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Consultation with a specialized pain clinic reduces pain after oral and maxillofacial surgery

Eva-Maria Dietrich [a, *, 1], Norbert Griessinger [b], Friedrich Wilhelm Neukam [a], Tilo Schlittenbauer [a]

[a] Department of Oral and Maxillofacial Surgery, University Hospital of Erlangen, Östliche Stadtmauerstraße 27, Erlangen, 91054, Germany
[b] Department of Anesthesiology, University Hospital of Erlangen, Östliche Stadtmauerstraße 27, Erlangen, 91054, Germany

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ABSTRACT

Purpose: Postoperative pain management is important for improved patient care. Our primary objective was to investigate the effect of analgesic treatment adaptation by the pain clinic on postoperative pain relief at an oral and maxillofacial surgery department. Additionally, we aimed to present patients' pain characteristics and the administered analgesic treatment.

Materials and methods: A total of 128 patients treated at our clinic in the period 2012–2015 who required analgesic treatment adaptation by our pain clinic were included. They were further divided into 10 groups: tumor, temporomandibular joint disorder, tooth extraction, osteomyelitis, bisphosphonate-related osteonecrosis of the jaw, submandibular abscess, orthognathic surgery, cyst, sinusitis, and fracture. Pain characteristics evaluated were intensity on a numerical rating scale (NRS) before and after intervention of the pain clinic, quality, genesis, and type.

Results: Post treatment pain intensity values at rest 1.8 (SD: 1.4) and on exercise (walking and physical therapy) 4 (SD: 2) were statistically significant better compared to pretreatment values (4.2, SD: 2.5, and 6.8 SD: 2, respectively). The highest pain intensities were reported after tooth extractions, orthognathic surgery, cystectomies, and fracture reposition. Pain was mainly continuous and related to a combination of a somatic and a neuropathic pathophysiological mechanism.

Conclusions: Intervention by a specialized pain clinic leads to reduction of postoperative pain.

1. Introduction

Postoperative pain remains a basic problem in surgical patient management. Postoperative pain has been reported to be present in up to 77% of surgical patients, with 80% of these individuals having moderate to severe pain (Warfield and Kahn, 1995).

The establishment of an analgesic plan that is based on guidelines and medical evidence is important for effective pain management. The aim of postoperative pain management should not be complete pain relief but, rather, a stable state of pain control (German Interdisciplinary Association for Pain Therapy Guidelines, 2009). For obtaining this, adequate patient guidance that begins in the preoperative phase is important, and several studies show its impact on an uncomplicated postoperative period (Guruge and Sidani, 2002). However, other studies have not yielded the same findings the influence of pretreatment patient education on postoperative pain control (Shuldham et al., 2002).

The aim of the present study is threefold: 1) to investigate relief from pain after analgesic treatment adaptation by the pain clinic at an oral and maxillofacial surgery department; 2) to present patients' postoperative pain characteristics; and 3) to evaluate the administered analgesic treatment in different diagnostic groups. Intervention by consultation with a specialized pain clinic may reduce postoperative pain if standard procedures are insufficient.

2. Materials and methods

In order to evaluate the therapeutic approaches in postoperative analgesic treatment in patients who underwent surgery at our institution, we decided to conduct a retrospective study. This would

* Corresponding author. Am Erlanger Weg 49, 91052 Erlangen, Germany.
E-mail addresses: Eva-Maria.Dietrich@uk-erlangen.de (E.-M. Dietrich), Norbert.Griessinger@uk-erlangen.de (N. Griessinger), Friedrich.Neukam@uk-erlangen.de (F.W. Neukam), Tilo.Schlittenbauer@uk-erlangen.de (T. Schlittenbauer).
[1] Friedrich-Alexander-University Erlangen-Nürnberg (FAU).

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include patients who received surgical treatment in intubation anesthesia in the period between January 2012 and December 2015 and who required adjustment of the analgesic treatment by our pain clinic.

The study was approved by the Ethical Committee of our institution.

Data were retrieved from our electronic working system as well as from our pain clinic.

Data from 128 patients, 64 men and 64 women, were retrieved. Patients were divided, according to the diagnostic group in which they belonged, into 10 groups: tumor, temporomandibular joint disorder (TMJD), tooth extraction, osteomyelitis, and bisphosphonate-related osteonecrosis of the jaw (BRONJ), submandibular abscess, orthognathic surgery, cyst, sinusitis, and fracture (Table 1).

Patients with chronic pain syndromes, psychiatric disorders, a history of opioid abuse, and those with pain or tumor localized in a body part other than the head and neck region, for example the upper or lower extremity or the breast or larynx, were excluded.

The following data were obtained: age, diagnosis, number and type of analgesics administered (i.e. non-opioids, opioids, co-analgesics), number of necessary adaptations of analgesic plans due to insufficient pain control and changes in the categories of analgesics administered, pain characteristics, and pain intensity (assessed with the numerical rating scale [NRS 0–10] at rest and on exercise (walking and physical therapy) at first and last consultation of the pain clinic. The evaluated postoperative analgesic treatment plans do not cover the immediate postoperative phase because of the necessity of a mostly intravenous analgesic approach, especially in the intensive care unit (ICU) and the presence of separate treatment guidelines.

