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Effect of Structured Pre-anesthetic Communication on Preoperative Patient Anxiety

Sandra M M Jadin[1], **Wolf Langewitz**[2], **Deborah R Vogt**[3] **and Albert Urwyler**[1*]

[1]*Department for Anesthesia, Surgical Intensive Care, Pre-hospital Emergency Medicine and Pain Therapy, University Hospital, University of Basel, CH-4031 Basel, Switzerland*

[2]*Division of Psychosomatic Medicine/Internal Medicine, University Hospital, University of Basel, CH-4031 Basel, Switzerland*

[3]*Clinical Trial Unit, Department of Clinical Research, University Hospital, University of Basel, CH-4031 Basel, Switzerland*

[*]**Corresponding author:** Albert Urwyler, Department for Anesthesia, Surgical Intensive Care, Prehospital Emergency Medicine and Pain Therapy, University Hospital, CH-4031 Basel, Switzerland, Tel: +41 61 265 72 54; Fax: +41 61 265 73 20; E-mail: albert.urwyler@unibas.ch

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Abstract

Background: The preanesthetic visit influences patient satisfaction and medical outcome. Providing relevant information may reduce anxiety. This study aimed to evaluate whether training for a structured interview technique improves communication skills, resulting in increased patient satisfaction and reduced patient's anxiety and fear of anesthesia.

Methods: Randomized controlled observational study, comparing patients (n=47) interviewed by anesthesiologists having obtained training to optimize structured communication (TA) or by anesthesiologists without such training (CA). Patient anxiety and fear was recorded before and after the preoperative interview. Interview duration and satisfaction with the anesthesiologist were also recorded. Data were analysed to test for superiority of the structured interview approach.

Results: Mean preoperative anxiety was 1.2 VAS points lower in TA *vs.* CA group (95% CI-2.39; -0.03, P=0.082). Structured interviews significantly reduced preoperative anxiety in younger (<47 years) but not in older patients (≥ 47 years; interaction P=0.045). Patients' fear of anesthesia was strongly reduced after the interview (median VAS: 8.0); reduction was stronger in the group with structured interview technique versus control group (difference in VAS: 1.86 [0.59; 3.12], P=0.006). Duration of the interview was statistically not significantly shorter using structured interview technique (P=0.142).

Conclusion and recommendation: Compared to standard interview techniques, a structured interview approach reduces anxiety and fear of anesthesia, particularly in younger patients. Our data suggest that a structured interview technique may decrease the duration of the preoperative interview. Anesthesia departments should train communication skills geared toward a structured preoperative interview.

Keywords: Anxiety; Anesthesia; Preoperative care; Interview; Patient; Agenda setting

Background

Competency in communication is a core clinical skill in medicine and benefits patients [1]. Patient anxiety and fear of anesthesia are particularly important, as they affect different aspects of anesthesia procedures, including the preoperative visit, induction and maintenance of anesthesia, postoperative demands and recovery [2–4]. Successful physician-patient interaction should result in positive effects on patient satisfaction, and postoperative outcome [5,6]. However, this is difficult to achieve in daily practice where anesthesiologists have less contact with patients compared to other specialists. Many anesthesia residents are relatively inexperienced and have received little or no specific training regarding communication with patients and might lack the skills required to communicate effectively with patients. Since preoperative anxiety is often directed towards anesthesia itself, anesthesiologists are in an excellent position to decrease patient anxiety [7,8]. Effective physician–patient interaction is sufficient to significantly reduce preoperative anxiety. Spending adequate amount of time to establish a trusting alliance is a crucial element of patient satisfaction [9].

An inherent challenge of the pre-anesthetic interview is the large amount of information that needs to be exchanged between both physician and patient in a way that is understandable to patients [10]. During a typical preoperative interview averaging 16.1 min, anesthesiologists must provide an average of 61.3 single elements of information [11]. This amount of information is far beyond the recall capacity of people, which has repeatedly been shown to be in the range of 7 ± 2 elements of information. Nevertheless, explicit structuring of information improves recall and is a central element of patient-centered communication [12,13]. Various organizational changes such as the introduction of ambulatory preoperative anesthesia consultation, specialization and fragmentation of both surgery and anesthesia, and reduced resident working hour regulations led to an increase of fragmentation of patient care by the anesthesia team. Fragmentation of care increases communication problems and may contribute to increased patient anxiety, fear of anesthesia and reduced patient satisfaction [14].

