



The flaws in health practice in post-operative management of a patient in tertiary care hospital of Karachi, Pakistan.

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ABSTRACT

Introduction

Congenital urinary tract obstructions are common cause of kidney damage which presents itself without symptoms leading to abnormalities in blood filtration and consequently retarded kidney function. A cohort study was conducted in such patient to find out the short comings in treatment strategy.

Case presentation

A four years old child, weighing 14 kg was brought with severe constipation, fever, chest congestion and cough later developed left eye disorientation after admission to hospital, diagnosed with urinary tract obstruction, indicating acidosis and loss of electrolytes due to excessive loss of water. His therapy management included surgical treatment, dialysis to improve his electrolyte levels within the normal range with the treatment of chest congestion and fever.

Conclusion

This case study reports the post operative treatment of congenital urinary tract obstructions in a tertiary care hospital and highlights the discrepancies observed. Antibiotic rationality and irrational prescribing was observed. The case study highlights the need of a clinical pharmacist in the health care team.

Keywords: Health practice; Post operative; Tertiary care; Karachi; Pakistan.

INTRODUCTION

Congenital urinary tract obstructions are those obstructions in the urinary tract which are present since birth and considered as a risk factor of development of end stage kidney disease in children.^[1] It sometimes presents itself without symptoms leading to abnormalities in blood filtration and consequently retarded kidney function.

CASE PRESENTATION

A four year old child admitted in the hospital complained of cough, congestion and also developed severe constipation which resulted in sever vomiting eventually leading to weakness. The child had congenital urinary tract obstruction which

was later confirmed by the care giver of the child. At the same time, the patient appeared to have left eye disorientation i.e. strabismus which is a condition in which both eyes do not line up in the same direction^[2] and unconsciousness. The lab investigation reported low levels of bicarbonates, calcium, potassium and retention of urea and creatinine resulting in acidosis. A high level of parathormone was also evident.

LABORATORY INVESTIGATION

The lab finding revealed anemia, thrombocytopenia and high levels of IgE. The biochemistry revealed hypokalemia, hypocalcemia and low levels of bicarbonates and high urea and creatinine. An account of lab findings is presented in table 1.

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Table 1 Lab findings

S.No	Name	Observed Value	Normal Ranges *Values may differ with reference to sources	Interpretation
1.	IgE	121 iu/l	1-5yrs 0-60 iu/ml	High (Infection & allergy)
2.	Parathormone	826.0 pg/ml	7-53 pg/ml	High (Kidney, bone damage and feedback i.e. low serum Ca ⁺²)
3.	Platelet count	126	150-450 x 1000 per µl	Low (Thrombocytopenia)
4.	Urea	88 mg/dl	10-50 mg/dl	High (Acidosis)
5.	Creatinine	2.73 mg/dl	0.6-1.5 mg/dl	High (Acidosis)
6.	Bicarbonates	16 mEq/ml	22-29 mEq/ml	Low (Acidosis)
7.	Calcium	7.65 mg/dl	8.1-10.4 mg/dl	Low (Hypocalcemia)
8.	Potassium	3.4 mmol/L	3.8-5.2 mmol/L	Low (Hypokalemia)
9.	Hb	7.1 gm/dL	12-15.6 gm/dL	Low (Anemia)

MANAGEMENT AND MONITORING

Disease management protocol was followed by urinary tract surgery and dialysis with the management of calcium and potassium levels with the following medications given were a calcium gluconate intravenous injection 1.5 cc 6 hourly, potassium supplement 13.3 mEq/5 ml to cope up with potassium deficiency and also treatment of congestion and cough with antibiotic ceftriaxone sodium 1 gm IV dilute in 30 cc for the treatment of chest infection and post-surgical prophylaxis was

given after the surgical treatment, dicyclomine HCl 5 ml syrup used as anti-spasmodic, acetaminophen syrup 4 cc per oral as an anti-pyretic, a vitamin D supplement 0.25 iu to enhance the absorption of calcium, soda mint tabs each tablet containing sodium bicarbonate 300 mg, an antacid to neutralize acidity, lactulose syrup to relieve constipation and was recommended a calcium channel blocker nifedipine if the BP rises above normal 120/80. The list of medications included is tabulated in table 2.

