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ORIGINAL ARTICLE

Previous face-to-face information and pain control for third molar extraction*

Informação prévia face a face e controle da dor em exodontia de terceiros molares

Juliana Zanatta[1], Maylu Botta Hafner[2], Gustavo Sattolo Rolim[3], Antonio Bento Alves de Moraes[4]

* *Received from the School of Dentistry of Piracicaba, State University of Campinas (FOP/UNICAMP). Campinas, SP.*

SUMMARY

BACKGROUND AND OBJECTIVES: Third molar extraction is an invasive and potentially adverse procedure and may induce pain. This study aimed at evaluating the efficacy of face-to-face information about postoperative pain and analgesic consumption to patients submitted to third molar extraction.
METHOD: This was a longitudinal study with 123 patients randomly distributed in two groups: Control (CG) and Experimental (EG). Short form Mc Gill pain questionnaire was used (Sensory Pain Estimate Index, Affective Pain Estimate Index, Present Pain Intensity and Global Pain Experience Evaluation) in the following moments: preoperative period, immediate postoperative period, mediate postoperative period I, mediate postoperative period II and suture removal. Face-to-face information was given to EG patients immediately after the preoperative moment. Chi-square test was used for statistical analysis, mixed models were used for repeated measures (SAS program's Proc Mixed), in addition to Tukey test (α = 5%).
RESULTS: Data suggest a statistically significant difference between groups in Sensory Pain Estimate Index in the immediate postoperative period, showing that immediate postoperative pain report was lower in the group receiving face-to-face information.
CONCLUSION: Face-to-face information has decreased postoperative pain. These strategies are critical to establish effective coping responses and to improve postoperative adherence.
Keywords: Oral surgery, Pain, Third molar.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A exodontia de terceiro molar é um procedimento invasivo potencialmente adverso ao paciente, podendo causar dor. O objetivo deste estudo foi avaliar a eficácia de informação face a face sobre a dor pós-operatória e consumo de analgésicos de pacientes submetidos à exodontia de terceiros molares.
MÉTODO: Realizou-se um estudo longitudinal com 123 pacientes, distribuídos randomicamente nos grupos: Controle (GC) e Experimental (GE). Utilizou-se o Questionário McGill de Dor em sua forma reduzida (Índice de Estimativa de Dor Sensorial, Índice de Estimativa de Dor Afetiva, Intensidade de Dor Presente e Avaliação Global de Experiência de Dor), nos momentos: pré-cirúrgico, pós-cirúrgico imediato, pós-cirúrgico mediato I, pós-cirúrgico mediato II e remoção de sutura. A informação face a face foi oferecida aos pacientes do GE imediatamente após o momento pré-cirúrgico. Usou-se para análise estatística o teste Qui-quadrado, modelos mistos para medidas repetidas (Proc Mixed do programa SAS) e Tukey (α = 5%).
RESULTADOS: Os dados sugerem uma diferença estatisticamente significativa entre os grupos no Índice de Estimativa de Dor Sensorial no Pós-Cirúrgico Imediato apontando que o relato de dor pós-operatória imediata foi menor no grupo que recebeu a informação face a face.

1. Doctorate Student, Collective Health Concentration, School of Dentistry of Piracicaba, State University of Campinas (FOP/UNICAMP). Campinas, SP, Brazil.
2. Doctorate Student, Collective Health Concentration, School of Dentistry of Piracicaba, State University of Campinas (FOP/UNICAMP). Campinas, SP, Brazil.
3. Doctor in Children and Adolescents Health, School of Medical Sciences, State University of Campinas (FOP/UNICAMP). Campinas, SP, Brazil.
4. Professor, School of Dentistry of Piracicaba, State University of Campinas (FOP/UNICAMP). Campinas, SP, Brazil.

