

Postoperative Antibiotics After Thyroid Surgeries

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ABSTRACT

Objective To assess the effectiveness of antibiotic in elective thyroid surgeries at a tertiary care centre.

Study design Randomized controlled trial.

Place & Duration of study Department of General and Endocrine Surgery-Ward 25, Jinnah Postgraduate Medical Centre Karachi, from June 2018 to June 2019.

Methodology All patients undergoing thyroid surgeries were included in this study. Patients were randomly divided into two groups, Group A received postoperative antibiotics and the group B acted as control. Oral tablet amoxicillin (875gm) + clavulanic acid (125gm) was given twice daily for three days in postoperative period. Patients were called for follow ups on 4th, 7th and 14th postoperative days and their wounds were assessed and graded according to South Hampton system of Wound Grading. Patients undergoing re-do thyroid surgeries, thyroid surgeries with modified radical neck dissection and patients with pre-existing infections were excluded from this study. Written and informed consent was taken from the patients and data was recorded on a pre-designed form.

Results Eighty patients were included in this study. Out of these, 25% (n=20) underwent unilateral lobectomy, 73.75% (n=59) underwent total thyroidectomy, and 1 patient underwent Sistrunk's procedure. Drain was placed in all patients. Among these, 50% (n=40) patients (group A) were given antibiotics and 50% (n=40) patients (group B) did not receive that. From group A, 57.5% (n=23) showed normal healing (Grade 0) on 4th postoperative day and from group B, 55% (n=22). From group A 42.5% (n=17) showed mild erythema around wound (Grade I) on 4th postoperative day while 45% (n=18) from group B had same findings. From group A, 70% (n=28) patients had normally healed wounds on 7th postoperative day and from group B, 75% (n=30) had well healed wounds. On 14th postoperative day, 7.5% (n=3) and 2.5% (n=1) showed mild erythema around wound (Grade I) from group A and group B respectively. Grade II, grade III, grade IV and grade V wound infection were not seen in any patient.

Conclusion Postoperative antibiotic is not needed in patients undergoing elective thyroid surgery.

Key words Surgical site infections (SSIs), Postoperative antibiotics, Clean surgery, Antibiotic prophylaxis.

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INTRODUCTION:

A surgical site infection (SSI) is an infection that occurs after surgery in the part of the body where the surgery took place. Surgical site infections are serious and can involve tissues under the skin, organs, or implanted material. SSIs are common complications in acute care facilities. SSIs occur in 0.36% of patients postoperatively.¹ SSI is among the most common and most costly healthcare-associated infections (HAIs).²⁻⁴ SSIs account for 20% of all HAIs in hospitalized patients. Many studies have been

done on factors that contribute to SSIs and guidelines have been established to prevent them such as delivery of intravenous antimicrobial prophylaxis within one hour before incision, re-dosing of antibiotics in long duration surgeries, use of an antimicrobial prophylactic agent consistent with published guidelines, hair removal using clippers or a depilatory agent, maintenance of perioperative normothermia in surgical patients who have anaesthesia duration of at least 60 minute, etc.⁵⁻⁷

Antibiotics are commonly used in surgical departments, and the most common indication is surgical prophylaxis. However the use of postoperative antibiotics has not been defined as a preventive measure for surgical site infections.⁸ Irrespective of all guidelines, extended usage of antibiotics in Pakistan, and rest of the developing world was found out to be 97.4% and 90.4% respectively.^{9,10} Another study showed extended use of surgical prophylactic antibiotics for more than a day in majority of the patients.¹¹ This bold decision comes with an assumption that guidelines published internationally cannot be followed here in Pakistan due to substandard sterilization techniques, non adherence to infection control guidelines and less importance given to aseptic techniques.^{12,13} The purpose of this study was to find the frequency of SSI after a clean thyroid surgery with one group receiving an antibiotic as prophylaxis.

METHODOLOGY:

This was randomized controlled trial (RTC) was conducted in the Department of General and Endocrine Surgery, Ward 25, Jinnah Postgraduate Medical Centre Karachi, from June 2018 to June 2019. All patients who underwent thyroid surgeries (unilateral lobectomy, total thyroidectomy, near total thyroidectomy, and Sistrunk's procedure) were included in this trial. They were randomly divided into two groups, group A received postoperative antibiotics whereas group B acted as control. Tablet amoxicillin (875gm) + clavulanic acid (125gm) BD for three days was used as postoperative antibiotic.

