the distribution will not be normal. Descriptive statistics (mean,median,standard deviation,and frequency distribution) of the nausea and pain scores will be obtained. The incidence of postdischarge nausea will be determined from the responses recorded in the diary and in the follow up phone call. The construct validity of the BARF scale would be assessed using the assumption that antiemetics reduce nausea and therefore nausea scores would be lower in children after the administration of an antiemetic (hypothesis 1). A subgroup of patients who received rescue antiemetics in the PACU will be examined. The pretreatment and post treatment VAS scores for nausea and BARF scores will be compared using a Wilcoxon test for non Gaussian distributed data. A reduction of scores by 2 cm on the VAS scale for nausea is traditionally accepted as a clinically satisfactory therapeutic response. A significant reduction in the BARF scores by 1 face in such patients will be accepted as construct validation. Content validity would be assessed by testing the hypothesis is that children with nausea will score higher on these scales than children without nausea (hypothesis 2). We will compare the postoperative nausea scores in patients who received rescue antiemetic therapy with the scores in patients who did not require this therapy using the Mann Whitney test. In addition,we will compare preoperative and postoperative BARF and VAS scores for nausea in patients who received antiemetics,making the assumption that healthy children will be free from nausea in the preoperative area. The Wilcoxon test for non Gaussian distributed data will be used for this comparison. Convergent validity would be tested by examining the correlation between BARF and VAS scales for nausea using the Spearman?s Rho test. The hypothesis tested is that there would be a good correlation between the two scales (hypothesis 3). Discriminant validity would be tested by examining the relationship between pain and nausea. The hypothesis tested is that there would be a poor correlation between pain and nausea scores,particularly after the administration of opioids for analgesia (hypothesis 4). The correlation between (1) VAS scores for pain and nausea and (2) pain scores using the FPS-R scale and nausea scores using the BARF scale will be determined. Discriminant validity would be accepted if the correlation between these scores is not as good as the correlation between (a) VAS score for pain and the FPS score,(b) VAS score for nausea and the BARF score. A subgroup of patients who received analgesic therapy in the PACU will be examined. The correlation between the change in pain scores and nausea scores with analgesic treatment will be examined using the Spearman?s Rho test. We can anticipate that there will be some correlations between nausea and pain as patients with pain often have concomitant nausea. However,satisfactory treatment of pain with opioids may not reduce nausea but even increase it,as nausea is a side effect of such therapy. Similarly,the correlation between the change in pain scores and nausea scores with antiemetic treatment will be examined using the Spearman?s Rho test. The hypothesis tested will be accepted if the correlation of VAS and FPS-R scores will differ from the correlation between VAS scores for nausea and BARF scores. P values below 0.05 will be considered statistically significant. The minimum clinically relevant change in BARF and VAS scores for nausea will be determined by calculating the change in scores for patients who rated their nausea to be a little better than before or a little worse than before. Similarly,the scores at which a patient felt the need for rescue therapy would be determined in those subjects who responded positively to a question ?Do you want any treatment for your nausea?? This will provide the threshold score for patient perception of the need for rescue therapy. The first and subsequent scores obtained from subjects who rated their symptoms as ?no change from before? will be examined using an intra-class coefficient >0.7 as the criterion for test / retest reliability.

Section H: Potential Risks/Discomforts

Describe and assess any potential risks/discomforts;(physical,psychological,social,legal,or other) and assess the likelihood and seriousness of such risks:

The study will not involve any changes in surgical or anesthetic management of the child. Previous studies of pain and nausea in the postoperative period have not shown that repeated questioning of the patient for these symptoms has resulted in increased self reporting of pain or nausea scores and increased rescue therapy. It

is therefore unlikely that the use of the pain and nausea scales will result in unnecessary therapy. The potential risk of this study includes a breach in confidentiality. All research data will be kept secured and locked up in the office of the research co-ordinator. This office is located inside the office of the Department of Anesthesiology at Texas Children's Hospital. This office is only accessible by a personal digital access cards. Unauthorized individuals would not be able to enter these facilities. Any electronic data will be kept in password protected network controlled by the IT department at the Texas Children's Hospital,Department of Anesthesiology. Paper copies of data forms will be stored in a locked cabinet in the Pediatric Anesthesiology office. . Electronic files will be maintained on password secured computers. Data will be coded.The likelihood of such events is minimal.

Section I: Potential Benefits

Describe potential benefit(s) to be gained by the individual subject as a result of participating in the planned work.

Patients will not have any direct immediate benefits from participating in these studies

Describe potential benefit(s) to society of the planned work.

Determining the validity of a faces pain scale for Spanish speaking subjects will extend the ability of physisicans to use this instrument to rate the severity and need for treatment of subjective symptoms to this population rather than being limited to English speaking subjects.

Do anticipated benefits outweigh potential risks? Discuss the risk-to-benefit ratio.

The minimal risks of loss of confidentiality data is exceeded by the potential benefits to society by demonstrating the clinical utility of a validated tool for measuring nausea in children.

Section J: Consent Procedures

J1. Waiver of Consent

Will any portion of this research require a waiver of consent and authorization?