Correspondence to:
Juliana Zanatta, M.D.
Depto de Odontologia Social/ Psicologia Aplicada à Odontologia
Av. Limeira, 901 – Bairro Areião
13414-903 Piracicaba, SP.
Phone/fax: +55 (19) 2106-5276
E-mail: juzanatta@yahoo.com.br

CONCLUSÃO: A informação face a face reduziu a dor no pós-operatório. Estas estratégias são importantes para estabelecer respostas eficientes de enfrentamento e aumentar a adesão no pós-operatório.
Descritores: Cirurgia bucal, Dor, Terceiro molar.

INTRODUCTION

Third molar extraction is one of the commonest invasive practices among dental surgeries and, according to dentists, is a relatively minor surgery implying few complications[1]. For being invasive, many patients associate this practice to unpleasant reactions, such as pain and discomfort, which may increase the probability of non-adherence or resistance to dental recommendations[2].

Several studies have observed the efficacy of preliminary procedures in case of invasive procedures, aiming at informing patients, adapt them to the situation and decrease the possibility of anxiety and pain responses. One may stress: music[3], relaxation[4], audiovisual resources[5], oral face-to-face resources[6], leaflets and books[7-9], and Internet programs[10].

Surgical patients want to know more about the procedure. Knowledge expectations and knowledge given are very important to improve patients' quality of education[11]. A study points to the preference for more information about the procedure[8]. Authors have observed the satisfaction of patients submitted to third molar extraction with regard to the amount of information received about the surgery. For such, groups with more or less information were formed. Results have shown that the group with more information was happier and made a better use of the knowledge received.

Another study has given information about pain handling and analgesic consumption and has performed breathing and relaxation exercises with patients with limb fractures[6]. The objective was to evaluate the efficacy of this educative intervention on the levels of postoperative pain and analgesic consumption. Patients were divided in two groups: experimental (EG) with educative intervention, and control (CG) without educative intervention. Results have suggested a statistically significant difference between groups: EG had lower pain scores in the postoperative period. In addition, these patients used more analgesics two days after surgery and this difference was significant. Authors suggested that educative intervention played an important role to control and decrease pain, and that pain decrease in EG may be the result of changes in cognitive factors (further understanding and change of beliefs with regard to analgesics) or behavioral factors (acceptance of analgesics, relaxation and breathing practices).

Differently from those studies, some papers show that preliminary procedures were not effective to decrease pain responses. A study[3] has used music during large bowel medical evaluation (sigmoidoscopy) to observe its efficacy on pain responses during the invasive procedure. Two groups were formed: a group listening to their preferred song during the procedure and a control group, not listening to music. Results have suggested that groups were not statistically different with regard to pain, that is, the group listening to music had no lower pain score during the procedure.

Another study points to the non efficacy of preparatory procedures on patients' pain. The author worked with patients submitted to tonsillectomy and used two preparatory methods to evaluate the effect on postoperative pain responses[10]. Patients were divided in the following groups: (a) group not receiving information; (b) group receiving information via Internet; and (c) group receiving information at the hospital (standard preparation). Results suggest no significant difference among groups. However, the group not receiving information (group a) has referred higher pain scores and the group being prepared via Internet (group b) has referred lower pain scores. These data suggest that lack of information, for some patients, may have adverse effects on recovery, since patients have not received important information, such as pain handling and use of analgesics.

So, we considered third molar extraction an invasive procedure and procedural, sensory and postoperative information a potentially satisfactory knowledge.

This study aimed at evaluating the efficacy of a preparatory procedure with previous face-to-face information about postoperative pain responses and analgesic consumption for patients submitted to third molar extraction.

METHOD

This is a longitudinal study with 123 patients aged between 14 and 24 years, needing to extract at least one third molar during one dental session.

Participation was voluntary, patients were informed about the nature of the research and have signed the Free and Informed Consent Term (FICT). If the patient was a minor, the caregiver or guardian was asked to sign the FICT.

Participated in this study healthy and literate patients selected for third molar extraction at the operating Center and who had the suture removed at the same place. Nine patients not attending some data collec-

tion moments or who did not fill some evaluation tools were excluded.

