Pediatric adenotonsillectomy is the most frequently performed procedure in otolaryngology for relief of sleep apnea or recurrent tonsillitis. However, in case of children patients, ENT doctors tend to avoid these procedure because of intratracheal or postoperative bleeding complications. The aim of the study is to know the factors that can affect the amount of blood loss or the change of hematocrit or hemoglobin level after adenotonsillectomy. We aimed to find any quantitative correlations between factors and bleeding parameter.

METHODS AND MATERIALS

One hundred and seventy-two children underwent adenoidectomy from February 2008 to July 2010 at Dongguk University Ilsan Hospital. During surgery, Preoperative CBC was measured within one month before operation. Postoperative CBC was measured on the next day after operation. They had no history of significant preoperative bleeding. They received no other concurrent surgery except ventilation tube insertion, tonsillectomy or adenoidectomy.

• Male : 110 (75)  
• Mean age : 8.2 ± 2.1 (range: 1.5 ~ 16.1) (figure 1)
• Mean weight : 22.0 ± 5.5 (range: 7.6 ~ 40.6) (figure 1)
• Mean height : 112.5 ± 10.2 (range: 86.0 ~ 141.0) (figure 1)
• Total blood volume(TBV) of child = (46.0 ± 13.5) x weight (kg) × 0.028
• Hemoglobin(Hb) loss percent = [(Hb preoperative - Hb postoperative) × 100] / Hb preoperative
• Hematocrit(Hct) loss percent = [(Hct preoperative - Hct postoperative) × 100] / Hct preoperative

Each patient underwent adenotonsillectomy under general anesthesia. Adenoid was removed using adenoidal curette of appropriate size or debrider under endoscopic view. Bilateral tonsillectomy was performed using an electrically driven ultrasonic surgical instrument. Detachment and dissection, and electrocauterization of bleeding spots was performed for control of hemorrhage from tonsillectomy wound.

METHODS AND MATERIALS

All statistical data are presented as mean ± standard deviation. The statistical analysis of data was done using linear regression method. A p-value of less than 0.05 was considered as statistically significant value. All statistical tests were performed using SPSS software for Windows (version 15, SPSS Inc, Chicago, IL).

RESULTS

There was a significant negative correlation between body weight and Hb loss percent (p = 0.015). There was a significant negative correlation between body weight and Hct loss percent (p = 0.029). Correlation between other factors and Hb or Hct loss percent showed no statistical significance (table 1). Linear regression equations between significant related factors were as follows (figure 2).

Hb loss percent = 7.172 - 0.096 × body weight (kg) (r = 0.180)  
Hct loss percent = 5.414 - 0.160 × body weight (kg) (r = 0.160)

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Figure 1. Distribution of age and body weight. (N=172)

Figure 2. Relationship between weight and loss of hemoglobin (%)/hematocrit(%). Hb loss percent and Hct loss percent have a negative relationship with body weight.

If a child of body weight 10kg also has the hemoglobin level of 12.0, his/her postoperative hemoglobin level will be as follows: 12.0 - (5.6 x 10) = 6.8 g/dl (table 2).

Other factors may affect the bleeding amount, but we failed to prove it.