VEDANTAA INSTITUTE OF MEDICAL SCIENCES, VEDANTAA HOSPITAL AND RESEARCH CENTRE

(Affiliated to Maharashtra University of Health Sciences, Nashik)

Village : Saswand, At & post : Dhundalwadi, Taluka : Dahanu,
Dist :Palghar, - 401 606, Maharashtra, India.
Tel: 02528-266200-201-202-203-204
Email: info@vedantaa.institute website: www.vedantaa.institute

Covid 19

A Presentation by

Dr. R. M. CHATURVEDI

M.D., D.P.H.

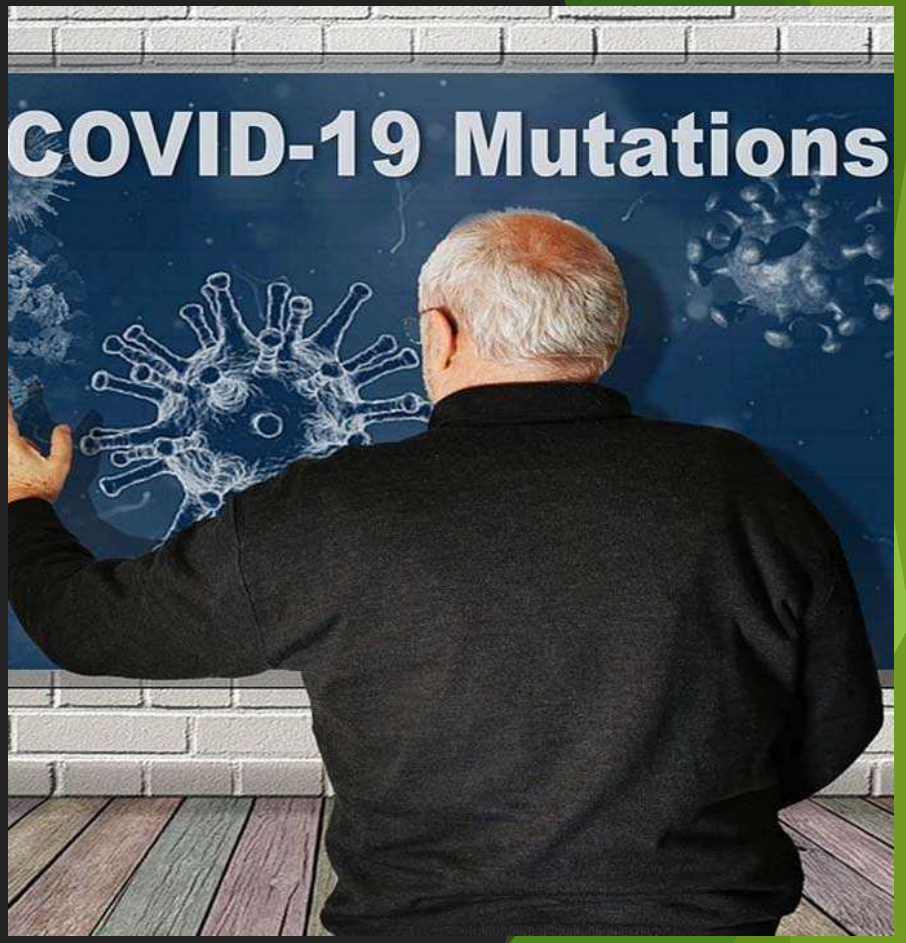
Dean,

Professor, Epidemiologist

Vedantaa institute of medical sciences

Current epidemic (Second wave)

- The second wave is due to mixture of various mutant strain circulating in different parts of India
- Our Indian variant has been detected in other countries also.

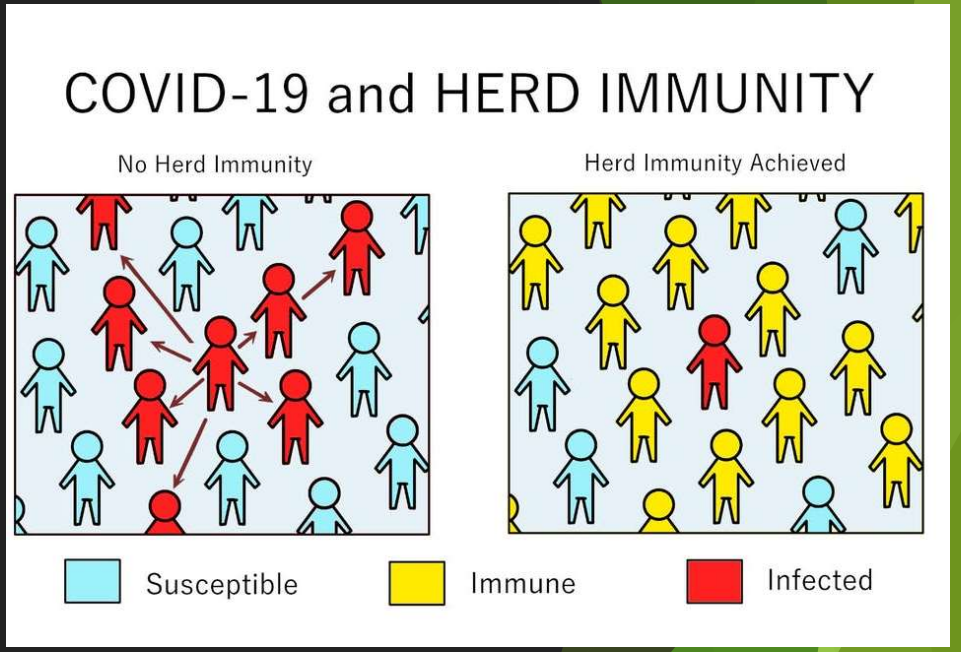


Salient features of current strain

- Shift of disease in younger age group
- Infected younger age group getting more morbidity and requiring ICU admission
- Routine RT PCR is found negative up to extent of 30 % in clinical corona cases
- Thrombotic phenomenon is very high

Herd immunity in slums

- This time non slum area is affected more as in the first wave the slum area got more herd immunity and the non slum areas were spared and remained vergin.



