

# **Ketoprofenin Tonsillektomi Sonrası Kanama Üzerine Etkisi**

## *The Effect of Ketoprofen on Postoperative Hemorrhage Following Tonsillectomy*

Duran Karataş

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### **Özet**

Bu çalışmanın amacı hastalara tonsillektomi sonrası ketoprofenin etkisinin değerlendirilmesidir. Bütün hastalar tonsillektomiveya adenotonsillektomi yapılanlardan seçildi. Yaşları 3-27 arasında(ort:10.0±3.2). Hastalar postoperatif ilaç alımına göre iki gruba ayrıldı. Grup 1 cerrahi sonrası parasetamol alanlar, Grup 2 cerrahi sonrası ketoprofen alanlar. 50 parasetamol alan 40 hasta ketoprofen alan gruptan oluştu.Postoperatif primer hemoraji bir hastada(%2.5) sekonder hemoraji hiçbir hastada gelişmedi. Ketoprofen grubunda 1 hastada parasetamol grubunda da 1 hastada primer hemoraji gelişti. İki grup arasında istatistiksel olarak anlamlı bir fark yoktu(p<0.05). Tonsillektomi sonrası hemoraji nadir,sıklıkla erken postoperatif periyotta olmaktadır. Ketoprofen tonsillektomi sonrası kanama riskini artırmaz ve tonsillektomi sonrası ağrıdan kurtulmak için güvenli olarak kullanılabilir.

### **Abstract**

The objective of the study was to evaluate the effect of ketoprofen on after tonsillectomy in patients. All charts of patients, who underwent tonsillectomy with or without adenoidectomy, were reviewed. The age at the time of surgery ranged between 3 and 27 years (mean age = 10.0±3.02 years). Patients were divided into two groups based on the drugs used for postoperative pain relief.Group I received paracetamol after surgery. Group II received Ketoprofen after surgery. A total of 40 patients received ketoprofen and 50 patients were given paracetamol. Posttonsillectomy hemorrhage occurred in one (2.5%) patient,primary hemorrhage was noted in one patient and secondary hemorrhage occurred in zero patients. While 1 of 40 patients (2.5%) who were given ketoprofen had postoperative hemorrhage,1 of 50 patients (2.0%) who were given paracetamol had hemorrhage There was no significant difference in hemorrhage rates between these two groups (p[0.05). Hemorrhage following tonsillectomy is rare and frequently occurs in the early postoperative period. There is no significant increased risk of hemorrhage after ketoprofen administration and it can be used safely for post-tonsillectomy pain relief.

**Anahtar kelimeler:** kanama, ketoprofen, parasetamol tonsilektomi

**Key words:** Hemorrhage, Ketoprofen, Paracetamol Tonsillectomy

### **INTRODUCTION**

Tonsillectomy with or without adenoidectomy is one of the most frequently performed surgical procedures in patients (1-5). The main complications of this surgery are hemorrhage,pain, nausea, vomiting, and dehydration (2). Posttonsillectomy hemorrhage (PTH) is rare, but can be a potentially life-threatening complication (2,4). The incidence of PTH varies from 0.7 to 4% (1,6). The risk factors associated with PTH include patient demographics such as indications for surgery, surgical technique, types of instruments used and grade of operating surgeon (3,4,6,7). PTH is classified as primary (occurring within 24 h of the operation) or secondary (occurring within 1-14 days) (3). Although primary hemorrhage is thought to be related to surgical technique and inadequate homeostasis during the operation, the cause of secondary hemorrhage is yet unclear (3,4). Other significant and the most common complication of tonsillectomy is pain. Nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen and opioids are useful for post-tonsillectomy

pain relief (1,2). While opioids are potent analgesic drugs, they have some adverse effects such as sedation, respiratory depression, nausea, emesis, pruritus and constipation (2,5). NSAIDs are effective analgesics and may be a potential alternative to opioids for post-tonsillectomy pain relief. The use of NSAIDs after tonsillectomy is controversial, since they may increase the risk of hemorrhage by inhibiting the platelet function (1,2,5). The aim of this study was to evaluate the rate of incidence of PTH following the postoperative use of ketoprofen in patients compared with patients who were given paracetamol in the postoperative period.

### **MATERIALS and METHODS**

We retrospectively reviewed all charts of patients, who underwent tonsillectomy with or without adenoidectomy in the Department of Otorhinolaryngology of Private Erciyes Hospital from April 2010 to March 2011. The patients were all candidates for elective tonsillectomy and adenotonsillectomy.Two case with a history of drug allergy and One

cases that were lost to follow-up were excluded from the study. Patients' age at the time of surgery, sex, indication for surgery, surgical procedure performed, drugs used for postoperative pain relief, and presence or absence of primary or secondary hemorrhage were recorded. All cases were operated under general anesthesia with orotracheal intubation. Tonsillectomy was performed by thermal welding technique, and homeostasis was done by suture ligation. Adenoid tissue was removed with an adenotome or a curette, and hemostasis was done by temporary packing of the nasopharynx. All cases were examined at the 1st, 12th and 24th hours and first week postoperatively. We recommended control examination if any problem occurred after the first week examination. For control of postoperative pain, ketoprofen or paracetamol was used for 1 week after surgery. Patients were divided into two groups based on the drugs used for postoperative pain relief. Group I received paracetamol and group II received ketoprofen after surgery. Data analysis and all statistical tests were performed by using SPSS for Windows (version 11.5; SPSS Inc., Chicago, IL, USA). Results were given as mean ± standard deviation or percentage. Rates of hemorrhage were compared for the groups by using chi-square analysis. A result of  $p < 0.05$  was accepted as significant.

