SEVEN HILLS TIMES

Volume 4 | Issue No 9 | September 2020

An Official Publication of Department of Pharmacy Practice
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VISION

To emerge as one of the premier pharmacy colleges in the country and produce pharmacy professional of global standards.

MISSION

- To deliver quality academic programs in Pharmacy and empower the students to meet industrial standards.
- To build student community with high ethical standards to undertake R&D in thrust areas of national and international standards.
- To extend viable outreach programs for the health care need of the society.
- To develop industry institute interaction and foster entrepreneurial spirit among the graduates

Doxycycline and Lopinavir: Novel Way of Managing COVID-19

T.Saranya, Pharm D Intern

This short communication presents a 3-step treatment protocol to manage COVID-19 patients. Hydroxychloroquine was administered to mild cases isolated at home, lopinavir plus doxycycline to hospitalized moderate to severe cases, and favipiravir in the salvage treatment. This approach seemed to work with fair effectiveness.

Hydroxychloroquine in mild cases for only 3 days because of its potential side effects on cardiac functions. The cardiac effects of hydroxychloroquine are reported to depend on the accumulation of the drug and may likely present on the third day of usage. These effects are more prominent among critically ill patients. Lopinavir was administered in moderate to severe cases for 5 days. Doxycycline was supplemented with both lopinavir and hydroxychloroquine due to its immunomodulatory activity.

Recent findings revealed the association of dysregulated immunity on the clinical outcomes in COVID-19 patients. Doxycycline induces the suppressor of cytokine signaling (SOCS) proteins, a regulatory system on cytokine release. Scientific evidence suggests that SOCS proteins, mainly SOCS-3 protein, prevent interleukin- and interferon-associated toxicity. Interestingly in the early stage of the disease, when there are enough healthy cells in the bronchi and alveoli, doxycycline might have some effect on preventing impending cytokine storm. In the past, doxycycline had been successfully used in dengue hemorrhagic fever due to its immunomodulatory activity. This manuscript aims to present a treatment algorithm we applied to manage COVID-19 patients admitted to our hospital and describe the characteristics of COVID-19 patients and the outcomes of the algorithm

A case was defined as a patient with an epidemiologic risk factor who had body temperature of ≥38 °C and/or respiratory system symptoms which cannot be fully explained by any other condition or disease (based on WHO approach). A mild case was defined to have no signs of respiratory dysfunctions, while a moderate case had any sign of respiratory dysfunction, and a severe case had acute respiratory failure (ARF) and required ICU support either via invasive or non-invasive means. Non-invasive ventilation support was administered with high-flow masks. Respiratory dysfunction was assessed in a patient having any of the following: (a) shortness of breath, (b) respiration rate of > 23 breaths per minute, and (c) O2 saturation < 94 in ambient air.

We managed COVID-19 patients with a 3-step treatment approach in our institute. First, mild cases were isolated at home and prescribed with Hydroxychloroquine 200 mg plus doxycycline 100mg for 3 days. Second, moderate to severe cases were hospitalized and prescribed with a regimen of Lopinavir 400mg plus Doxycycline 100mg plus ceftriaxone for 5 days. Third, we used a salvage therapy for patients who did not respond to or whose conditions worsened under the lopinavir treatment. This therapy involved the oral administration of favipiravir 600 mg twice daily after two loading doses.

A QUESTIONNAIRE BASED SURVEY AMONG PHARMACY STUDENTS TO ASSESS THE KNOWLEDGE ON USAGE OF COPD MEDICATION: A CROSS SECTIONAL STUDY

Dr.Basily Joseph

Introduction

COPD is defined as “a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases”[1].

It is known that COPD patients have increased arterial stiffness compared to controls and have a relationship between the frequency of exacerbation and arterial stiffness [2].Chronic obstructive pulmonary disease (COPD) is one of the most common respiratory diseases. It is the fourth leading cause of death worldwide. Although medical treatment of COPD has advanced, non adherence to medication regimens poses a significant barrier to optimal management. Underuse, overuse, and improper use continue to be the most common causes of poor adherence to therapy. An average of 40%–60% of patients with COPD adheres to the prescribed regimen and only 1 out of 10 patients with a metered dose inhaler perform all essential steps correctly. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) is an international committee of experts who periodically update the knowledge on the diagnosis and management of chronic obstructive pulmonary disease (COPD), based on an extensive scientific discussion and published evidence in the literature.The GOLD 2017 recognizes that chronic respiratory symptoms may be present in the absence of abnormal spirometry, may be associated with structural lung alteration, and may precede the development of airflow limitation

Methodology

A quantitative, cross-sectional interview study based on a structured COPD questionnaire was distributed among students. The questionnaire was based on knowledge of the students. The responses of this scale ranged from “always’’ to “never”. Some questions were of “true” “false” or “uncertain” type. Evaluation using the ANOVA evaluation of individual variables yields significant p value for each level of students in pharmacy education. The statistical evaluation was done at the confidence interval of 99% and the p value below 0.01 was considered as significant.