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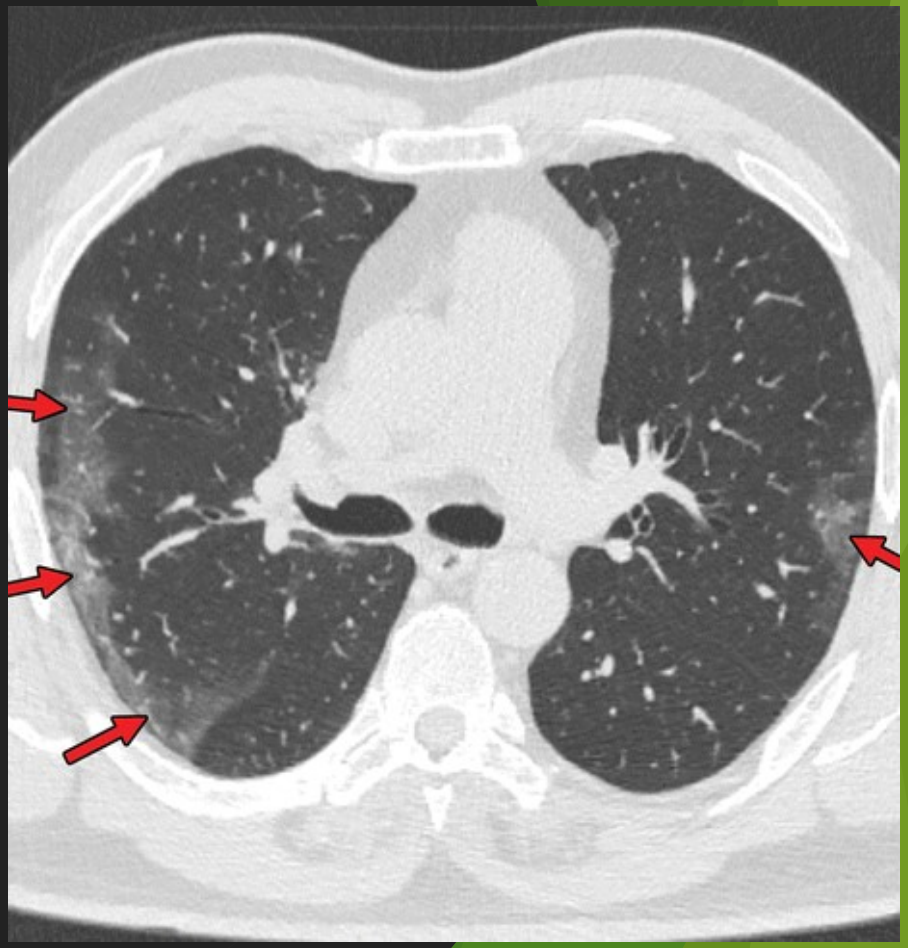
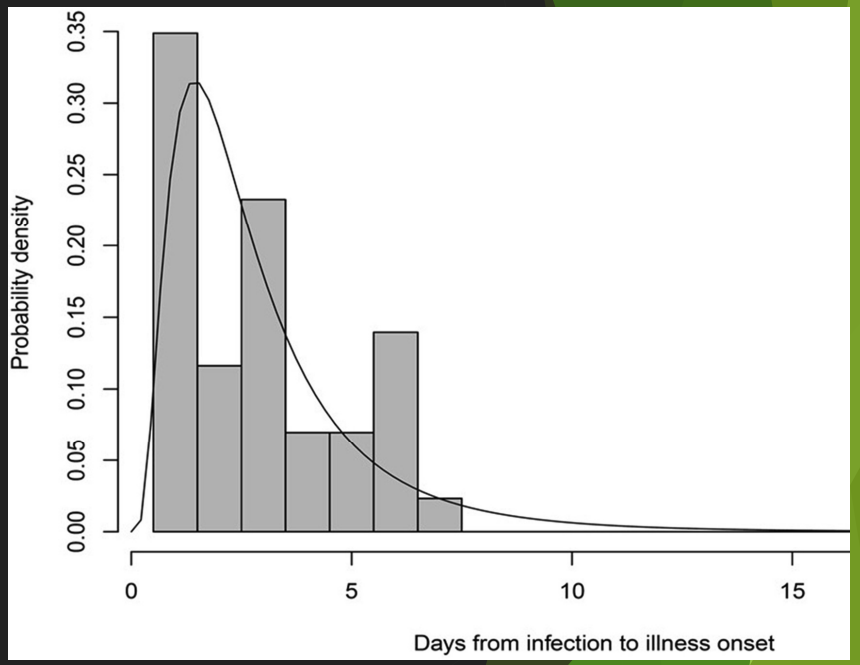
HRCT