Other than the oral postoperative antibiotic, all factors that could affect the rate of SSI in either

group were kept constant. Patients were called for follow ups on 4th, 7th and 14th postoperative days and their wounds were assessed and graded according to South Hampton system of Wound Grading. Patients undergoing re-do thyroid surgeries, thyroid surgeries with modified radical neck dissection and patients with pre-existing infections were excluded from this study. Written and informed consent was taken from the patients and data was recorded on a pre-designed proforma. Data was analysed using IBM SPSS Statistics 23 data editor. Chi square test was applied and p <0.5 was considered as significant.

RESULTS:

Eighty patients were included in this study. Out of these, 17 (21.3%) were males and 63 (78.8%) females. Among these, 20 (25%) were diagnosed as having unilateral solitary thyroid nodule (STN), 54 (67.5%) as multinodular goitres (MNGs), 5 (6.3%) as diffuse goitre, and there was one case of thyroglossal duct cyst. The procedure done in 20 (25%) was unilateral lobectomy, in 59 (73.75%) total thyroidectomy, and one patient underwent Sistrunk's procedure. Drain was placed in all patients. Patients from group A (n=40 - 50%) were given antibiotic and patients from group B (n= 40 - 50%) were control.

On 4th postoperative day, normal wound healing (Grade 0) was observed in 23 (57.5%) patients from group A and 22 (55%) patients from group B whereas mild erythema around wound (grade I) on same day was observed in 17 (42.5%) patients from group A and 18 (45%) patients from group B. From among patients who had Grade I wounds on 4th postoperative day, 9 (52%) patients from group A and 8 (44%) from group B had completely healed wounds at second visit, whereas over all 28 (70%) patients from group A and 30 (75%) patients from group B had completely healed wounds on 7th postoperative day.

Out of 12 patients from group A and 10 from group B who had Grade I wounds on 7th postoperative day, completely healed wounds were observed on

Table I: Status of Wound With and Without Antibiotics

	Wound at Day 4		Wound at Day 7		Wound at Day 14	
	Grade 0	Grade I	Grade 0	Grade I	Grade 0	Grade I
Antibiotics						
Yes	23	17	28	12	37	3
No	22	18	30	10	39	1
p-value	0.051		0.251		1.053	

third visit in 11 (91.7%) and 9 (90%) patients respectively. From group A, 12 (30%) patients and from group B, 10 (25%) patients showed mild erythema around wound (Grade I) on 7th postoperative day. On 14th postoperative day, 3 (7.5%) and 1 (2.5%) patients showed mild erythema around wound (Grade I) from group A and group B respectively. Grade II, Grade III, Grade IV or Grade V wounds were not seen in any patient. Statistically P value were insignificant.

DISCUSSION:

The surgical site infections are classified as follows: Superficial incisional (involving only skin or subcutaneous tissue of the incision), deep incisional (involving fascia and/or muscular layers), and organ/space (involving any part of the body opened or manipulated during the procedure, excluding skin incision, fascia, or muscle layers). With the decreasing patterns of discharge times, it became necessary to follow patients for evaluation of presence of SSIs and other complications. Among methods used for surveillance of SSI, the direct method with daily evaluation of the wound by the surgeon, his assistant or registered nurse professional postoperatively is considered the most accurate method. However, no standardized or reliable method for post discharge surveillance has been described. Poor patients' compliance to follow ups, alongwith no reliable strategy available for evaluation and substandard sterilization techniques have been the key factors that have led surgeons in Pakistan to play it safe by prescribing postoperative antibiotics after clean surgeries to prevent SSIs.^{12,13} Their role, however, remained controversial.

This trial, conducted in a public sector tertiary care centre, that are considered to have sub optimal hygienic conditions and compromised methods of sterilization, was aimed to find out if postoperative antibiotics have any role in prevention of SSI. The results as mentioned provided strong evidence that prescribing postoperative antibiotic is an unnecessary measure that surgeons take to prevent SSIs and is not indicated. The infection rates were comparable to international studies in both groups (<1%).^{1,14,15} The fact that infection rates here, at a public sector tertiary care centre, were comparable to infection rates worldwide should give surgeons enough confidence to discharge patients without antibiotics postoperatively.

CONCLUSIONS:

Infection rates were found to be similar in both the groups. Postoperative antibiotics are not indicated

following clean thyroid surgeries.

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Saad Abdul Razzaq: Data collection & literature search.
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