NA

J1a. Waiver of requirement for written documentation of Consent

Will this research require a waiver of the requirement for written documentation of informed consent?

NA

J2. Consent Procedures

Who will recruit subjects for this study?

PI
PI's staff

Describe how research population will be identified,recruitment procedures,any waiting period between informing the prospective participant and obtaining consent,steps taken to minimize the possibility of coercion or undue influence and consent procedures in detail.

Potental subjects will be identified from the surgery schedule at Texas Children's Hospital that is routinely available to Pediatric Anesthesiology for the purposes of case assignment. The parents will be approached by study staff in the waiting area prior to surgery and the study will be introduced and explained. After the study is verbally explained,a written consent form will be provided and time given to allow consideration of study enrollment. The consent process will be conducted with emphasis on the voluntary nature of participation and that there is no direct benefit from enrollment. If the parents agree a signed consent will be obtained along with a written assent from the child when age appropriate.

Are foreign language consent forms required for this protocol?

Yes

Which of the following ways will you document informed consent in languages other than English?
Short-Form consent documents

J3. Privacy and Intrusiveness

Will the research involve observation or intrusion in situations where the subjects would normally have an expectation of privacy?
Yes

J4. Children

Will children be enrolled in the research?
Yes

J5. Neonates

Will non-viable neonates or neonates of uncertain viability be involved in research?
No

J6. Consent Capacity - Adults who lack capacity

Will Adult subjects who lack the capacity to give informed consent be enrolled in the research?
No

J7. Prisoners

Will Prisoners be enrolled in the research?
No

Section K: Research Related Health Information and Confidentiality

Will research data include identifiable subject information?
NA

Information from health records such as diagnoses,progress notes,medications,lab or radiology findings,etc.
NA

Specific information concerning alcohol abuse:
NA

Specific information concerning drug abuse:
NA

Specific information concerning sickle cell anemia:
NA

Specific information concerning HIV:
NA

Specific information concerning psychiatry notes:
NA

Demographic information (name,D.O.B.,age,gender,race,etc.):
NA

Full Social Security #:
NA

Partial Social Security # (Last four digits):
NA

Billing or financial records:
NA

Photographs,videotapes,and/or audiotapes of you:
NA

Other:
NA

At what institution will the physical research data be kept?
NA

How will such physical research data be secured?
NA

At what institution will the electronic research data be kept?
NA

Such electronic research data will be secured via BCM IT Services- provided secured network storage of electronic research data (Non-Portable devices only):
NA

Such electronic research data will be secured via Other:
NA

Will there be anyone besides the PI,the study staff,the IRB and the sponsor,who will have access to identifiable research data?
NA

Please describe the methods of transmission of any research data (including PHI,sensitive,and non-sensitive data) to sponsors and/or collaborators.
NA

Will you obtain a Certificate of Confidentiality for this study?
No

Please further discuss any potential confidentiality issues related to this study.
As stated in previuos sections confidentiality will be maintained by storing PHI behind locked doors only accessible by the PI and research staff. All Eclectronic data will be maintained on a TCH secure computed password protectedcomputers.

Section L: Cost/Payment

Delineate clinical procedures from research procedures. Will subject's insurance (or subject) be responsible for research related costs? If so state for which items subject's insurance (or subject) will be responsible (surgery, device,drugs,etc). If appropriate,discuss the availability of financial counseling.
The subject will not be charged for any research related costs. Subject will be charged for drugs and services for patient care that would occur even if the subject did not participate in the study. All research related costs will be borne by the Department of Anesthesiology,Texas Children's Hospital

If subjects will be paid (money,gift certificates,coupons,etc.) to participate in this research project,please note the total dollar amount (or dollar value amount) and distribution plan (one payment,pro-rated payment,paid upon completion,etc) of the payment.

Dollar Amount:
0

Distribution Plan:

Section M: Genetics

How would you classify your genetic study?

Discuss the potential for psychological,social,and/or physical harm subsequent to participation in this research. Please discuss,considering the following areas: risks to privacy,confidentiality,insurability,employability, immigration status,paternity status,educational opportunities,or social stigma.

Will subjects be offered any type of genetic education or counseling,and if so,who will provide the education or counseling and under what conditions will it be provided? If there is the possibility that a family's pedigree will be presented or published,please describe how you will protect family member's confidentiality?

Section N: Sample Collection

None

Section O: Drug Studies

Does the research involve the use of ANY drug*or biologic? (*A drug is defined as any substance that is used to elicit a pharmacologic or physiologic response whether it is for treatment or diagnostic purposes)
No

Does the research involve the use of ANY gene transfer agent for human gene transfer research?
No

O1. Current Drugs

Is this study placebo-controlled?
No

Will the research involve a radioactive drug that is not approved by the FDA?
No

Section P: Device Studies

Does this study need an IDE?
No

Regarding your device study,could potential harm to subjects be life-threatening?
No

Regarding your device study,could potential harm to subjects result in permanent impairment of a body function?
No

Section Q. Consent Form(s)

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Section R: Advertisements

None