



Trainee's Corner

Significance of Insignificant

Fallacious conclusions in peer reviewed technically perfect articles

Hurtado-Lopez LM, Lopez-Romero S, Rizzo-Fuentes C et al. Selective use of drains in thyroid surgery. Head and Neck 2001; 23:189-193.

This is a prospective, longitudinal, comparative, randomized study involving 150 patients in a teaching hospital. The patients were divided into three groups; group A (50 patients) without drains, group B (50 patients) with penrose drain,

hematomas, and hemorrhages. The results were statistically analyzed by multiple variant analysis (ANOVA) using Scheffe's procedure and X² test. The results were compared (Table I).

No differences existed regardless of the type of drain used between group B and group C. The important conclusions drawn were "Statistical analysis showed that the size of the gland, diagnosis, type of surgery, trans-operative bleeding, and complications are not valid argument to leave an external drain in thyroid surgery.———

Table I. Tabular presentation of the results

Group	No. of patients	Average trans-operative bleeding	Average length of hospital stay	Average flow of post operative drain	Complications
A	50	107.1 mL (range, 10-800)	2 days (range 1-7)	—	Two (seromas)
B	50	149.8 mL (range, 20-400 mL)	2.6 days (range, 2-4 days)	29.6 ml (range, 5-300 ml)	Three (seromas 2, haematoma 1)
C	50	161.5 mL (range, 10-1063 mL)	2.82 days (range, 1-10 days)	25.85 mL (range 3-70 ml)	Two (seromas)

and group C (50 patients) with semi rigid suction drain. On the basis of pre-operative diagnosis, subtotal or total thyroidectomy or hemithyroidectomy was performed. Analyzed variants were thyroid volume, trans-operative bleeding, flow of post-operative drain, length of hospital stay, and complications, such as seromas,

These results support the notion that the use of wound drainage can not substitute for meticulous dissection and trans-operative hemostasis."

The authors have suggested:

1. "A logical approach would be to stop using these drainage systems, which our study have

not shown any advantages in preventing complications related to hematomas and seromas is to use an adequate surgical technique, carefully handle the tissues, and ensure adequate trans-operative hemostasis.”

2. “Finally, it must be emphasized that the only way to prevent complications related to hematomas and seromas is to use an adequate surgical technique, carefully handle the tissues, and ensure adequate trans-operative hemostasis.”

In this study, the major problems are:

1. “Patients were randomly distributed in three groups.” It is not clear that whether the decision to place the drain was taken preoperatively or on the operation table. If decision was taken on operation table to place the drain, it was clearly influenced by the amount of trans-operative hemorrhage (Table I). In this study there was no significant difference between the drain related complications (hematoma, seroma) in groups with drains (B and C: 5/100) as compared to the group without drain (Group C). Had the authors not used drain in all 150 patients, we can safely imagine higher incidence of complications in this study. There is no mention of infection due to open drainage system. They did mention in the discussion (page 192; second column: third paragraph) that reduction in the length of hospitalization leads to less risk of intra-hospital infection. But in our usual clinical practice, it is very rare to have infection after two days of primary wound healing.
2. Under the heading Results (page 191; second column: first paragraph) it has been mentioned that in group B complications were noticed in three patients which were

drained through the same drainage. This does not seem to be a real problem, in fact it is routine to apply pressure over the wound just before and after removal of the drain. Unless we need to remove few sutures to remove hematoma, in this group it should not be regarded as a complication. Unlike the group without drain, we need not to explain to the patient about another procedure to drain the collection.

3. It has been mentioned that all the surgical procedures were performed by the same surgical team (authors). If it is so, whether same efforts to achieve the hemostasis in all three groups were made or not is not clear. If same meticulous efforts were made to achieve the hemostasis it would not be appropriate to conclude from this particular study “these results support the notion that the use of wound drainage can not substitute for meticulous dissection and trans-operative hemostasis.” Rather it would be appropriate to conclude that even after meticulous efforts to achieve hemostasis in thyroid surgery complication like hematoma and seroma occurs in about 4.7% (7/150) of cases. Therefore, even if the average hospital stay is increased from 2 days to 2.82 days, it would be wise to keep the drain in all or selected cases (depending upon problems faced by the surgeon on the operation table). The patient may like to stay more in the hospital rather than increasing chances of complication. Hematoma will have lots of platelets, hence based on his theoretical knowledge, the EDITOR expects more release of potent fibrogenic growth factors like platelet derived growth factor (PDGF) and its delayed effects like excessive fibrosis and hypertrophy.

From the same study it is possible to draw two convincingly different types of conclusions. Finally, one will have to decide which one to follow. As an independent surgeon one will be held responsible for his/ her actions. As far as statistics is concerned, what it reveals is interesting and what it hides is vital. Statistically insignificant results may be interesting to publish, but we should remember sufferings of one, two or few patients (statistically insignificant) is always significant to one who suffers. As Medicine, to some extent, is not very exact science, we do not know who is going to suffer. After reading this paper, we should question ourselves and proceed: Are we going to harm this patient (individualize) by placing a drain? If yes, to what extent?

EDITOR