Participants were randomly distributed in: Control Group (CG) – patients not receiving previous face-to--face information; and Experimental Group (EG) – patients receiving previous face-to-face information. Patients were randomly distributed in groups by a simple program of randomized allocation and selection from the website <http://www.randomizer.org>.

Data were collected by two researchers: one carried out the procedure in the first moment (called preoperative period), before surgery, and presented previous face--to-face information to EG patients. The other would follow the remaining four moments: immediate postoperative period (IPO); mediate postoperative period I (MPOI); mediate postoperative period II (MPOII) and suture removal (SR). Researchers were previously trained to follow the five moments and to apply data collection tools. The use of two researchers aimed at preventing possible biases when handling variables.

In the preoperative moment (PO), patients answered questions related to health habits such as coffee and tobacco consumption, about dental experiences, and filled the pain evaluation tool. Then, EG patients received previous face-to-face information. When the researchers observed possible emotional reactions, they should not ask about such answers, or should not perform any supportive behavioral and/or social support intervention. After the preparatory procedure, patients were referred to the waiting room of the operating center.

IPO was immediately after surgery and all patients filled the pain evaluation tool.

In moments MPOI and MPOII, one and three days after surgery, respectively, patients filled the pain evaluation tool. Patients received two copies of the pain evaluation tool soon after surgery and were contacted by telephone to fill them.

Another evaluation was the self-record of the use of drugs to relieve postoperative pain. Together with pain evaluation tool copies, patients received a card with a chart of drugs ingested in the period. The chart had a space to indicate the analgesic used, the date when drug count was ended and a table with 30 boxes numbered from 1 to 30 to be checked with an "X" by the patient whenever the drug was ingested. Copies of pain tool and card with the drugs should be returned in the last data collection moment.

In the last moment, SR, seven days after the surgical procedure, patients went through pain evaluation before SR.

Previous face-to-face information given to EG immediately after the preoperative period was prepared by researchers and evaluated by investigators of the area of psychology applied to dentistry. It consisted of oral presentations about technical procedures and possible sensations associated to clinical routines. The presentation followed a predefined informative guide about third molar extraction surgery and was given face-to--face with the aid of a notebook. The objective was to guide the researcher about the content and order of information, about the surgical procedure, sensory and procedural information and postoperative information. With nine questions about extraction, guide items included: explanations about formation and location of teeth, surgery site, ways to communicate with the dentist, how was the surgical preparation, cleaning, surgical procedure per se, sensory information and postoperative indications. The researcher would orally ask the question to evaluate patient's previous knowledge before delivering any type of information. Regardless of patient's answer, the researcher would show a video with the answer to that question. These answers, through an audiovisual resource, assured the standardization of information in terms of order, content and format.

McGill Pain Questionnaire – short form was used to evaluate pain responses and refers to pain perceived at the moment it is applied. The questionnaire has four parts: Sensory Pain Rank Index (PRI-S), Affective Pain Rank Index (PRI-A), Present Pain Intensity (PPI) and Patient Global Assessment of Pain Experience.

PRI-S is made up of 11 sensory pain experience keywords and PRI-A of 4 affective pain experience keywords. Each keyword has pain intensity indicators and scores from 0 to 3: (0) no pain; (1) mild pain; (2) moderate pain; and (3) severe pain. Intensity for each type of pain is determined for each keyword. PPI is made up of a visual analog scale (VAS), being this a straight 100 mm line with two edges: "no pain" and "the worst imaginable pain". Patients mark the point along the line indicating the pain felt at the moment the questionnaire is applied.

Six words are presented for global evaluation and describe a painful experience: "no pain", "mild", "uncomfortable", "afflictive", "terrible" and "excruciating". Patients mark the word which is closest to the pain intensity felt at evaluation[12].

