COMPARISION OF DIFFERENT TYPESS OF DRUGS USED IN COVID WAVE-1& WAVE-2

M.MEGHANA, K.KRISHNA (PHARM-D)

Department of pharmacy, A.M Reddy memorial college of pharmacy, petlurivaripalem, Narasaraopet.

ABSTRACT

Retrospective observational study design, to compare and determine better therapeutically active against corona viruses according to both (1st wave & 2nd wave) protocol drugs. The number of COVID-19 cases in India is increasing day by day. There is no properly lincensed drugs for COVID-19 but a symptomatic and supportive therapy is provided by world health organization (WHO), international council of medical research (ICMR), food and drug administration (FDA), & the national institute for healthcare and excellence (NICE), the National center for disease control (NCDC) this committee monitoring & ensuring proper essential health services to the COVID patients. This study aims to evaluate the drugs used in first wave with the second wave drugs and compare the most benefit able drug in COVID-19 patients.

KEY WORDS – retrospective comparative study design, COVID-19, 1st wave drugs protocol & 2nd wave drugs protocol

INTRODUCTION

COVID-19 is a transferrable disease and it was 1st reported in December 2019 in Wuhan china and global spreads worldwide and become a world pandemic. COVID-19 is contagious severe respiratory illness. Which caused by SARS-COV-2 (severe acute respiratory syndrome corona viruses-2)

S.No	Risk factor	Reasons
1.	Obesity	Due to overweight & obesity condition the patients may experience impaired immune function and then decreased lung capacity and ventilation difficult and hence it worsen outcomes from COVID19
2.	Smoking	During COVID19 condition with smoking which can enhance ACE2 expression
3.	Pregnancy	During COVID19 with pregnancy which increase risk of blood clots & increase H1N1 influenza
4.	Diabetes	Drugs like dipeptidyl-peptide-4 inhibitors which promote ACE enzyme to sarscov-2
5.	Cardiovascular	Disease like heart failure,

	disease	hypertension,cardiomypathesis, during this conditions drugs like ACE inhibitors, ARBS which leads increase susceptibility to sarscov-2
6.	Cerebrovascular disease	During stroke conditions coagulopathy is associated COVID-19 (abnormal clot impaired)
7.	Pulmonary diseases	Disease like COPD, asthma, pneumonia during this condition like acute exacerbations is associated COVID-19 & bronchodilations are also increase risk of viral spread Pneumonia + COPD increases expression of ACE-2 receptor in small airways
8.	More immunosuppressive agents intake (HIV,cancer)	Drugs can weaken the immune system so increase susceptibility of COVID19
9.	Liver diseases	People with cirrhosis (liver scarring) conditions there is a risk of COVID19 symptoms because increase in ALT &

		AST levels in liver
10.	Renal disease	Older adults and people with kidney diseases also have higher risk
11.	Fungal infections	Increase spread of candida auras during COVID19 is very pandemic

In COVID19 condition there is immune dysfunction which activates resulting to local inflammation of monocytes dendritic cells, natural killers, T-Cells and B cells. And signs like lymphopenia, increase interleukin-6, D-dimer, LDH levels, increases transaminase. Increase C-reactive protein, and increased ferritin. symptoms like loos of taste, shortness of breath, difficulty in breathing, muscle aches, sore throat, runny nose, nausea, vomiting, fever, cough, diarrhea, persistent chest pain, blue-coloured nails, lips, depending on their skin. So symptomatic treatment is given to patient like immunodulatory, antivirals, corticosteroids, painkiller, multivitamins etc., there is no proper therapeutically guidelines this pandemic corona virus disease

1st wave protocol drugs	2nd wave protocol drugs
▪ Immunomodulators Hydroxychloroquine	▪ Anti-viral drugs Remdesivir
▪ Corticosteroids	▪ Corticosteroids

Dexamethasone	Methyl prednisolone prednisolone Dexamethasone
▪ <u>Pain killers</u> Acetaminophen Ibuprofen Paracetamol	▪ <u>Pain killers</u> Acetaminophen Ibuprofen Paracetamol
-	▪ <u>2DG powder</u> Deoxy-D-glucose
▪ <u>Other therapy</u> Azithromycin Lopinavir + ritonavir Ivermectin Famotidine Convalescent plasma Ascorbic acid (vitaminC) Zinc supplements Vitamin-D analogues	▪ <u>Other therapy</u> Enoxaparin sodium/ heparin(bloodclots) Amphotericin (black fungus) Ivermectin Ascorbic acid (vitaminC) Zinc supplements Vitamin-D analogues

METHODS

Here in retrospective observational study design, let us consider corona patients as population and then 2 samples are drawn from population