- CT LESIONS HAVE INCREASED
- GROUND GLASS APPEARANCE IS SEEN MORE



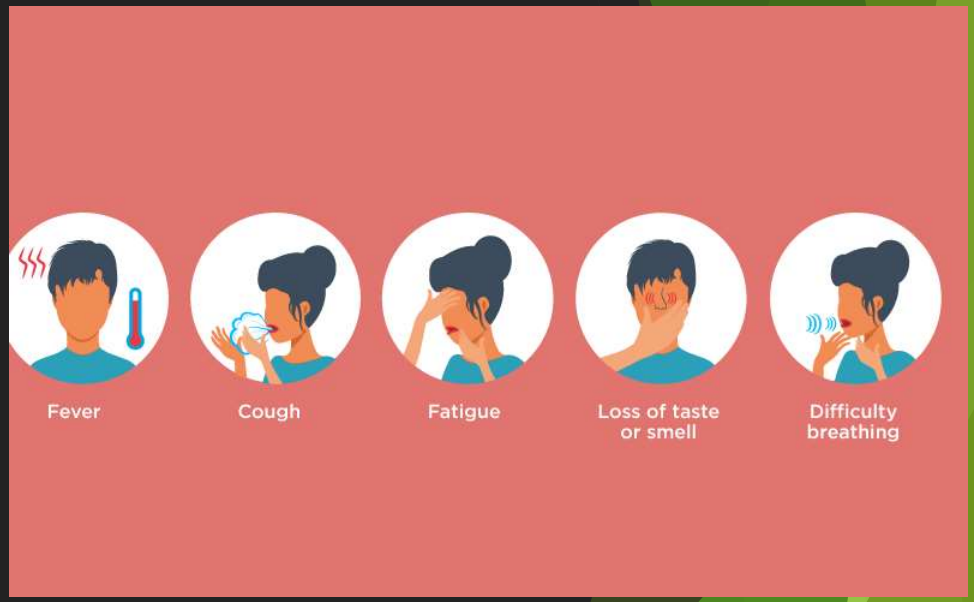
Incubation period

- The current estimate is 4.5 days even earlier.
- Symptoms can be detected in the first two days.
- Incubation period is between 2 days to 2 weeks , average is 4-5 days.



Symptoms

- Important to identify the first day of symptom
- Cold, sore throat, pain in the throat, fever may occur in first few days



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Diagnosis

Test	Observation
RT PCR	Senisitivity:70%, 30% are missed and participate in community transmission. Time consuming, takes one day
Chest CT (HRCT)	Sensitivity is 98% compared to RTPCR

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Diagnosis continued

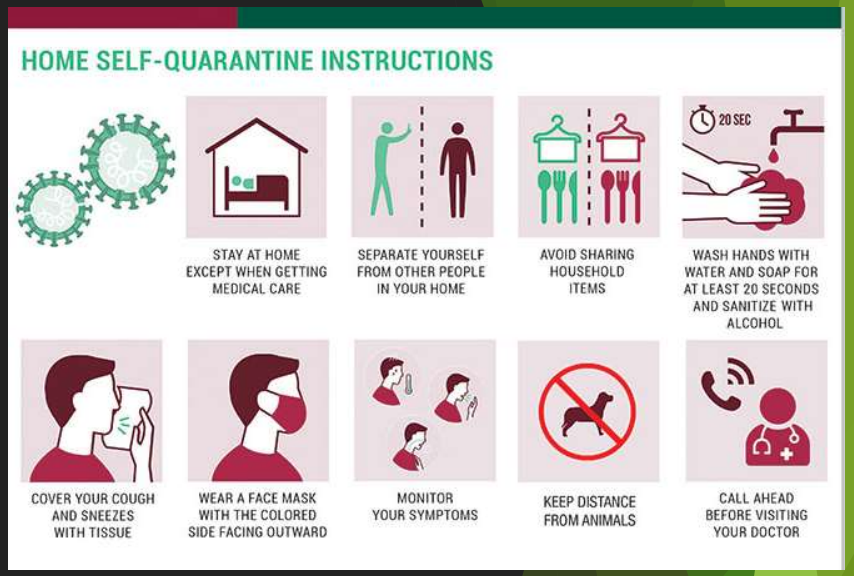
Test	Observation
Inflammatory indicators, IL6, D-DIMER,CBS	NOT indicated. They are used as inflammatory measurement for assessment of prognosis
Clinical diagnisis	Cold, sore throat, cough, fever, breathlessness, weakness, loss of appetite, smell, taste etc

Management of patient

- Patient having RTPCR positive report to undergo quarantine as per local authority protocol
- Patient with mild symptoms to have home/ institutional quarantine.

Home quarantine

- Follow the protocol of home quarantine
- Keep the chart of vitals
- Sample protocol is displayed

