ORIGINAL ARTICLE

Postoperative Fever in General Surgical Procedures

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ABSTRACT

Objective: The objective of the study was to determine the presence of fever during postoperative period in patients undergoing general surgical procedures in surgical wards.
Study design: descriptive study
Place of study: The study was conducted in Surgical Unit II at Sir Ganga Ram Hospital, Lahore.
Period of study: March 2008 to June 2008
Patients and methods: A total of 100 patients who underwent various elective/emergency general surgical procedures were included in the study. The patients were selected randomly.
Results: There were 30 patients out of the 100 study group who developed fever in post operative period. Presence is different in different age groups, sex and surgical procedures.
Conclusion: The presence of post operative fever is 30%. The highest presence is seen in age group 51 – 60 years and in the patients undergoing general surgical procedure in emergency or receiving general anesthesia and in procedures lasting more than half an hour.

Key words: postoperative fever, presence

INTRODUCTION

Fever is rise in the core body temperature above the normal diurnal variations. According to studies of healthy individuals 18 – 40 years of age, an a.m. temperature of greater than 98.9 °F (37.2 °C) or a p.m. temperature of greater than 99.9 F (37.7 °C) would define a fever. However, there is no coding definition or uniform clinical definition of a significant fever[2].

Rectal temperature is 0.5°C higher and more reliable than oral temperature particularly in mouth breathers or in tachypneic state[4, 5].

Post operative fever is one of the most common problems seen in surgical wards. It is not limited to any specific types of surgery[1]. SIRS (systemic inflammatory response syndrome) is the febrile inflammatory process that occurs after surgery. Sepsis is the systemic inflammatory response resulting from infection[6]. The range of published presence of postoperative fever is from 14% to 91%[3]. The variations are because of the definitions and methods of measurement of fever and the patient population of study.

PATIENTS AND METHODS

A descriptive study was conducted in surgical unit II at Sir Ganga Ram hospital to determine presence of post operative fever. A total of 100 patients were observed in the months of March till June 2008.

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Inclusion Criteria

1. Elective and emergency general surgery procedures.
2. Preoperative, intraoperative and postoperative causes and risk factors.
3. Presence or absence of wound infection.
4. Patients receiving general, spinal or local anesthesia.

Measurement of temperature: The body temperature of the patients was taken in axilla, thrice a day, on all post operative days until the patient was discharged.
In an observational study there were no significant temperature difference between oral and axillary region irrespective of age and sex[8].

Patient population: A total of 100 patients were included in the study. There were 26 male and 74 females patients. The ages of the patients ranged between 7 to 75 years (Table. 1).

Table 1: Age groups of the patients

Age	number
0 – 10	3
11 – 20	17
21 – 30	27
31 – 40	20
41 – 50	16
51 – 60	11
61 – 70	5
71 – 80	1

Investigations performed:
Pre-operative: Following investigations were performed for every patient undergoing major surgical procedure:

1. complete blood count
2. chest X- ray

3. Liver function tests
4. renal function tests
5. Anti HCV, HBsAg

These investigations were done in cases where indicated:

1. complete urine examination
2. serum electrolytes
3. ECG
4. Echocardiography
5. Ultrasonography

Post-operative:

Patients were observed for:

1. Wound discharge: culture and sensitivity.
2. Histopathology examination of the specimen of surgery.
3. Blood culture and sensitivity.
4. Complete urine examination.
5. Chest x-ray

Anesthesia: Surgical procedures were performed under local, spinal or general anesthesia (Table 2.).

Table 2: Anaesthesia used in surgical procedures

Anaesthesia	number
Local	1
Spinal	24
General	75

Surgical procedures: The surgical procedures included in the study were categorized according to surgical wounds[7]:

1. Clean wounds.
2. Clean-contaminated wounds.
3. Contaminated wounds.
4. Dirty wounds.

Follow up: The patients were monitored following surgery till discharge from the hospital. The daily follow up included monitoring of vitals thrice-a-day, systemic examination once-a-day. Wound was examined and chest auscultated thrice daily from 2nd day after the surgery.

Statistical analysis: Out of total 100 patients there were 30 patients who developed fever in post operative period (Table 3).

Table 2: Percentage of post operative fever

Total Patients	Post-op Fever	%
100	30	30

The age and sex preponderance of fever is shown in tables 4 and 5, respectively. The relationship of types of anesthesia used in the surgeries and of various types of surgeries with presence of fever is shown in tables 6 and 7 respectively.

Table 3: Age preponderance of post-operative fever

Age	Total No.	Fever	%
0 – 10	3	0	0
11 – 20	17	1	5.88
21 – 30	27	9	33.33
31 – 40	20	7	35.00
41 – 50	16	5	31.25
51 – 60	11	6	54.54
61 – 70	5	2	40.00
71 – 80	1	0	0