The primary objective of this study was to investigate the effect of communication training of anesthesia residents for using a structured patient interview technique on preoperative anxiety of patients compared to residents without such training. Secondary objectives were to investigate the effect on i) patient satisfaction, ii) whether the physician earned the patient's trust and would be recommended to friends or relatives, and iii) on duration of the pre-anesthetic interview.

Methods

Study design

The Study was a prospective, single-center, randomized-controlled observational study. The study protocol was registered and approved by the local ethics committee (Ethikkommission Nordwest- und Zentralschweiz, registration number EKNZ 2014-382). The primary endpoint was patient anxiety after the pre-anesthetic interview, indicated on a visual analogue scale (VAS) 0-10. Secondary endpoints were patient satisfaction with comprehensibility and structure of the preoperative anesthesia interview, whether the physician earned patient's trust and would be recommended to friends or relatives (all VAS 0-10), and the duration of the interview (min).

Concept for residency training

An experienced anesthesiologist (AU) and a communication expert (WL) developed a first draft of a list of contents and information elements that should be covered during the pre-anesthetic interview according to international standards. This draft was circulated among two additional senior anesthesiologists resulting in the final 'script' that formed the basis for the content of the training intervention.

Training was offered for small groups of 2-4 anesthesia residents each. Briefly, the three-hour training consisted of an initial role-play of one participant (physician) informing another (patient) about a typical anesthetic procedure. The observing participants were asked to list the number of information elements given. After 5-10 min of role play, observing participants had listed 35-82 single elements of information. The initial role play was stopped here, because the primary didactic goal was reached. Residents were sensitized to the problem of information overload. This advanced them from pre-contemplation to contemplation according to the trans-theoretical model (Prochaska and DiClemente) [14]. During the next step of training, residents were given the instruction sheet and practiced in pairs, observed by all others including the trainer (WL). Special emphasis was given to a participatory style of explicit structuring: residents were told to always wait for patients' non-verbal (e.g. nodding) or verbal agreement to a suggested transition in topic. Furthermore, after having provided a piece of information (e.g. 'during anesthesia there are two modes that would be possible: either the whole body will be put asleep (general anesthesia) or only the part of your body where the surgery will occur (regional anesthesia)'). If patients did not ask for more specific information, the anesthesiologist had to proceed for reaching a decision according to the patient's preference.

Patients

Patients were recruited in the waiting area of our ambulatory anesthesia unit between January and April 2015. After verbal information (SMMJ), patients were asked to participate in the study before the pre-anesthetic interview. Exclusion criteria were rejection of a patient to participate, age <18 years, and inadequate comprehension of the German language. After having obtained written informed consent, participants were randomly assigned to TA or CA group. To minimize the imbalance between each treatment group, all patients were randomized to intervention or control group using adaptive stratified sampling. Age and gender were used as stratification parameters and the range was used as imbalance function. Both parameters were equally weighted and equal group assignment was defined.

Anesthesia residents

Out of 63 anesthesia residents of the department, 12 were randomly selected to receive a special training (trained anesthesiologists, TA), and 14 others served as the control (control anesthesiologists, CA). All other residents could not be randomized, because they were unavailable for the intervention due to shifts, rotations on intensive care units, air rescue service, or for other organizational reasons. TA was trained for using a structured interview technique. CA was asked to use their usual interview technique.

Data handling

Two questionnaires were handed out; one before the pre-anesthetic interview and a second one immediately thereafter. Questionnaires evaluated affective condition and preoperative anxiety, using the short questionnaire on current level of stress (KAB) [15] as well as self-assessment of preoperative fear [8]. Patient satisfaction was assessed immediately after the preoperative anesthesia interview (VAS 0-10). The duration of the interview was measured in minutes. Data were entered into a browser-based database (secuTrial®).