2.1. Statistical analysis

In the statistical analysis of pain data, 98 therapy plans for which complete follow-up data of pain intensity were present and have been included in this report (Table 1). The Shapiro–Wilk test revealed a non-normal distribution of the data.

A power analysis was done with the use of G* Power 3.1.9.2 software (Faul et al., 2009). An effect size of r = 0.5 was calculated. According to the Cohen criteria (0.1 = small effect size, 0.3 = medium effect size, 0.5 = large effect size), this is a large effect size (Cohen, 1988).

Table 1
Patients categorized by diagnostic groups.

Diagnosis or surgical interventions	No. of patients	No. of patients included in statistical analysis[a]
Tumor	70	59
Submandibular abscess	11	6
Mandibular osteomyelitis	9	9
Fracture	9	6
Temporomandibular joint disorder (TMJD)	7	2
Bisphosphonate-related osteonecrosis of the jaw (BRONJ)	7	4
Tooth extraction	6	2
Orthognathic surgery	4	3
Sinusitis	3	3
Cyst	2	2

Note: BRONJ: Bisphosphonate-related Osteonecrosis of the jaw, TMJD: Temporomandibular Joint Diseases.

[a] Patients with chronic pain syndromes, psychiatric disorders, a history of opioid abuse and those with pain or tumor localized in a body part other than the head and neck region, for example the upper or lower extremity or the breast or larynx respectively were excluded.

In order to test our primary hypothesis, which was the assumption that the adaptation of the analgesic treatment by the pain clinic succeeded in providing relief from pain postoperatively, we conducted a Wilcoxon test (using SPSS software, $\alpha = 0.05$) comparing pain intensities at rest and on exercise prior to and after analgesic treatment adaptation for all patients, as well as after patient division into two diagnostic groups: tumor and non-tumor.

A Kruskal–Wallis Test (SPSS, $\alpha = 0.05$) for independent samples was conducted in order to assess statistically significant differences between diagnostic groups regarding pain intensity.

We conducted an exploratory data analysis of our secondary objectives, which were as follows: the distribution of patients' pain intensity values at rest and on exercise before and after treatment adaptation, and possible differences in pain intensity between sexes. In particular, the distribution of patients' pain intensity at rest and on exercise before and after treatment adaptation by the pain clinic (Fig. 1a, b), as well as, differences in pain intensities between men and women (Fig. 2a–d), are graphically demonstrated. Statistical analysis for the presence of a possible relationship between gender and pain intensity was conducted with the use of Mann–Whitney U test for independent samples ($\alpha = 0.05$).

A correction for multiple testing was conducted by means of Sidak's adjustment ($\alpha = 0.01$).

2.2. Patients' pain characteristics

Pain characteristics that were evaluated included pain intensity measured on the numerical rating scale (NRS) before and after intervention of the pain clinic (NRS 0–10), pain quality (continuous pain, repeated pain episodes without stable intervals, single pain episodes, and paroxysmal pain), pain genesis (tumor-related, inflammatory, postoperative, posttraumatic, radiation-related, degenerative, and other), and pain type (somatic, neuropathic, combination of pain types, unidentified).

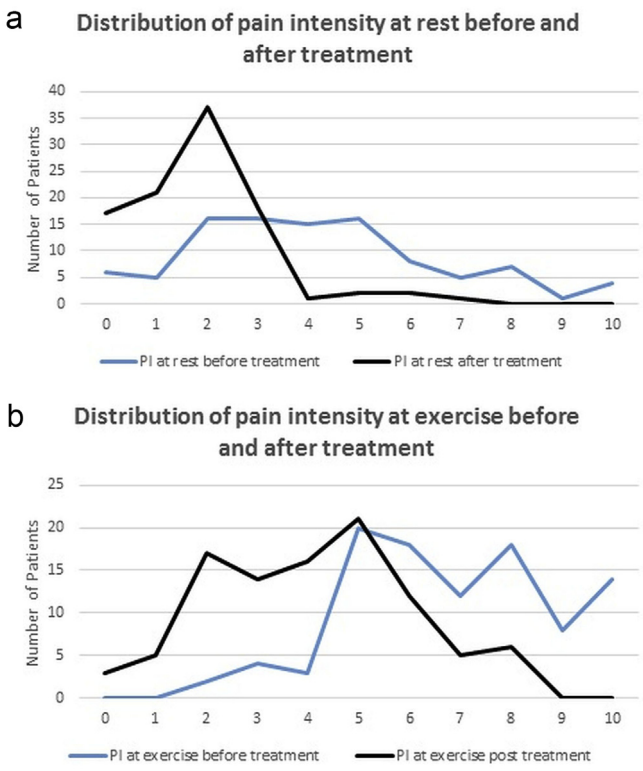

Fig. 1. Distribution of pain intensities: (a) at rest before and after treatment; (b) on exercise before and after treatment.