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ORIGINAL ARTICLE

POST-SURGICAL WOUND CARE IN ORTHOPEDICS: ROLE OF TRANEXAMIC ACID

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ABSTRACT: Post-surgical infections constitutes a major cause of morbidity and mortality in post-operative patients in orthopaedics. Most of these are hospital acquired and organisms being resistant to major antibiotics and patients are not in a condition to be discharged from hospital. The aim of the present study was to analyze the role of Tranexaemic acid in prevention of wound infection in post-operative patients. A total of 120 patients were taken of which 30 each were operated for spine, intertrochanteric fractures, bipolar hemiarthroplasty and general orthopaedics (Forearm plating, distal humeral plating, philos). Age of the patient were taken between 18 to 65 years. Males formed about 60% of the patients. Duration from injury to surgery was 3.56 days. Two patients out of 60 on tranexaemic acid were infected whereas 4 out of 60 patients who were not given the medicine were infected. The drug proves to be also effective in reducing wound dehiscence rate, need of prolonged antibiotics and thus overall reduces the postoperative morbidity in patients.
KEYWORDS: Tranexamic acid, wound care.

INTRODUCTION: Wound infections are a major problem in post-operative patients in orthopaedics. Hospital acquired infections and formation of biofilm on implant lead to deep seated infection which are difficult to eradicate. Post-operative antibiotics are started empirically to prevent wound infection and once the wound gets infected, the antibiotics are changed as per culture/sensitivity.

Tranexamic acid is an antifibrinolytic that helps decrease the post-operative soakage, seroma and serous fluid formation in wound and leads to wound healing without risk of infection as this accumulated fluid is a good culture media for organisms to grow and cause wound infection, wound dehiscence and septicaemia.[1,2,3,4]

Tranexamic acid-mechanism of action.

It is an antifibrinolytic that binds to lysine binding site on plasminogen,[5] and prevents its combination with fibrin and is 7 times more potent than EDTA.[2,6]

Side effects are minimal and tolerable like nausea, headache, giddiness, diarrhoea.

Dosage is 500mg i.v injection given slowly thrice a day for the first day and switched to oral dose of 500 mg thrice daily for 3 days.

The aim of our study was to analyze the effects of tranexamic acid on postoperative wounds like serous discharge and soakage from Post-operative wounds and sequelae thereafter like pus discharge and wound dehiscence.

MATERIALS AND METHODS: This prospective study was conducted in the post graduate department of Orthopedic Government Medical College, Jammu during the period from 1st Oct. 2013 to 1st Nov. 2014. Both male and female patients were included in the study.

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Inclusion Criteria: Patients to be operated for spine (Universal spine stabilization system-usss),[2] intertrochanteric fractures (Dynamic hip screw fixation), neck of femur fractures (Bipolar hemiarthroplasty), other orthopaedic surgeries. Age inclusion criteria include 18 to 65 years. Other criteria being non-diabetic patients, no chronic illness and no allergy to any medicine.

Exclusion Criteria: Multiple injured patients, associated neurovascular injuries, severely ill patients which increases the operation morbidity, pathological fractures, patients below 18 and above 65 years, fracture more than 14 days old, pregnancy, swelling, bruising & ecchymosis at the fracture site

All the patients were initially assessed in the emergency section of GMC Jammu. They were given first aid in the form of analgesia, immobilization, and other resuscitation measures. After selection of the patients for surgery, patients were prepared for surgery to be conducted in the elective operation theatre.

Pre-Operative Evaluation: Pre-operative evaluation included patients name, age, sex, address, date of injury, associated chronic illness, date of surgery and date of discharge. All the routine investigations like complete blood count & biochemistry were done. Informed and written consent was taken from the patients.

Post- Operative Evaluation: We divided the patients into case and control group. Only the case group were given the drug. In all operated patients we started with 500 mg of tranexamic acid i.v tds on the day of operation and switched to oral drug tds on the next day.

Alternate day dressings were done in all patients. If the wound was without soakage and wound dehiscence, sutures were removed on 8th day for spine patients and on 12th day for other patients and were discharged from hospital. If constant soakage was present in wound, then suture are kept longer and patient was kept in hospital under observation.

RESULTS: 120 patients were included in the study. 30 each were operated for spine, Neck of femur fracture, general orthopedics fractures and intertrochanteric fractures.

Results are evaluated in terms of 4 main parameters including a) Average number of dressings done in each patient, b) Average duration of hospital stay in each patient, c) Duration of antibiotics needed in each patient, d) Number of cases infected.

It is seen that all parameters selected as shown in table 1 shows favorable results in patients receiving tranexamic acid from the day of surgery. The addition of drug greatly reduces the duration of antibiotics received by patient and also the average duration of hospital stay by each patient.

	Average No. of dressings done	**Average duration of hospital stay**	**Duration of antibiotics needed**	**Number of cases infected**
Case group	4	10	8	2
Control group	6	14.2	14	4

Table 1

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DISCUSSION: Post-operative wound complications involves a major bulk of patients in every surgical practice. It depends on many parameters depending on theatre hygiene, clean surgical practices, clean environment and patient related factors. Control of complications include a wide variety of precautions aimed to maintain hygienic surgical practices. Our study includes analysis of 120 patients operated under same OT environment and under same surgical hygienic practices and divided into 2 groups cases and controls. The cases received a course of tranexamic acid started from the day of surgery. The results of one group were compared with other group.

The infection rate in case group was 3.33% as compared to control group in which it was 6.66%. Average hospital stay for patients in case group was 10 days as against the 14.2 days in control group. Addition of drug also reduces the duration of antibiotics needed by patient postoperatively.

CONCLUSION: Tranexamic acid, a antifibrinolytic drug is one of important drug used in postoperative surgical practices in many centres. The literature regarding its role of much efficacy was lacking.[7,8] Our study of 120 cases shows favourable results regarding its role to control postoperative surgical morbidity. Tranexamic acid in patients of study group shows less soakage and less infection and also sutures were removed at the appropriate time and hospital stay was minimized.[9] The wound dehiscence was found to be lower in case of patients receiving the drug. The drug is not associated with major side effects and minor side effects were dealt with ease in these patients. Compliance of the drug by patients was good in study group. The shortcoming being the short cohort of patients included in study.

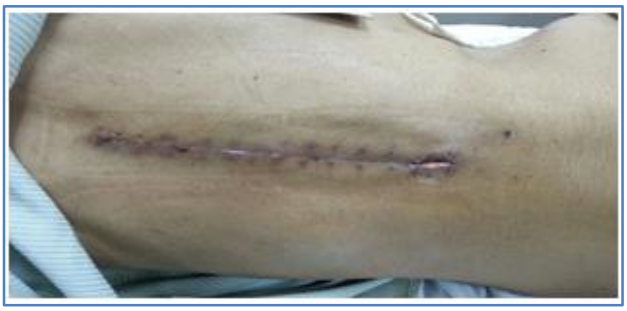

Fig. 1: Operated spine case with wound dehiscence

Fig. 2: Wound dehiscence in control group

Fig. 3: Bipolar hemiarthroplasty in case group

Fig. 4: DHS in case group

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Fig. 5: Infected wound in control group

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