Descriptive statistics with mean and standard deviation was used to analyze variables: number of extracted teeth, age, preoperative time, number of anesthetics and amount of ingested drugs. Results obtained with McGill Pain Questionnaire and analgesic consumption were

submitted to mixed models for repeated measures (SAS program's Proc Mixed) after exploratory analysis and selection of the best covariance structure. When difference between means was significant, multiple comparison and Tukey tests were applied ($\alpha = 5\%$).
This study was approved by the Research Ethics Committee, School of Dentistry of Piracicaba (FOP/UNICAMP), under protocol 052/2009.

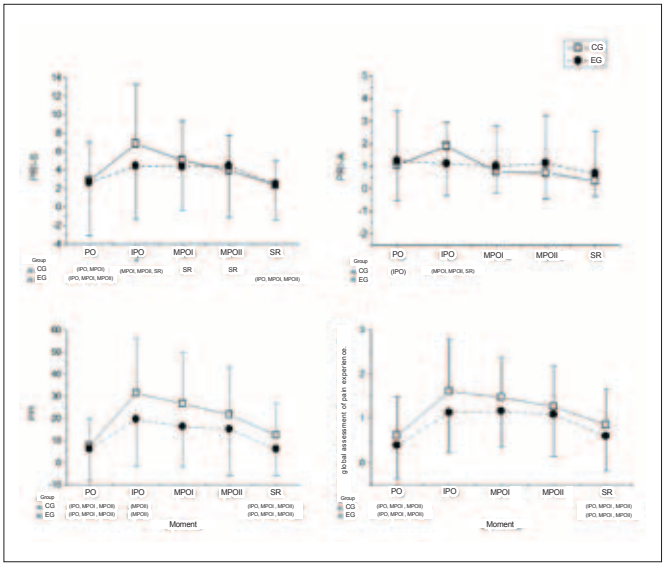
RESULTS

Table 1 shows means and standard deviation of number of extracted teeth, patients' age, preoperative time, number of anesthetic vials and amount of ingested drugs.
Significance level was $p < 0.05$.
Graph 1 shows means and standard-deviation of pain responses evaluation scores according to McGill tool.
There are three lines below each horizontal axis. The first is called "Group" and represents the analysis between groups (CG and EG), that is, whether there has been statistically significant difference between them in each moment. The star (*) indicates moments where there has been difference. The second and third lines indicate intragroup analysis (group compared to itself at data collection moments). In the analysis of CG (second line) and EG (third line) there are the acronyms (PO, IPO, MPOI, MPOII AND SR) in brackets, for each evaluation moment, which represent the statistically significant difference between the moment and other moments.
At the top of the graph 1 there is PRI-S and PRI-A to the left and to the right, respectively. Below, to the left, there are IPO and to the right Global Assessment of Pain Experience.
In the PRI-S variable chart it is observed that CG means are higher in preoperative moments (CG = 2.85 – EG = 2.64), POI (CG = 6.83 – EG = 4.43) and MPOI (CG = 5.04 – EG = 4.35). In remaining moments, EG means are higher (MPOII: CG = 3.95 – EG + 4.45; SR: CG = 2.39 – EG = 2.43). In the intergroup analysis there is statistically significant difference between groups in moment IPO ($p \leq 0.0001$), that is, pain report immediately after surgery was lower for EG patients, suggesting that previous face-to-face information was effective to decrease sensory pain at this moment.
In the "Group" item, the star (*) indicates statistically significant difference between groups at data collection (Tukey test $p < 0.05$. Al CG: statistically significant difference among CG data collection moments; AI EG: statistically significant difference among EG data collection moments. In intragroups evaluation (AI CG and AI EG), acronyms in brackets indicate moment (s) where there is significant difference as compared to this moment.

Table 1 - Mean and standard deviation of number of extracted teeth, patients' age, preoperative time, number of anesthetic vials and amount of ingested drugs during extraction and amount of ingested analgesics in the postoperative period.