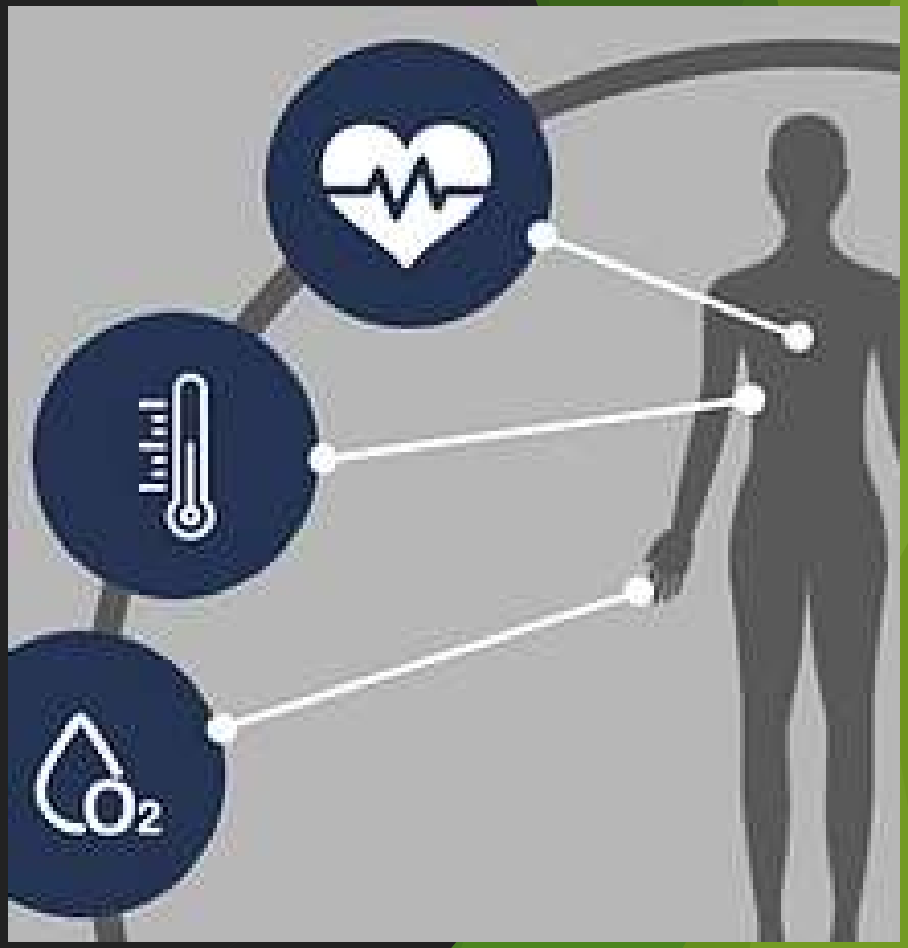


Management continued

- Patient having RTPCR positive report to undergo quarantine as per local authority protocol
- Moderate cases can go for institutional quarantine or can be managed at home under the guidance of family physician
- Blood thinners and respiratory antibiotics to be started as prophylactic measure
- Antipyretics to be used for fever
- Vitamin supplements doesn't play any role for current episode of illness, can be started during recovery phase.

Clinical monitoring of the patient

- Starting of symptoms counted as day 1
- Temperature
- Pulse
- SpO_2
- BP
- Respiratory rate
- General condition

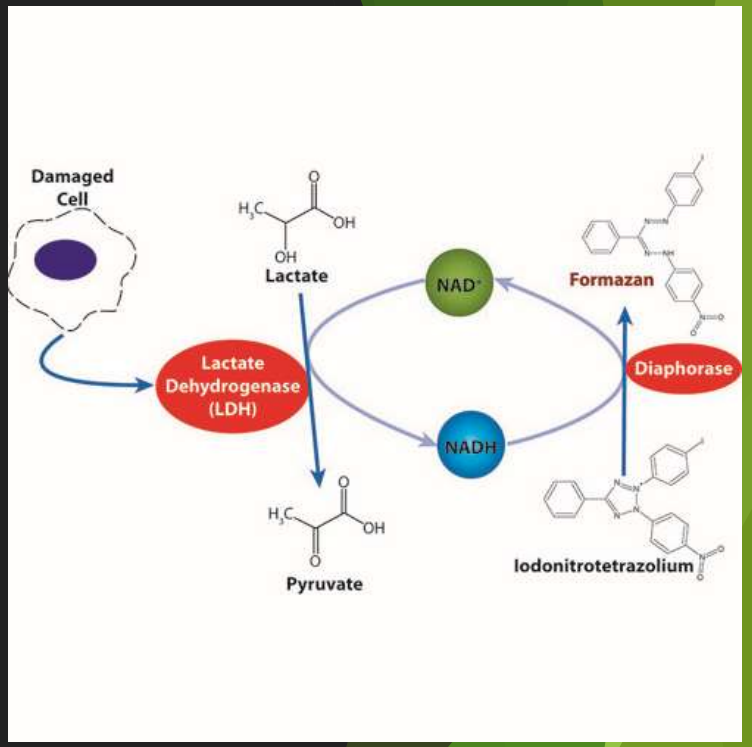


Other laboratory parameters

- Battery of tests have been advised like
- PS, CBC, LFT, KFT, HbA1c, Urine(R and M), ABG, Blood culture, Sputum, X ray, ECG, D-dimer, ferritin, ePK-MB, Trop T
- Increases the risk of the stake holders to get infected and spread the Covid