Table 4: Sex preponderance of post operative fever

Sex	Total	Fever	%
Male	26	14	53.85
Female	74	16	21.62

Table 5: Types of anesthesia and postop fever

Anesth-esia	No.	Fever	%
Local	1	0	0
Spinal	24	6	25
General	75	24	32

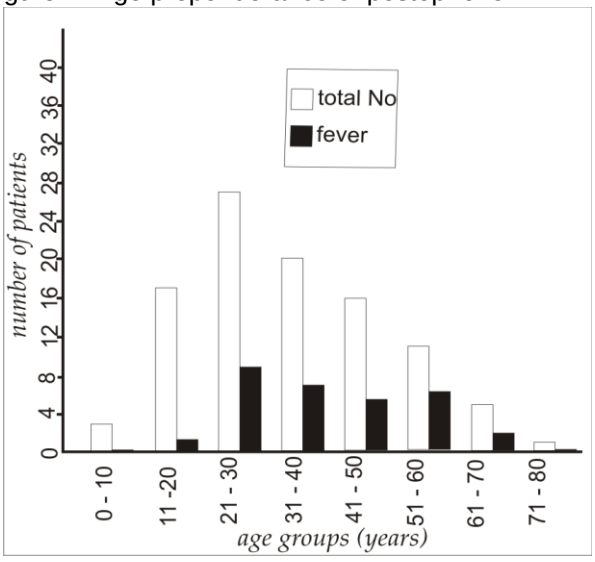
Table 6: Fever and surgical procedures

Surgery	No.	Fever	%
Clean	67	17	25.37
Clean contaminated	26	10	38.46
Contaminated	2	1	50.00
Dirty	5	3	60.00

RESULTS

Among the 100 post operative patients thirty (30%) developed fever. The majority of patients i.e. 27 (27%) were 21 – 30 years age group and highest percentage of patients who contracted fever i.e. 54.54% was of 51 – 60 years group.

Figure 1**:** Age preponderance of postop fever



In the total study group 26(26%) were male and 74 (74%) were female. Out of the males 14(53.85%)

and of the females 16(21.62%) got fever in post operative period. (Table 5)

Amongst the 100 procedures 75 were done in general anesthesia and 24(32%) patients had fever. 24 procedures were done under spinal anesthesia and 6(25%) of these patients had fever. Only 1 patient received local anesthesia and did not have fever. (Table 6)

The various procedures done were categorized as clean, clean-contaminated, contaminated and dirty surgical wounds. Out of these categories fever was seen in 10(23.33%) of 26 clean, 17(25.47%) out of 67 clean-contaminated, 1(50%) out of 2 contaminated and 3(60%) out of 5 dirty wounds. (Table 7)

DISCUSSION

So the presence of fever in this ward during March 2008 – June 2008 was on the whole 30%. But it was noticed that presence of infection varies with different factors i.e., the presence of fever increases with increasing age, being commonest in patients 51-60 years of age. Presence of post-operative fever is highest in patients with dirty wound, followed by patients with contaminated and clean-contaminated wounds and it is lowest in patients with clean wounds. It is noticed that general anesthesia is associated with highest presence of fever.

The most common surgery related infections are Wound infection, chest infection, Intra-abdominal abscess, Leaking anastomosis with peritonitis, Infected prosthetic material, transfusion-related infections and prolonged catheterization. Some infections are not related to surgical procedure itself, like Pneumonia, Urinary tract infection, infected hematoma, Systemic bacteremia and Pharyngitis.

Non-infective causes of fever include Atelectasis, Medications (anesthesia or other), Thrombophlebitis, Drug fever, Malignancy, Pulmonary embolus, Deep vein thrombosis and Myocardial infarction[10].

It must also be kept in mind that fever is not a good indicator of infection; infection may be present without a rise in body temperature, so the presence of fever studied in this study does not reflect the post-operative infection presence[9].

CONCLUSION

In patients undergoing various elective surgical procedures, in Surgical unit 2 of SGRH, presence of fever during post-operative period is 30%. The presence is more in patients those who are undergoing abdominal emergency surgery, long duration of procedure and percentage also increases with increasing age of the patient.

REFERENCES

1. Rudra A, Pal S, Acharjee A. Postoperative fever. Indian J Crit Care Med 2006;10:264-71
2. Mackowiak PA. Fever, In: Mandell GL, Bennett JE, Polin R, editors. Principles and Practice of infectious diseases. 5th ed. Churchill Livingstone: Philadelphia; 2000. p. 604 – 21.
3. Dellinger EP. Approach to the patient with postoperative fever. In: Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious diseases. 3rd ed. Lippincott Williams and Wilkins: Philadelphia, PA; 2004. p. 817
4. Dianrello CA, Gelfand JA. Fever and hyperthermia. In: Harrison's principles of internal medicine. 16th ed. McGrawHill:2005. p. 104-7
5. Gonzales R. Common symptoms. In: McPhee SJ, Papadakis MA, Tierney LM, editors. Current medical diagnosis and treatment. 47th ed. McGrawHill: 2008. p. 28 – 29
6. Bone RC, Balk RA, Cerra FC, Dellinger RP, Fein AM, Knaus WA, et al. Definitions for sepsis and organ failure and guidelines for the use f innovative therapies in sepsis. The ACCP/SCCM Consensus Conference Committee. American College of Chest Physicians/Society of Critical Care Medicine. Chest 1992; 101:1644-55.
7. Lynn Devany, Katherine S, Rowell: Improving surgical wound classification- Why it matters. AORN Journal, August, 2004.
8. Ahmed A, Begum S, Begum M, Haque M. M, Hossain Z, Chattrejee A.M. Study of axillary and oral temperature in a group of young adults and children. JM 2008; 9:78 – 81
9. Vermeulen H, Storm-versloot MN, Gossesens A, Speelman P, Legemate DA. Diagnostic accuracy of routine post operative body temperature measurement. Clin Infect Dis 2005 May;40:1404 – 10
10. Sikora C. Fever in the post operative patient: a chilling problem. The Canadian journal of CME 2004 May; 93.