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The need of clinical intervention by pharmacists in a post surgical scenerio of appendectomy

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ABSTRACT

Introduction

The negligence in post-operative treatment is narrative of the hospital care dilemma, especially related to the developing countries. The case study investigated the flaws in treatment and justified the need of a pharmacist in SICU, where a patient was under the post operative treatment.

Case presentation

A 33 years old patient admitted to the emergency care unit with the complaints of abdominal pain in the lower region, which was pulsating and projecting, with sane vitals and perception; diagnosed and clinically tested for the symptoms of appendicitis. Appendectomy was conducted under the procedural guidelines of the head surgeon. The perforated appendix was found to infect and the patient instead of the progress, showed a decline and thus developed Fournier's Gangrene and subsequently worsened the condition.

Conclusion

It is conclusive that the integration of a pharmacist in the SICU and the relevant area can be beneficial to the administration and patients as he can adequately represents an improvement in clinical outcomes and more effective and safe use of medication.

Keywords: Clinical interventions; Pharmacists; Surgery

INTRODUCTION

The negligence in post-operative treatment is narrative of the hospital care dilemma, especially related to the developing countries. It has been inbred in to the core of this study to evaluate the reasons and propose a possible maneuver to overcome the flaws of the health care system by employing a responsible candidate into the settings, such as clinical pharmacist that has both the knowledge and management concerns provided on hands for the management of the total surgical setup as a lead to the paramedical staff and bridge for the physician and patient.

CASE PRESENTATION

A 33 years old male patient was admitted to the hospital and was diagnosed with the preliminary symptoms of appendicitis. These symptoms were edematous regional aggregation in the lower GIT on the lower right hand side of abdomen, projecting pain in the area of edema, vomiting, fever and jaundice.

There were biochemical tests advised such as, WBC and CST i.e. culture sensitivity test. The reports showed elevated ESR i.e. erythrocyte sedimentation rate and the large colonies of E.coli.

The surgery was conducted as scheduled, general anesthesia under regimental dosage of injection Propofol Infusion C5 at 10ml/hr IV was infused. The patient recovered from the post anesthesia in all senses. The patient was admitted to the surgical ICU for the postoperative care and wound from the appendectomy was kept under observation.

As per the management protocols the patient was believed to recover within the time span normally needed in such cases, but the wound putrefied and peritonitis was seen with the formation of sepsis; that even leading to lower RTI. [1] The patient relapsed and the condition of the wound worsened, followed by drainage of pus, blood and body fluids. Even the liquid diet which was given to the patient started oozing out from the wound.

The surgeon and the doctor referral notes clearly stated that the patient was not recovering and the wound had gone septic, and the patient was under septic shock followed by the renal and lung failure.

There was an evident stroma formation that could lead to more complexity on further evaluation. Upon performing exploratory laparotomy there was right hemicolotomy[2] performed, the perineum was invaded and had gangrenous appearance; the gangrene had invaded the fasciae and transformed into a classical Fournier's gangrene FG.[3]

TREATMENT

The patient had been surgically cured to the extent that the appendix was removed, but the aggravated pathogenesis and the relapse of the patient due to improper care had led to newer medicinal decisions. The regimental therapy[4] as proposed in medical literature for the cure of FG[3] is antibiotic therapy should be broad spectrum to empirically cover all possible organisms. The usual combination includes penicillin for the streptococcal species, third generation cephalosporin, with or without an aminoglycoside, for the Gram negative organisms, plus metronidazole for the anaerobes. [5] Some topical agents like sodium hypochlorite, hydrogen peroxide, or unprocessed honey has been tried to aid in the separation of the slough and accelerate granulation tissue. If the initial tissue stain using potassium hydroxide shows the presence of a fungus or if grown in the culture, then addition of amphotericin B is necessary.

Hyperbaric oxygen is widely believed to be an effective adjunctive therapy in the treatment of FG[3], even though there is no conclusive evidence regarding its effectiveness. Putative benefits of hyperbaric oxygen therapy include neutralization of anaerobic organisms, improvement in neutrophil function, increased fibroblast proliferation, and angiogenesis. The patient was prescribed the following medications:

1. Inj Tienem 1g IV (imepemide/imepenem; β-lactem carbapenem)
2. Inj Flagyl 500mg IU TDS (metronidazole/antiamebiade)
3. Inj Amikacin 500mg IV BD (aminoglycoside)
4. Inj Clarithromycin 500mg IV BD (macrolide)
5. Infusion Atrovent Nebulizer 4hrs (ipratropium bromide)
6. Inj Falgan 1g IV (paracetamol/antipyretic)

The wound was advised to be dressed every 4 hour and the employing topical regimens to wash off the necrotic tissues and the oozing complements around the scrotum and perineal area.

DISCUSSION

There are two types of the cases reported on the anatomical grounds for the surgery of an appendix; they can be either an inflamed appendix or a perforated appendix. The patient reported to have surgically operated for the perforated appendix that has the bacterial implications as well due to several etiological reasons. The patient was proposed to recover but due to the post-operative mismanagement, failed to achieve such results. The patient was re-examined and thus pathogenesis was determined. The patient was seen to suffer greatly on the pathological grounds and thus the new regimens were designed to overcome afore said problems.

The need of a clinical pharmacist is vital for the selection of such compound regimens that are both vital and also disapproves the practice of polypharmacy, as polypharmacy is said to be both counter economic for the overall cost benefit of a disease treatment and not well suited for the patient's health. Since there were three major areas of concern

in this case that were found to be most suited for the interventions that,

a. The broad spectrum antibiotics selected for the treatment in the surgical ICU were concordant of the management guidelines for the treatment in the scientific literature, it may be found that the physician had his experience decide the approval for the regimen but mere experience is not a profitable approach for such a patient. Such approaches lead to polypharmacy.
b. The clinical biochemical analysis shows signs of an incomplete picture of an exploratory analysis where it was not certain that E.coli was of a resistant strain to the carbapenems that were proposed for the patient's treatment.

The clinical pharmacist, if would have been introduced into the course of the surgical ICU stay of the patient, it would be evident that some clinical interventions were of necessity. Considering the prescription order of the patient, there is evidence of practical polypharmacy; as in case of the antibiotics that have been prescribed, the literature clearly stresses the need to have bacterial culture sensitivity test CST for the patient of FG. It is evident from the test that only high colonial existence of *E.coli* was found; not of the Candida A. Hence the use of macrolide is not justified alone as it is more effective against facultative anaerobes, along with aminoglycosides.

In some cases of recent approaches a new resistant strain of anaerobes has been isolated that contains the new Dehli metallo beta lactamase (NDM-1) against carbapenems[8]. So the culture report does not deeply investigate, this could be a bio-assay based clinical intervention.

The nursing staff could have been more adequately managed if the clinical or hospital pharmacist would be around.

CONCLUSION

Based on the above scenario, it is conclusive that the integration of a pharmacist in the SICU and the relevant areas for the management of post operative patients can be beneficial as they can adequately signify improvement in clinical outcomes and contribute to more effective and safe use of medication, prevent polypharmacy and rationalize the use of antibiotics.[6,9] They also have a positive impact on the cost of drug therapy in the SICU which is though secondary but a major factor in developing countries like Pakistan.[7]

SUPPORTING INFORMATION

Statement of consent

Prior to documenting medical information, a verbal consent was obtained from the patient and approval from the staff and facility was sought.

Conflict of interests

The authors declare no conflict of interests exists.

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