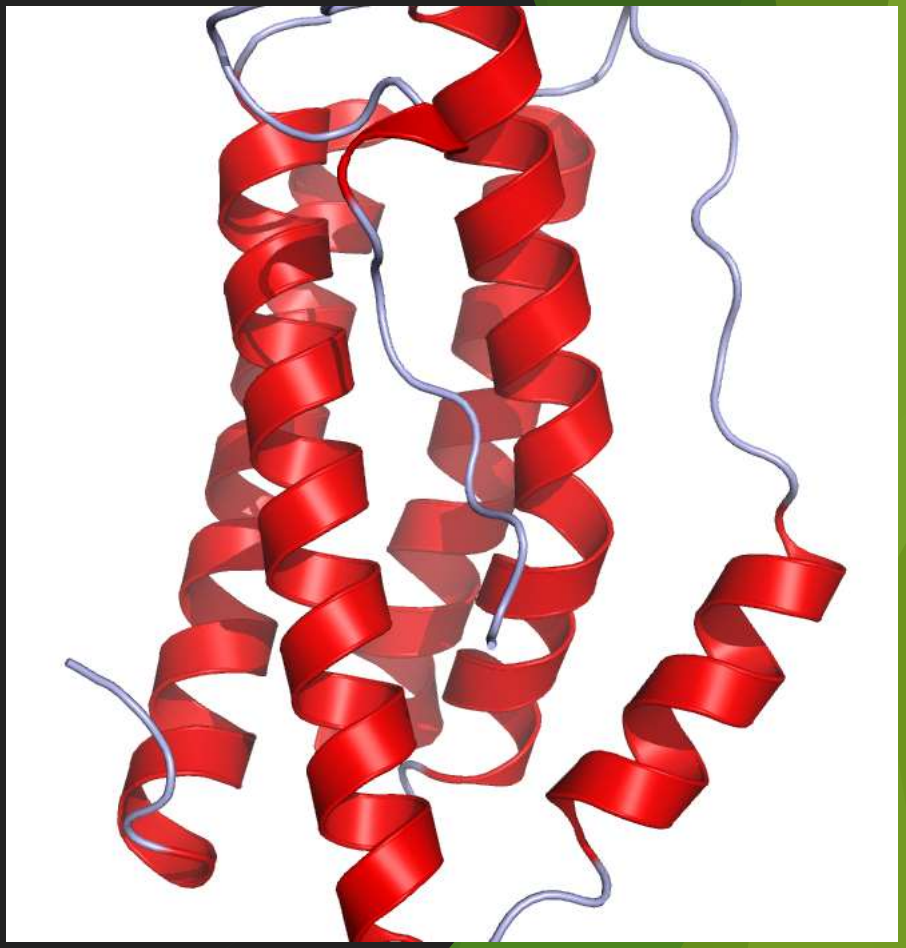
LDH

- Increase in LDH indicates:
- Cellular death
- Severe infection
- Septicaemia



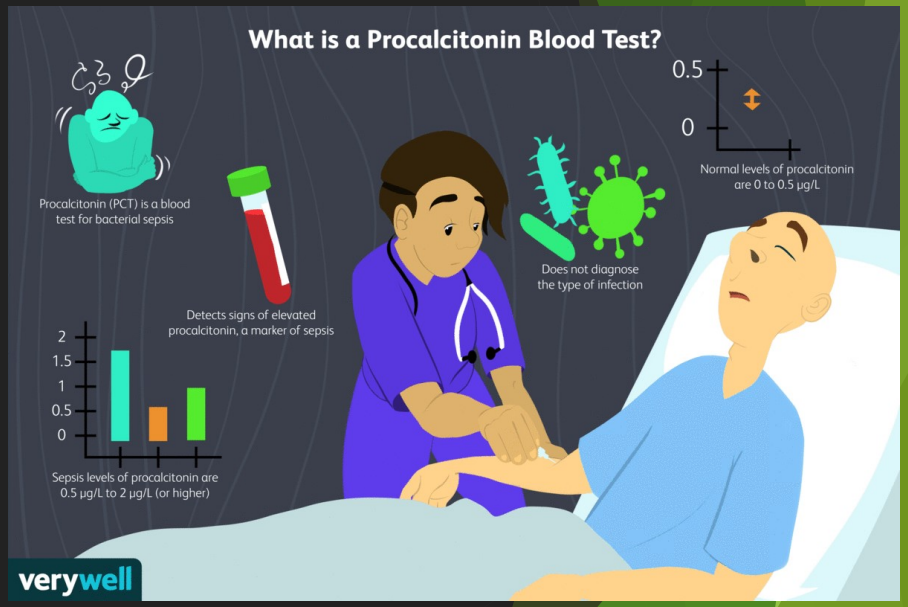
IL 6 (unwanted test)

- Lab method is not standardised
- Delay, temperature exposure changes the reading
- Stable patients can have higher value in hundred and thousand, and patients become victim of tocilizumab
- Cytokine response can be well monitored by clinical parameters



PCT

- Increase in PCT value indicate the severe co infection leading to septicemia not specific to Covid 19 infection



CBC

- Lymphopenia
- Eosinopenia
- NLR
- Red blood cell distribution width
- All indicated as marker of progression which can be well documented clinically
- Is only for satisfaction of academic interest

ALERT SIGNALS

- Fever> 101 deg C
- Persistent cough after 3rd day
- Breathlessness
- Increased CRP > 10
- C.T >50 %(>13/25)

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Advisory for mild cases

- Tab Ecosprin 150 mg/ 75 mg after dinner
- If the case is Laboratory/ clinically confirmed case then continue Ecosprin for one month. It prevents post covid microclot which can create infarct
- Tab Crocin (Paracetemol) for fever
- Lot of oral fluid like butter milk, lemon juice, fruit juice with some salt
- Normal diet
- Record vitals on the prescribed proforma
- Any throat and chest symptoms start Augmentin 625 mg one BD for 5-7 days
- Keep your family doctor informed

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Moderate case

- If person shows cough symptoms with fever start Augmentin 625 mg two times a day for 5-7 days
- Start Steroid of any available brand in gradual tapering doses.
- Continue Ecosprin 150 mg once a day even after post recovery for one month.
- Chest exercises, Proning position will help in improving oxygen level.