ASSUMPTIONS DURING T-TEST

1. Population are normal
2. Samples are drawn independently

Sample-1:- given 1st protocol drugs

Sample-2:- given 2nd protocol drugs

Then comparision of both the samples with a parameteric paired T test

	Recover rate						
Patients	1	2	3	4	5	6	7
Drug A 1st protocol	14	20	24	11	21	29	28
Drug B 2nd protocol	26	35	28	27	30	25	29

Here test whether there is any significant difference between two drugs of one percentage level of significance

Here we consider Null hypothesis all sample are equal. Alternative hypothesis all sample are not equal

S.NO	Drug-A 1st protocol	Drug-B 2nd protocol	Di=A-B	Di square
1.	14	26	-12	144
2.	20	35	-15	225
3.	24	28	-4	16
4.	11	27	-16	256
5.	21	30	-9	81
6.	29	25	4	16
7.	28	29	-1	1
			61	739

Here we will calculate d- = 8.7 and standard deviation value is 34.5 hence T value = 3.93

T calculated > Ttabulated value that is T 3.93 > T 3.25 and hence null hypothesis is rejected, so the given data in the both protocol doesn't shows similar therapeutically activity so alternatively hypothesis is accept so significant difference is present in between two protocol drugs according to observational study design, although major of symptoms of both waves are similar, but therefore than the 1st wave drugs, 2nd wave drugs shows more significant difference.

Recovery rate of second wave drugs is more than the 1st wave drugs

RECOVERY RATE OF BOTH 1st WAVE & 2nd WAVE
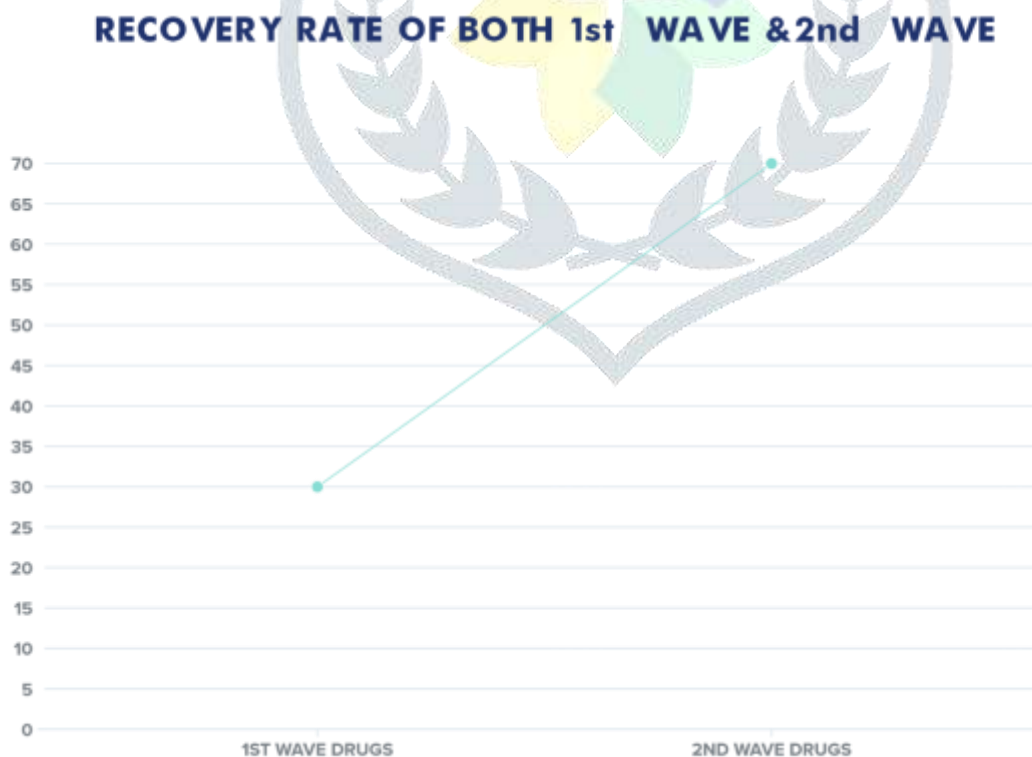
COMMON DRUGS USED IN BOTH WAVES (1&2)

The commonly used drugs in both the waves are corticosteroids, vitamins, painkillers, anti virals agents and oxygen therapy.