Statistics

Sample size was calculated for the primary endpoint, preoperative anxiety. Based on the study by Kindler et al. we assumed data to be normally distributed with standard deviation 2.3, mean 2.9 for standard interview technique and a reduction in mean of 2.5 for structured interview technique [7]. Using a resampling procedure, superiority of the structured interview technique was declared when the lower limit of the 95% confidence interval (CI) of the estimated difference of a Wilcoxon rank-sum test was>0. A total of 47 recruited subjects should result in 44 evaluable patients (drop-out rate 5%), ensuring at least 90% power at a significance level α=5%. VAS endpoints and interview duration (log-transformed) were tested for a difference between standard and structured interview technique using linear mixed-effects models. The models included interview technique as fixed effect and anesthesiologist as a random effect. For the VAS endpoints, the corresponding baseline assessment was included as covariate. Models were fit using restricted maximum likelihood (REML). We report effect size estimates with 95% CI based on normal approximation and P-values based on Satterthwaite approximation. For interview duration, there was one outlier in the structured interview group. As a sensitivity test, the analysis was repeated without this outlier. Both results are reported. The following, pre-specified, patient subgroups were evaluated: gender, age class (lower and upper half, based on data-derived median age (47 y): young [<47 y] versus old [≥ 47 y]), number of previous anesthesia (0, 1, 2, 3, 4, ≥ 5). For each subgroup, the main effect and the interaction term with interview technique were added to the models. In case of a significant interaction term, the subgroups were analyzed separately. All statistical analyses were performed using R, version 3.2.2 [16], using two-sided tests and a significance level α=0.05. P-values are not adjusted for multiple testing.

Results

Forty-seven patients underwent a preoperative anesthesia interview with one of 12 trained (TA) and 14 control (CA) anesthesia residents (Table 1).

	Standard	Structured	p
n	22	25	
Gender (Female)	14 (63.6)	11 (44.0)	0.292
Age (y)	42.5 (37.2, 58.2)	53.0 (36.0, 62.0)	0.455
Age (<47y)	12 (54.5)	11 (44.0)	0.668
Surgery type			0.693
ENT	1 (4.5)	2 (8.0)	
Gynecologic	4 (18.2)	4 (16.0)	
Heart/Thorax	1 (4.5)	4 (16.0)	
Orthopedic/spinal	8 (36.4)	5 (20.0)	
Plastic	1 (4.5)	2 (8.0)	
Urologic/Visceral	7 (31.8)	8 (32.0)	
Previous experience with anesthesia (yes)	18 (81.8)	19 (76.0)	0.897
Made good experience with previous anesthesia (VAS 0-10)	7.0 (4.0, 8.0)	7.0 (5.0, 8.0)	0.636
previous knowledge about anesthesia (VAS 0-10)	7.0 (5.0, 8.0)	6.5 (5.0, 8.0)	0.796
preoperative anxiety before interview (VAS 0-10)	3.0 (1.2, 6.5)	3.0 (1.0, 6.5)	0.66

Numerical variables: median [inter-quartile range], categorical variables: frequency (%). Tests for group difference: Wilcoxon rank-sum test respectively Fisher's exact. Age is presented both as continuous and as categorical variable according to data-derived median age (young: <47 years, old: ≥ 47 years).

Table 1: Baseline characteristics for patients randomized to standard or structured interview technique.

Primary objective

Preoperative anxiety was on average 1.2 VAS score points lower after structured interview compared to the standard interview (95% CI: [-2.39; -0.03], P=0.082). The effect of the structured interview technique was not affected by gender (interaction P=0.570) or number of previous anesthesia (interaction P=0.466). However, structured interview technique significantly reduced preoperative anxiety in younger patients (estimated difference [95 % CI]: -2.09 [-3.48, -0.71], P=0.025) but not in older patients (-0.38 [-2.03, 1.26], P=0.663; interaction P=0.045; Figure 1).

Secondary objective

Overall, patients were very satisfied with the preoperative anesthesia interview (median VAS: 9.0 for both comprehensibility and structure). There was no statistically significant association with either interview technique or baseline preoperative anxiety. Further, there were no significant interactions with gender, age class, or number of previous anesthesia procedures.

Duration of preoperative anesthesia interview was not significantly reduced by structured interview technique (estimated difference [95% CI], log-scale: -0.39 [-0.86, 0.09], P=0.142; sensitivity analysis without outlier: -0.42 [-0.9, 0.06], P=0.117). However, there was a significant interaction between interview technique and number of previous anesthesia (P=0.046). Under structured interview technique, duration dropped when patients had ≥ 5 previous anesthesia, but not under standard interview technique.

Discussion

In this prospective, randomized controlled study, overall patient anxiety after preoperative anesthesia interview was significantly reduced using structured versus standard interview technique in the younger half of patients (<47 years), while this was not the case in the older half of patients (≥ 47 years). There was no difference between interview techniques regarding patient's satisfaction.