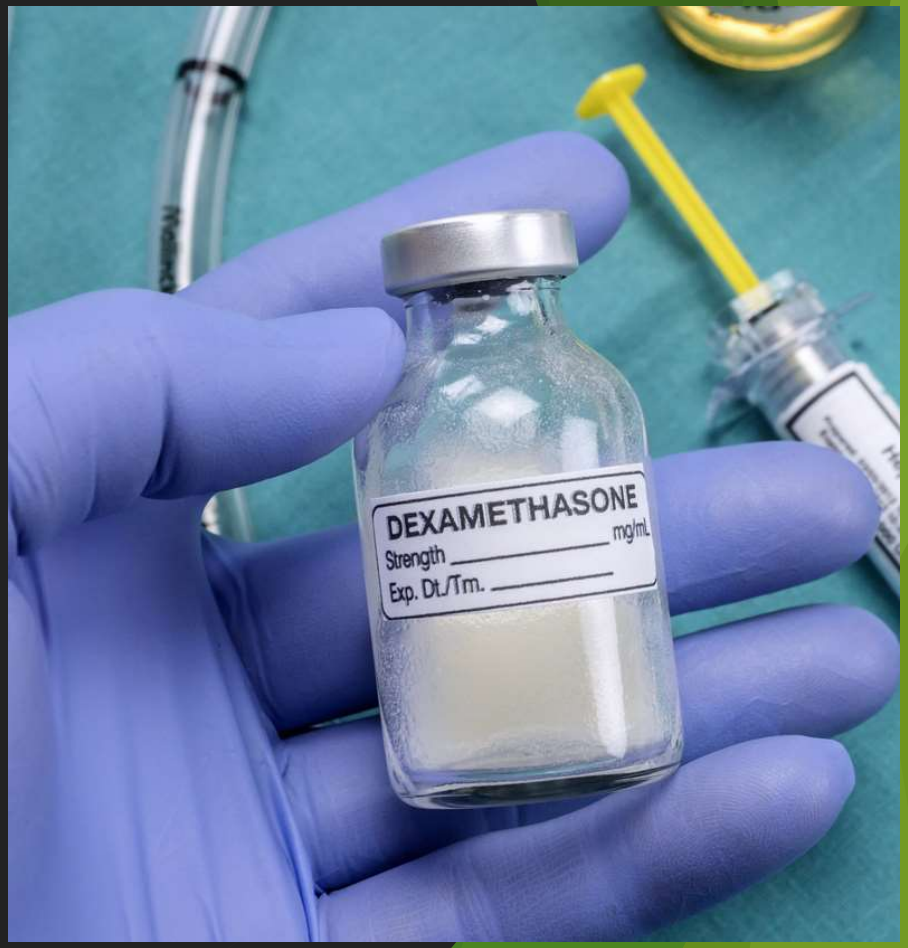
COVID 19

Advanced cases

- If SPO_2 declines below 90%, seek Hospital admission
- Sudden, sharp decline in SPO_2 is considered danger signal (Indicates development of coagulapathy in lung capillaries is considered an emergency)
- Fluctuating SPO_2 value indicate inflammatory and and mucoid secretion in alveoli of lung. The SPO_2 improves after chest Physiotherapy/ exercises.
- Steam inhalation works as wonder to be started on day one to be continued even after post recovery
- Patient to be admitted in intensive care unit with Oxygen, NIV, Ventilator.

Decision of steroids

- To be taken if chest is infected (crepts, ronchi, rales), fever is noted
- Any available steroid is taken in prescribed dose



Role of remdesivir and tocilizumab

- There is no added advantage of both. The drugs are given license on the condition to use during pandemic in emergency on experimental basis
- No study clearly proves that it prevents death from corona.
- The news media has created the demand for both, they never show the recomending condition of the medicine.

COVID 19

Serious cases

- Serious/ Advance cases present like septicaemia and to be managed on septicaemia protocol
- Clinical parameter is more reliable
- Compare to laboratory parameter.
- Decision to be made on clinical parameter, laboratory parameters not to be followed blindly.

COVID 19

Hyperglycaemia and keto acidosis

- Even in non diabetic/ young patient develop hyperglycaemia and go into Keto acidosis
- Diet less in carbohydrate,sugar free to be given during covid illness and sugar monitoring/intervention is must

Inhaled steroids

- Steroids administered through inhaler can also be taken as option which is more safe than oral route of high dose.

USE OF AZITHROMYCIN vs amoxycillin & Clavulanic Acid

AZITHROMYCIN

- Gram +ve less effective
- Food reduces absorption
- Not much concentration in Respiratory tissue & sputum

AMOXYCILLIN & CV

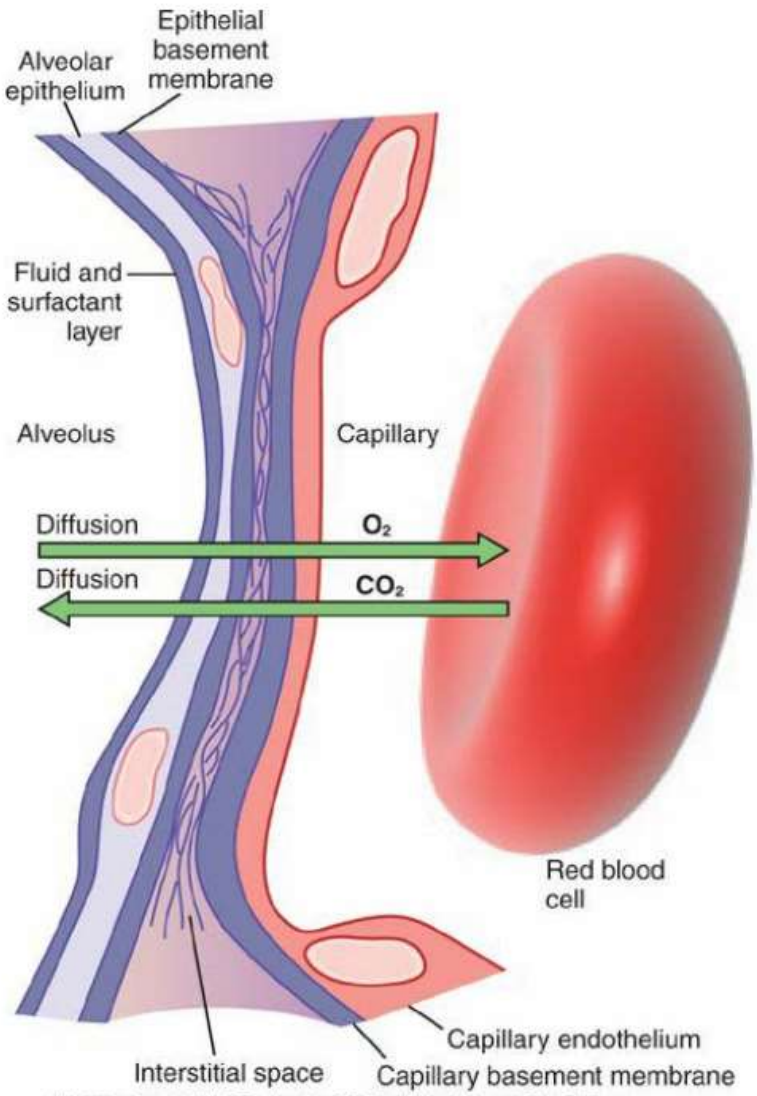
- Effective for gram + / gram - / S. Pneumoniae
- Food dose not interfere with absorption
- Concentrated in Respiratory tissue and sputum
- Active against Pneumonia
- Used in Septicemia in Combination