Results

The descriptive data obtained from the survey were presented below as tables and figures, the statistical evaluation using the ANOVA evaluation of individual variables were done and presented.

Table. 1 : Knowledge, Attitude and Practice score in different age groups

AGE	Medication SCORE		Knowledge SCORE		PRACTICE S SCORE	
	MEAN	SD	MEAN	SD	MEAN	SD
17-19	7.38	1.34	13.68	4.23	20.24	2.46
20-22	6.43	0.799	15.75	4.87	20.66	2.72
23-24	6.29	0.57	17.26	5.18	20.79	2.21
>24	6.00	0.00	14.55	1.01	20.11	1.84
ANOVA	42.04		16.23		1.70	
P VALUE	0.00		0.00		0.165	

Table. 2: Knowledge, Attitude and Practice score in different education levels

Batch (year)	Knowledge score		Attitude score		Practice score	
	MEAN	SD	Mean	SD	Mean	SD
B.Pharm 1st (checked out)	7.68	1.07	13.13	2.95	20.77	1.87
B.Pharm 2nd (checked out)	7.58	1.47	7.53	3.80	19.71	2.35
B.Pharm 3rd (checked out)	6.43	0.83	13.09	2.88	20.49	2.21
B.Pharm 4th (checked out)	6.31	0.53	14.72	3.88	20.89	2.20
Pharm.D 1st (checked out)	7.56	1.52	11.76	13.55	19.36	3.30
Pharm.D 2nd (checked out)	6.17	0.38	19.24	3.52	20.24	2.19
Pharm.D 3rd (checked out)	6.34	0.68	19.80	4.72	20.60	3.27
Pharm.D 4th (checked out)	6.00	0.00	20.19	6.01	20.61	2.39
Pharm.D 5th (checked out)	6.00	0.00	19.76	6.11	20.20	2.08
Pharm.D 6 (checked out)	6.00	0.00	14.6	0.98	20.19	1.83
M.Pharm (checked out)	6.76	0.18	17.83	3.42	20.44	2.40
ANOVA	21.73		25.83		2.50	
P value	**0.00**		**0.00**		**0.006**	

Discussion

Students of Pharmacy College enrolled were 443. Among them age group ranging from 17-19 were 27.08%, 22-23 age group were 33.86%, 23-24 were 33.5% and above 24 were 5.19%. Gender wise 46% males and 54% females were participated. 49.6% UG level students and 50.3% PG level students were participated.

When questionnaire survey was conducted age, and level of graduation did not produce significance ($p<0.05$) in terms of COPD medication knowledge, attitude and practice. Different batches only produced some significant observation; this may be due to educational awareness.

Conclusion

Students belonging to medical health care sector are well aware about the COPD medication and the academic syllabus and curriculum of different batches also influencing in it.

References

1. Prins KW, Markowitz J, Pritzker M, et al. Use of PAH-specific therapy in world health organization group iii pulmonary hypertension: a systematic review and meta-analysis. J Heart Lung Transplant. 2016; 1:S175.
2. Vanfleteren L, Spruit MA, Groenen MTJ, et al. Arterial stiffness in patients with COPD: the role of systemic inflammation and the effects of pulmonary rehabilitation. Eur Respir J. 2014;43(5):1306–15

A RARE CASE REPORT ON LEVOFLOXACIN INDUCED HYPOGLYCEMIA AT SRI PADMAVATHI MEDICAL COLLEGE HOSPITAL (SVIMS), TIRUPATHI, ANDHRA PRADESH, INDIA

Heena Kauser.A, Pharm D Internee

Case Study

A 53year male patient history of hypertension and chronic kidney disease came to department of general medicine with history of fever and dry cough since 3 days. On examination patient was conscious, on auscultation, basal crepts and occasional rhonchi heard on right side. Other systemic examinations were within normal limits. Arterial blood gas analysis showed pH-7.36, PO2-155, PCO2-36, and HCO3-24. Serum electrolytes, liver function test and kidney function tests were normal.