Common drugs	Frequency	Percentage
Corticosteroids	5	20%
Vitamin	5	20%
Painkillers	5	20%
Antiviral	5	20%
Oxygen therapy	5	20%
Total	20	100%

COMMON USED DRUGS IN COVID WAVE-1 & WAVE-2
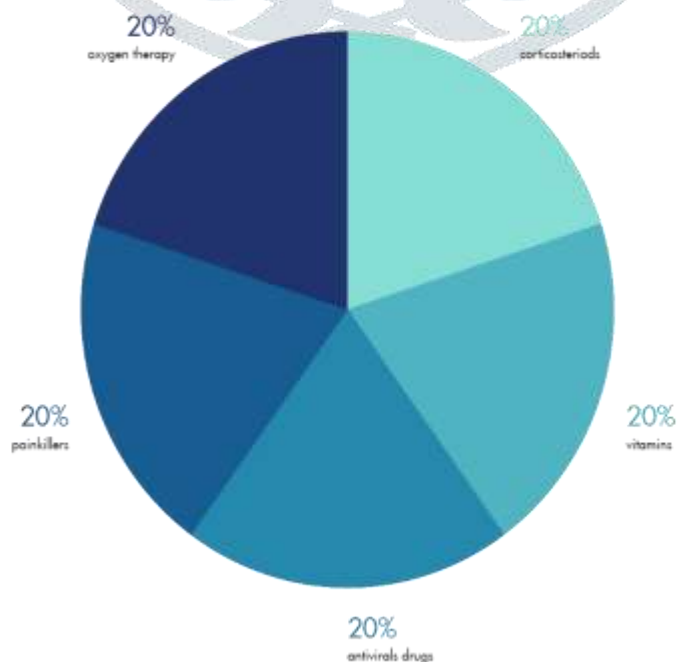
Risk factors	Death percentage
COVID + heart diseases	25%
COVID + brain diseases	20%
COVID + lung diseases	30%
COVID + diabetes	9%
COVID + pregnancy	6%
COVID + smoking/obesity	2%
COVID + liver/renal disorders	3%
COVID + fungal diseases	5%
	100%

RISKFACTOR &DEATH PERCENTAGE
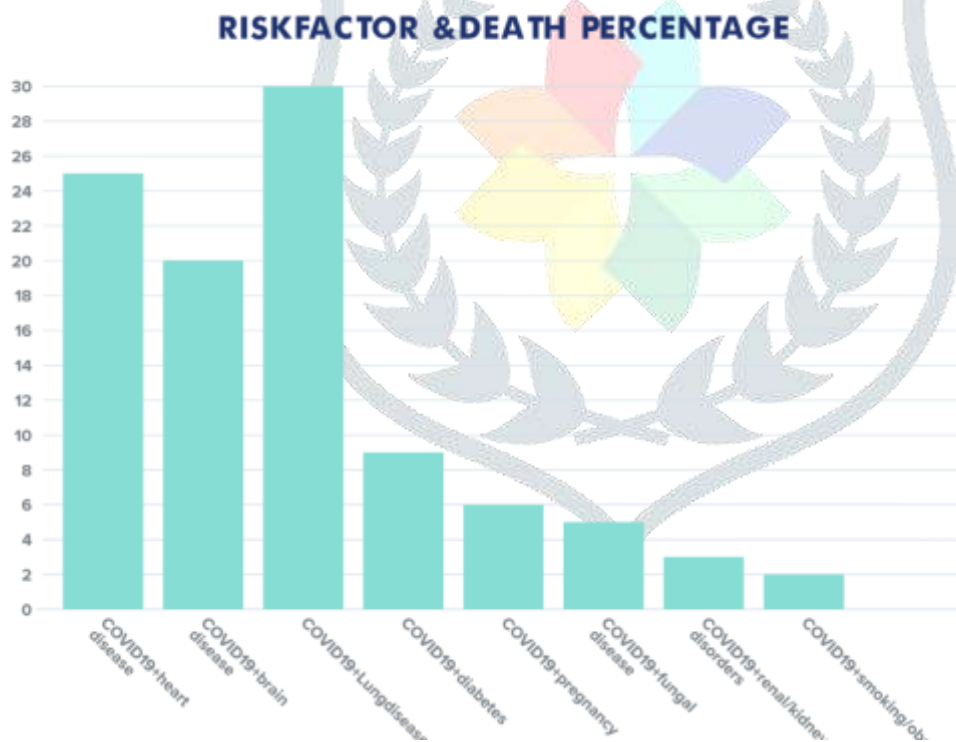
CONCLUSION

According to this statistical analysis study although the majority of symptoms were similar in the both the waves but according results then the first wave drugs, second

wave drugs shows more effective less intensive when compare to 1st wave drugs. Currently whole world is in the starting of 3rd wave, timely interventions should strengenthened by using hand hygiene, and maintaining social distancing polices should be properly implemented to prevent from COVID19 infection.

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