Initially recommended drugs

- Hydroxychloroquin (HCQ)
- Doxycycline
- Ivermectin
- Azithromycin
- **No proved role in covide-19 treatment**

Physiology of Gas Exchange in Lungs

- Yet in disease conditions, the smaller bronchioles often play a far greater role in determining airflow resistance because of their small size and because they are easily occluded by
- (1)muscle contraction in their walls,
- (2) edema occurring in the walls,
- (3) mucus collecting in the lumens of the bronchioles.



Hall: Guyton and Hall Textbook of Medical Physiology, 12th Edition
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Figure 39-9 Ultrastructure of the alveolar respiratory membrane, shown in cross section.

Rationale for starting blood thinners

- Covid-19 infection has established DIC (Disseminated Intravascular Coagulopathy) induced by inflammatory reaction established in lung at alveolar membrane
- DIC(micro vascular coagulation) stops the process of oxygen exchange at alveolar membrane leading to hypoxia, cause of death.
- If coagulopathy is prevented, life of infected person can be saved.
- It has been observed that patient admitted with Covid-19 and with co morbid conditions of cardiac morbidity already receiving blood thinner for their cardiac condition escaped the complications of Covid-19.
- It has been observed that during post covid recovery phase micro clot blocked the coronary artery and caused death due to myocardial infarction (MI).

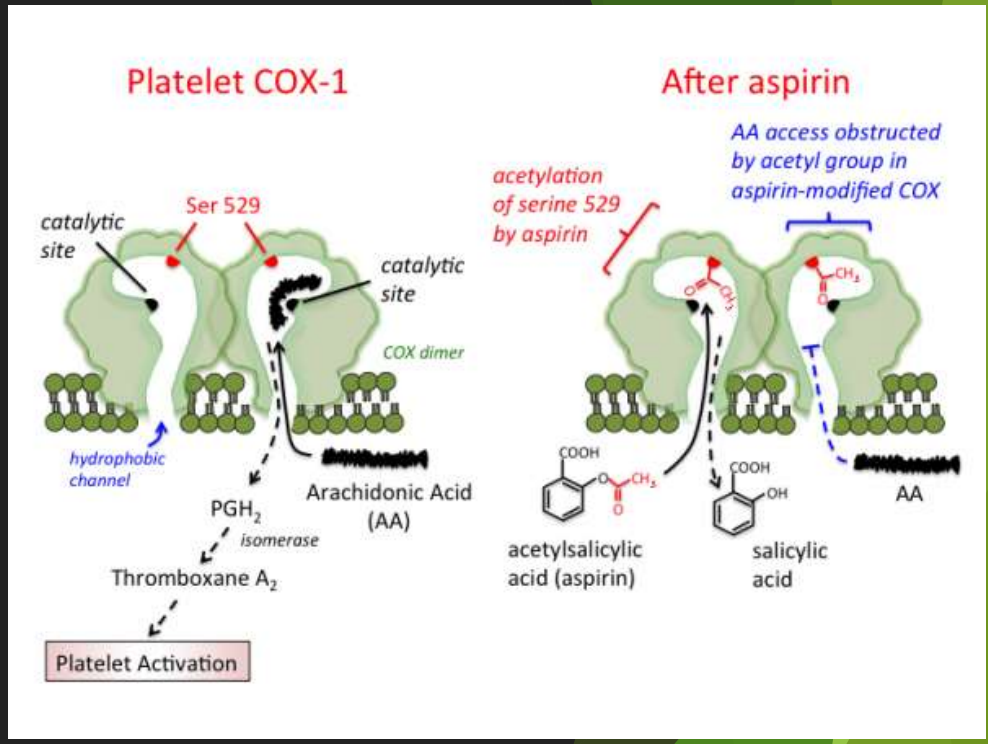
COVID 19

USE OF ASPIRIN

- It is one of the oldest drug.
- Safe to use at primary level
- Long back at PHC an APC (Aspirin, Phenacetin, Caffeine) tablet was widely used , which was stopped once side effect of Phenacetin was reported.
- Anti platelet action dose is very small (75/150 mg) compared to maximum dose of 5,000 mg
- It improves oxygenation at pulmonary tissue
- PT/INR Monitoring is not required.

USE OF ASPIRIN CONTINUED

- Very good anti-platelet action when coagulopathy initiated by an inflammatory process.
- People have used it for as long as 30-40 years.
- Very low cost of drug (Rs 5 for strip of 14 tablets).
- Very low spectrum of interaction with other drugs.
- Very safe, to be taken after food.



Aspirin vs Heparin

- **Aspirin:**

- 1. Vascular endothelium possess PGI_2 (enzyme) which inhibit platelet aggregation, prevents clotting. This phenomenon is lost in coagulopathy induced by inflammation created by Covid-19.
- 2. The synthesis of Thrombaxane A_2 in platelets are inhibited by action of Aspirin, increases unopposed action of PGI_2 prolonging bleeding time
- 3. Stimulates Respiratory center in higher doses.
- 4. Improves the Oxygenation.

Aspirin vs Heparin continued

- **Heparin**

1. It inhibits the thrombin (IIa) and factor Xa. It accelerates the action by 1000 times
2. In very high dose it has antiplatelet action, which may result in bleeding.
3. Preferred in pulmonary embolism.