Variables	Control Group	Experimental Group	Total Sample
Number of extracted teeth	2.6 (1.1)	2.6 (1.0)	2.6 (1.1)
Age	20.2 (3.1)	19.8 (3.0)	20.0 (3.1)
Preoperative time	31.6 (26.1)	27.2 (27.1)	29.4 (26.6)
Number of anesthetics *	5.1 (2.1)	4.9 (1.8)	5.0 (2.0)
Amount of anesthetics **	11.4 (7.1)	10.2 (7.9)	10.8 (7.5)

*2% lidocaine 1:100.000; ** Sodium dipyrone (500 mg)



Graph 1 – Mean and standard deviation of pain scores evaluated by McGill pain questionnaire – short form (PRI-S, PRI-A, PPI and Global Assessment of Pain Experience) for both groups at the five data collection moments.
PO = Preoperative period, IPO = immediate prostoperative period; MPOI = Mediate postoperative period I; MPOII = Mediate postoperave period II; SR = suture removal, CG = control group; EG = experimental group.

In the "Group" item, the star (*) indicates statistically significant difference between groups at data collection (Tukey test $p < 0.05$. Al CG: statistically significant
difference among CG data collection moments; AI EG: statistically significant difference among EG data

collection moments. In intragroups evaluation (AI CG and AI EG), acronyms in brackets indicate moment (s) where there is significant difference as compared to this moment.

Significance level was $p < 0.05$.

There has been no statistically significant difference in PRI-A between groups for the five data collection moments (PO: CG = 1.6 and EG = 1.22; POI: CG = 1.88 and EG = 1.11; MPOI: CG = 0.75 and EG = 1.00; MPOII: CG = 0.70 and EG = 1.12; SR: CG = 0.34 and EG = 0.67). EG means in POI are lower as compared to CG. This suggests a possible effect of the preparatory procedure for affective pain responses immediately after extraction. There is increased pain response immediately after extraction for CG patients, but means tend to lower in following moments. For EG, affective pain responses are lower since POI until SR, as compared to the first data collection moment. In CG intragroup analysis PO means are statistically different from POI means. POI means are statistically different from MPOI, MPOII AND SR. In EG intragroup analysis there has been no statistically significant difference among moments.

Means of pain responses in PPI variable for CG are higher in all data collection moments (PC: CG = 7.63 and EG = 6.11; POI: CG = 31.27 and EG = 19.53; MPOI: CG = 26.59 and EG = 16.22; MPOII: CG = 21.59 and EG = 15.03; SR: CG = 12.34 and EG = 6.06), although without statistically significant difference between groups. There is a trend for the groups: higher pain score means in POI and lower in following moments (MPOI, MPOII and SR). As already observed, EG had lower scores as compared to CG, suggesting a possible effect of the preparatory procedure. In intragroup analysis it is observed that CG and EG are equally different in all data collection moments: PO and SR means are statistically different from POI, MPOI and MPOII, for both groups. And POI is statistically different from MPOII.

For Global Assessment of Pain Experience there is the same trend for PPI, that is, pain scores reported by CG patients in all moments were higher that EG scores (PO: CG = 0.60 and EG = 0.38; POI: CG = 1.60 and EG = 1.12; MPOI: CG = 1.47 and EG = 1.16; MPOII: CG = 1.26 and EG = 1.08; SR: CG = 0.85 and EG = 0.59). It is observed that pain score means have increased in the moments post-extraction (POI, MPOI and MPOII) and have decreased at suture removal. In the intragroup analysis, groups are equally different in all moments: PO and SR are statistically different from POI, MPOI and MPOII.

DISCUSSION

This study has observed the efficacy of previous face-to-face information to decrease sensory pain responses of patients submitted to third molar extraction. Results allow us to state that the preparatory procedure was effective to decrease sensory pain responses of EG patients in the MPI (Chart 1). However, one cannot state that face-to-face information was effective to decrease other pain responses (PRI-A, PPI and Global Assessment of Pain Experience – Chart 1) and to decrease analgesic consumption in the postoperative period of EG patients.