Table 2 Patient medications

S. No	Generic name	Dose	Frequency
1.	Dicyclomine HCl	5 ml	Not mentioned
2.	Ceftriaxone	1gm IV dil. in 30 cc	Once daily
3.	Acetaminophen	4 cc per oral	If needed
4.	Potassium bicarbonate and potassium citrate	13.3 mEq/5ml per oral	Once daily
5.	Ca ⁺² gluconate	1.5 cc iv	6 hourly
6.	Sodium bicarbonate	1 tablet	Three times a day
7.	Vitamin D	0.25 ug capsule	Once in the morning
8.	Lactulose	5-10 ml syrup	When needed
9.	Nifedipine	Dose not mentioned	If BP > 120/80

The monitoring parameters included the overall patient condition, lab values i.e. renal function needed to be checked, and patients' fluid intake (calcium, potassium levels and urea, creatinine levels must be monitored by measuring the acid-base balance.) Fever and chest congestion should be monitored. Moreover, the infection needs monitoring and the levels of parathormone need to be kept in check.

DISCUSSION

This is a case of a child who developed severe constipation for a week coupled with chest

infection which eventually landed him in the hospital, upon clinical examination of the patient, it was observed that the patient also had congenital urinary tract obstruction, the complications of which had developed, later confirmed by the lab findings. The study investigated this case in both directions i.e. retrospectively and then followed the course of treatment prospectively.

Although the past history was not present in the medical record, the issue was investigated with the care giver of the patient who disclosed that the patient was subjected to a panel of pediatricians for treatment of congenital urinary tract obstruction but since there were no associated complications the

panel did not recommend any intervention at that moment. The care giver of the patient also disclosed that the dietary history included only potatoes and bananas and milk which can be one of the causes for developing constipation.^[3] Furthermore, the patient was allergic to seasonal changes.

Since the patient appeared to have congenital urinary tract obstruction which caused increased water excretion and retention of urea and creatinine, his lab findings indicated acidosis of blood reflecting high levels of urea 88 mg/dl and creatinine 2.73 mg/dl and decreased levels of calcium 7.65 mg/dl, potassium 3.4 mg/dl, bicarbonates 16 mEq/ml. The patient was hypocalcemic with levels at 7.65 mg/dl, had high level of parathormone 862.0 pg/ml, hypokalemia 3.4 mg/dl, and also other symptoms of hypokalemia which were evident included involuntary muscles spasms, bloating pain, heart palpitations, dizziness, excessive thirst and frequent urination. Low bicarbonate and increased urea and creatinine caused acidosis. Generally treatment is needed with dialysis if the level of creatinine goes higher than a certain value. IgE was increased denoting chest congestion.^[4,5] The other possibility was the fact that since the patient was allergic the seasonal change might have augmented the levels of IgE.^[6]

The presence of productive cough however confirmed the presence of the chest infection however the color of sputum was not noticed.

Furthermore, the development of strabismus further rang the alarm bells which lead to re-arrival of the patient in the emergency. The cause of strabismus in children is still unknown at large and in most case congenital strabismus is usually present after birth but in this case it developed abruptly for which, upon examination, no treatment was recommended. The recommended first line treatment for strabismus is to prescribe glasses.^[2] However no referral to optician was recommended. In the case of medications, the patient was immediately prescribed a highly potent broad spectrum antibiotic i.e. ceftriaxone, a 3rd generation cephalosporin. They have broad spectrum activity against bacteria and are relatively non-toxic but they are rarely the drug of choice for infections.

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The NICE guidelines stipulate that before initiation of pharmacotherapy with antibiotics, it has to be agreed upon by the physician if the patient need an antibiotic or a delayed therapy is needed keeping in view the sputum color, culture sensitivity test and other related findings. If prescribing an antibiotic is the need, the culture sensitivity test can assist the selection of the antibiotic, however if at all, an empiric therapy is the need of the hour, amoxicillin and or a second generation cephalosporin such as cefalexin may be considered first.^[7,8] However, in this case no color of sputum and culture sensitivity test was conducted which puts the rationality of antibiotics in question.^[9]

The patient was recommended with calcium channel blocker nifedipine for keeping the BP normal 120/80 which is not recommended for children and moreover, the dose of which was not mentioned on the medication list. Furthermore, the patient had a BP reading of 114/74 which do not prompt immediate prescribing of a Ca⁺² blocker. Potential toxic dose in children <6 years is 2 mg/kg.

CONCLUSION

This case study highlights the discrepancies in post operative treatment of a patient. The medical information which normally aid in the diagnosis and assist follow up was missing. Moreover, antibiotic rationality issues and irrational prescribing was observed which lament the absence of a clinical pharmacist in the health care settings.

STATEMENT OF CONSENT

Prior to recording the patient information a verbal consent was obtained from the patient and approval of the health care facility together with permission from the staff was sought.

CONFLICT OF INTERESTS

The authors declare no conflict of interests exists.

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