Diagnosed to be having community acquired pneumonia and started on injection Levofloxacin 500mg once daily along with gastric ulcer prophylaxis and was shifted to ward for further management.
On third day of admission, patient suddenly developed headache and became anxious, confused with tachycardia and tachypnoea. Immediately 100ml 25% dextrose was infused. Still patient had refractory hypoglycemia hence patient was transferred to ICU for further management.

In MICU patient received another 2 doses of 25% dextrose (100mL each) followed by infusion of the same at 30ml/hour. Suspected to be having Levofloxacin induced hypoglycemia, hence Levofloxacin was stopped. Blood glucose (128mg/dl) stabilized to normal on fourth day. Later patient was managed with azithromycin and shifted to ward and the patient was discharged to home.

Table 1: Other lab parameters

LAB PARAMETER	OBSERVED VALUE	NORMAL VALUE
Pulse rate	88 beats /min	60-100 beats/min
B.P	**144/96mmHg**	120/80 mmHg
Temperature	**100 F**	98.6 F
Sp02	94% on room air	95-100%on
Blood glucose	**123 mg/dL**	140 mg/dL
Haemoglobin	11.4gm/dL	14-16gm/dL
WBC	**8700cells/cumm**	10,000/cumm
Platelets	2.2lakhs/cumm	1.5-4.5
GRBS	59mg/dl	72-99

Discussion

Levofloxacin is a broad spectrum antibiotic of the fluroquinolone group. It is used as a sole agent or in combination with other antibiotics in number of systemic bacterial infections (respiratory tract infection, urinary tract infection, cellulitis, prostatitis, tuberculosis and plague). Hypoglycemia is one of the rare side effects of Levofloxacin. It is usually seen within first 3 days of Levofloxacin therapy, but rarely seen even within 24 hours [2].

Exact frequency of hypoglycemia is not known, but in one study it is about 0.08% (0.55% in diabetics and 0.04% in non diabetics). The mechanism of hypoglycemia is thought to be related to release of insulin from the islet cells of pancreas by blocking ATP sensitive potassium channels. Among Fluroquinolones, gatifloxacin has the greatest inhibitory potential.

Risk factors for hypoglycemia include patients taking sulfonylureas, insulin and quinine simultaneously or having acute renal failure. The association between Levofloxacin and hypoglycemia can be evaluated using Naranjo's Probability Scale. In our case, the score was +6 which signifies a probable association between Levofloxacin and hypoglycemia.

Treatment is just stopping of the Levofloxacin and simultaneous administration of dextrose. In one patient with refractory hypoglycemia a single dose of intravenous octreotide (50mcg) [6] was administered. Levofloxacin induced hypoglycemia is a rare but potentially treatable cause. Early diagnosis and treatment can reduce morbidity and mortality.

Conclusion

This case emphasizes the occurrence of hypoglycaemia consequently upon levofloxacin use, an adverse reaction that has been described with almost all members of the quinolone family of antibiotics. As compared to most of the previous reports, our case study illustrates that even patients without a history of diabetes or oral hypoglycemic agent use, can manifest this life-threatening side-effect. Taking into consideration the frequency of fluoroquinolones use in the hospital and ambulatory setting, clinicians should be cognizant of this potential adverse effect in non-diabetic patients treated with levofloxacin, and they should look out for symptoms of hypoglycaemia and monitor blood glucose levels more frequently, especially early in the course of therapy. The association between Levofloxacin and hypoglycemia can be evaluated using Naranjo's Probability Scale [5]. In our case, the score was +6 which signifies a probable association between Levofloxacin and hypoglycemia.

Treatment is just stopping the Levofloxacin and simultaneous administration of dextrose. In one patient with refractory hypoglycaemia a single dose of intravenous octreotide (50mcg) [6] was administered. Levofloxacin induced hypoglycaemia is a rare but potentially treatable cause. Early diagnosis and treatment can reduce morbidity and mortality.

References

1. Frothingham R. (2004). Glucose homeostasis and fluoroquinolones: are there differences among drugs? Paper presented at 44th Annual Interscience Conference on Antimicrobial Agents and Chemotherapy, Washington, DC.
2. Owens RC Jr. (2005). Fluoroquinolone-associated dysglycemias: a tale of two toxicities. *Pharmacotherapy*, 25, 1291-5.

Webinars Conducted in the month of August 2020:

S No	Webinar on	Date Streamed	Speaker	Department Conducted	No of Participants
1	**Methods of Diminution of Polypharmacy among Geriatric Patients**	**08 August 2020**	**Dr E. Maheswari** **Professor & HoD** **Dept of Pharmacy Practice** **MS Ramaiah University of Applied Sciences, Bangalore**	**Dept of Pharmacology and IQAC**	**1784**