We hypothesize therefore, that patients are not correlating themselves with an anxiety reduction in the observed range with increased patient's satisfaction. Previous research has identified the significance of anxiety and fear during the pre-anesthetic interview [17–20]. Whilst Salzwedel et al. demonstrated no improvement of patient's baseline anxiety after the pre-anesthetic interview; Bondy et al. found a statistically significant improvement in patient's anxiety with the use of multimedia patient information [19]. Our study focuses entirely on the effect of the pre-anesthetic interview technique used by anesthesiologists on patient's anxiety. Though not statistically significant for all patients, the overall tendency in our study was that

preoperative anxiety was stronger reduced after structured compared to standard interview technique. Interestingly, this effect was statistically significant in younger patients. This may be explained by the greater need of younger patients to be involved in decision making, while older patients may have a more pronounced faith in a physician's ability to choose wisely independent of the patient's own input [21].

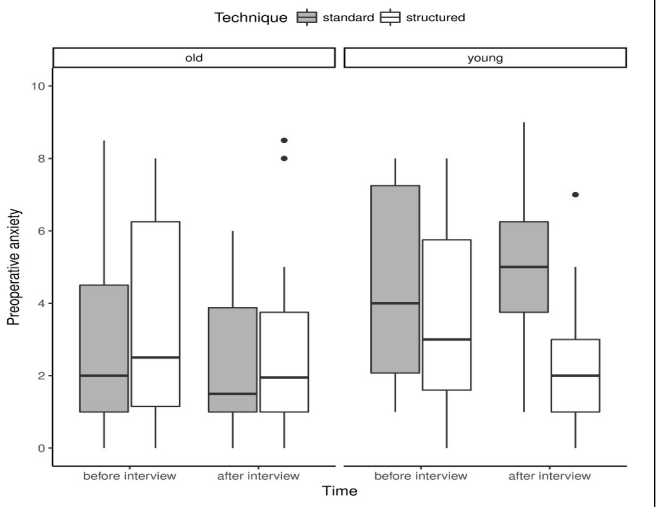

Figure 1: Preoperative anxiety before and after preoperative anesthesia interview.

Previous research has shown women to be more anxious than men [22,23]. However, our data does not support these findings. We speculated finding a time reduction for the pre-anesthetic interview using the structured approach. However, there is no statistically significant difference of the time needed for the pre-anesthetic interview between both groups. This may be explained by the fact that the study was not powered for this aspect. It would be interesting therefore to investigate the effect on the time needed using structured patient interview approach with a higher number of patients. The finding that 5 or more previous anesthesia procedures reduces the duration of the pre-anesthetic interview within the control group may be explained by the availability of anesthesia relevant information in the patient's history.

Limitations of the Study

Our study has some limitations. A potential weakness is the fact that the TA group has obtained systematic communication teaching compared to the CA group. Therefore, we cannot exclude that the observed positive effects on patients are not the result of using the structured interview technique only. It may be speculated that any kind of communication training has also general effects on communication skills of an individual. Thus, it is not possible to differentiate between the effects of using a structured interview technique and generally improved communication skills of the trained residents. A further limitation is that the difference between the two interview techniques in the reduction of preoperative anxiety was only half the size as expected. Subsequently, the statistical power to show this smaller effect was lower than aspired, which may have contributed in the primary endpoint not reaching statistical significance for the whole study group.

Conclusion and Recommendation

We demonstrate that teaching anesthesia residents a structured preoperative interview technique can reduce patient preoperative anxiety particularly in younger patients. The time needed for a structured preoperative anesthesia interview may be reduced without any negative impacts on patient's perceptions. Anesthesia departments should therefore check their residency program towards improved teaching of communication and structured interview skill techniques.

Details of Author's Contributions

SMMJ was involved in drafting the study protocol and writing the manuscript. She recruited most of the participating patients and participated in the study as trained anesthetist (TA) for the preanesthetic interviews.

WL was involved in drafting the study protocol and writing the manuscript. He trained the residents as a communication expert in the use of the structured interview approach.

DRV defined the statistical aspects of the study, performed the data analysis and was involved in writing the final manuscript.

AU was involved in drafting the study protocol and writing the manuscript. He was responsible for the coordination of other departmental opinion leaders concerning important components of a good preoperartive anesthesia interview.

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Conflict of Interest

Authors declare no conflicts of interest.

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