## RESULTS

The study was completed with 90 patients. There were 54 males (60%) and 36 females (40%) with ages ranging between 3 and 27 years (mean age =  $10.0 \pm 3.02$  years). Adenotonsillectomy was performed in 42 (46.6%) patients. Only tonsillectomy was performed in 48 (53.4%) patients. PTH occurred in one (2.5%) patient, primary hemorrhage in one patient and secondary hemorrhage in zero patient. While 1 of 40 patient (2.5%) who received ketoprofen had postoperative hemorrhage, 1 of 50 patients (2%) who received paracetamol had hemorrhage. There was no significant difference in hemorrhage rates between these two groups ( $p = 0.496$ ). Patients who presented with PTH were treated conservatively (IV fluids, antibiotics and regular observations), had cautery of bleeding points with a silver nitrate stick or had local infiltration of lidocaine (20 mg/ml) with adrenaline (0.0125 mg/ml) for hemostasis. None of patients with an intense and active bleeding was re-operated on the postoperative seventh day. None of the patients with PTH required blood transfusion.

## DISCUSSION

Tonsillectomy or adenotonsillectomy is one of the most common operations performed in patients. Hemorrhage is the most serious complication with the potential of becoming life threatening. Primary (<24 h) or secondary (≥24 h) PTH may occur in the postoperative period and predominantly on the day of surgery (2,4,8). Approximately, 97% of PTH appears within the first 10 days after the surgery (3). Several risk factors can cause PTH, such as age, gender, season of surgery, history of chronic tonsillitis, surgical technique and elevated postoperative mean arterial pressures (3,4,8,9). Tonsillectomy may commonly be performed by cold dissection technique or by hot technique. While the cold dissection technique involves blunt dissection of the tonsils with metal instruments, the hot technique involves the use of diathermy (3,10). In several studies, the rates of PTH have been investigated between "cold" and "hot" tonsillectomy techniques. Although the "hot" techniques are known to be associated with shorter operation time and reduced intraoperative blood loss when compared with cold dissection, they are associated with a higher risk of PTH (3,10,11). Hemostasis may be achieved by either suture ligation to bleeding vessels or by diathermy. Some authors reported that suture ligation was associated more with

primary hemorrhage, and cauterization was associated more with secondary hemorrhage (12,13). While a history of recurrent tonsillitis is associated with an increased rate of PTH as a result of scarring and neo-vascularization of infected tonsils, abscess tonsillectomy is not a risk factor for PTH in comparison to elective tonsillectomy (4,12). Seasonal variation is not found for PTH (9). Although the risk of hemorrhage is higher in males when compared with females (3,4,9), some authors found that gender appeared not to be a risk factor (8,14). Windfuhr et al. (4) determined that patients who were 4 years of age or younger were least likely to bleed, while 70 years of age or older had a significant risk for hemorrhage. Kvaerner (9) did not detect any association between age above 16 years and hemorrhage, but they found that reoperation rates were higher in the age groups of 5-9 and 40-44 years. Surgery causes both pain and inflammation. Hence, NSAIDs, acetaminophen and opioids are useful for posttonsillectomy pain relief. NSAIDs and acetaminophen obtain analgesic and antipyretic effects by inhibiting the synthesis of prostaglandins (1,2). Aspirin as an NSAID is associated with an increased risk of PTH, because it inhibits platelet function irreversibly and lasts through the life of the platelet (2). The other NSAIDs such as ketoprofen and diclofenac are reversible inhibitors of the enzyme cyclooxygenase, and therefore their effects on platelet function are less. NSAIDs can increase bleeding time, thus potentially increasing the risk of postoperative hemorrhage (1,2). However, in patients with normal coagulation systems, bleeding time usually remains within normal limits (1,15,16). The clinical significance of increased bleeding risk in tonsillectomy is conflicting. While some authors have found the risk to be significant (17-19), others have detected the risk to be nonsignificant (1,2,20,21). Marret et al. (19) found that postoperative use of NSAIDs increased the risk of re-operation for hemostasis after tonsillectomy in the meta-analysis. They suggested that these drugs should not be used after tonsillectomy. On the other hand, Krishna et al. (2) indicated that the use of aspirin after tonsillectomy increased the risk for PTH; however, in their meta-analysis, the use of non-aspirin NSAIDs did not significantly increase the risk for PTH. Jeyakumar et al. (1) compared the rates of PTH between the patients who were given profenid and acetaminophen or acetaminophen codeine. They determined PTH in 5 of 485 patients (1%) who were given NSAIDs and 5 of 673 patients (0.7%) who were not given NSAIDs. The difference between the groups was not statistically significant. We found PTH in 1 of 40 patients (2.5%) who took ketoprofen and 1 of 50 patients (2.0%) who took paracetamol. In our study, the rate of hemorrhage was higher than in their finding; similarly, the difference between ketoprofen and paracetamol groups was not statistically significant.

PTH is rare, but can be life threatening. NSAIDs have potent antipyretic and analgesic effects. The effects of NSAIDs on platelet function are reversible. According to our analysis, the use of profenid does not significantly increase the hemorrhage risk. profenid can be safely used for post-tonsillectomy pain relief. Conflict of interest The authors have no financial obligations to disclose related to this study.

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