In PPI and Global Assessment of Pain Experience, EG had lower scores as compared to CG, which may suggest an effect of previous face-to-face information. In addition, postoperative painkillers consumption was lower for EG patients, although without statistically significant difference (Table 1).

Similar results were found in a study[13], using an educative intervention to evaluate pain responses in patients submitted to orthopedic surgeries. This preparatory procedure the day before surgery would convey knowledge about pain and analgesic consumption, in addition to breathing and relaxation exercises. Results have indicated no significant difference in pain assessment and analgesic consumption between groups, which confirms our study data.

However, these authors have observed better pain control among patients of the intervention group. This might be related to the amount of analgesics used by those patients, since there has been higher drug consumption in the second postoperative day. This may also be related to breathing and relaxation exercises, since results point to more practice in the second, fourth and seventh postoperative days, suggesting that the experimental group has used breathing and relaxation to cope with pain. Although there is a difference between the preparatory procedures of this study[13] and of our study, it is possible to infer that results have the same trend, since EG had lower pain responses in some data collection moments (PPI and Global Assessment of Pain Experience – Chart 1).

Another study[5] with similar results has evaluated the effects of a video informing about pain responses in patients submitted to colonoscopy and with procedural information about the exam. Results do not allow to state that there has been a statistically significant difference between the group watching the video and the control group. There has been higher drug consumption of the group watching the video, differently

from our study where there has been lower analgesic consumption by patients submitted to previous face-to-face information (Table 1). This difference in results for painkillers consumption may be justified by the content of previous face-to-face information, which was not restricted to technical aspects of the invasive procedure, but rather has addressed also sensory aspects and the postoperative period.

A different study[7] has evaluated the impact of oral or via leaflet preoperative information about postoperative pain in patients submitted to total knee arthroplasty. Patients were divided in two groups: control, receiving procedural information, and experimental, receiving procedural information emphasizing the role of patients themselves in the management of postoperative pain, attempting to improve their knowledge for their own well being. Results suggested no statistically significant difference between groups in pain assessment and analgesic consumption, which confirms the results of our study. Authors have stressed that postoperative pain reports have decreased more rapidly for the experimental group. These studies have provided information about the postoperative period for the experimental group and, in spite of the difference between methodology and the amount of information of preparatory procedures, there are less pain reports along the postoperative period for both studies.

A study carried out with patients submitted to third molar extraction[9] has evaluated the efficacy of information dissemination via leaflets after the extraction. Pain responses were evaluated by the visual analog scale (VAS) every three hours after extraction during the first 45 hours. Patients were randomly divided in control group, which received basic technical information about postoperative care; and treatment group, which received complete information about the postoperative period, care, complications, sensations and analgesic consumption. Results suggest that the treatment group has reported less postoperative pain, but there has been no statistically significant difference between groups in analgesic consumption. Authors have emphasized that information given to the treatment group was responsible for less pain without increasing analgesic consumption. In our study, similar results were obtained with regard to analgesic consumption (Table 1) and Present Pain Intensity (PPI), made up of VAS, has the same trend as the data of the study[9], with less pain reports for the experimental group, although the difference is not statistically significant (Chart 1). The similarity between information offered by the leaflet and by face-to-face interaction strengthens common points between studies. This type of preparatory procedure has shown to be a major strategy before invasive procedures aiming at establishing more efficient responses to cope with treatment and at increasing patients' adherence in the postoperative period. In addition, it has helped and valued professional-patient contact in the context of health care.

CONCLUSION

Previous face-to-face information was not effective to decrease pain intensity and analgesic consumption in patients submitted to third molar extraction. However, although the difference between groups is not statistically significant, patients submitted to the preparatory procedure had lower postoperative pain scores as compared to patients not submitted to previous information, suggesting a possible effect of the preparatory procedure.

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