- Covid 19

Case Fatality and General Fatality Rate

Country	Total cases	Total deaths	CFR (%)	GFR (per million)
USA	3,34,76,781	5,95,812	1.780	1,791
UK	44,34,860	1,27,605	2.877	1,871
France	57,77,087	1,06,392	1.842	1,627
Italy	41,11,210	1,22,833	2.988	2,034
India	2,26,62,575	2,46,146	1.086	177
Pakistan	8,61,473	18,993	2.205	85
Banladesh	7,73,513	11,934	1.543	72
Srilanka	1,25,906	801	0.636	37

- Countries with advance healthcare with strict protocol → High case fatality rate
- Countries with poor health infrastructure → Low case fatality rate

Why ?????

- Covid 19

DEATH AMONG DOCTORS DUE TO COVIDE-19

- Doctor CFR 16.7%
- General population 1.7%

Reason claimed	The Fact
Doctors are more exposed	Incubation period is reduced
Multiple exposures	Develop herd immunity
Exposed to multiple variants	Chances of developing cross immunity

Doctors get best available treatment – then why high death rate?

Data till 20th Sept 2020

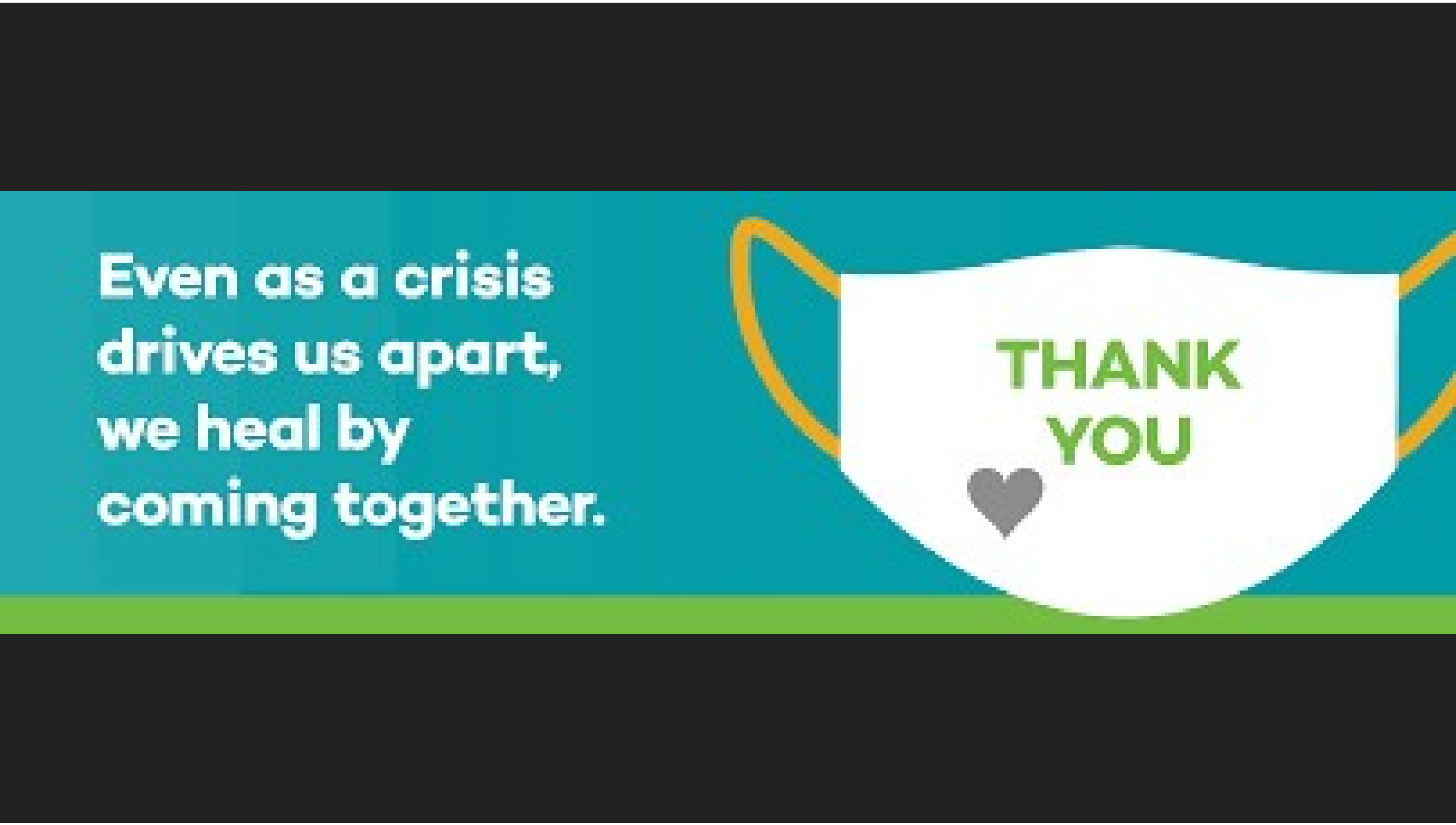
Is this a result of

Covid induced Protocolitis?

Now there is a need to rethink about excessive treatment.

Contributions

- *Dr. Brinda Venkatraman, HOD Physiology for updating Physiology of gas exchange*
- *Dr. Vijay Baghel for editing the presentation*
- *Mr. Mrityunjay Singh (Super senior) for preparing the presentation*
- *Dr. Palak Agrawal, Asso. Prof. Pharmacology for enhancing the concept of presentation*
- *Mr. Yogesh Joshi (IT section) for finalisation of presentation*


Even as a crisis drives us apart, we heal by coming together.
THANK YOU