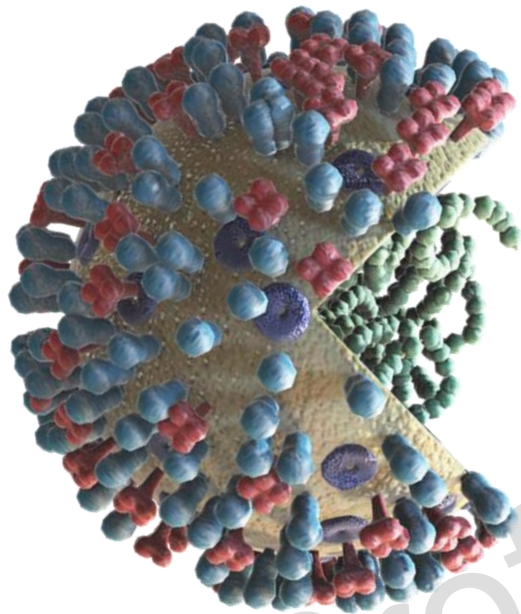


COVID-19

Management with New Protocol



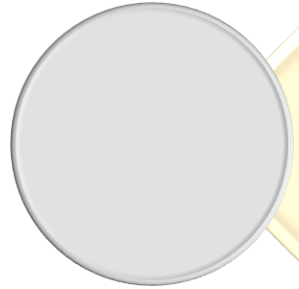
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MD (Cal), FRCP (Edin), FACE (USA), FACP (USA), SCOPE (UK)

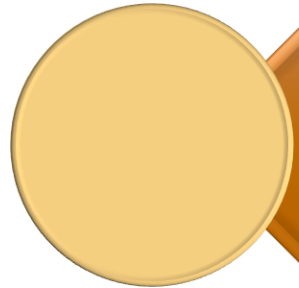
MSc. Diabetes (UK), PG.Dip Diabetes (UK), DTCD (Cal), FICP

HEAD, Department of Medicine, IPGMER and SSKM Hospital

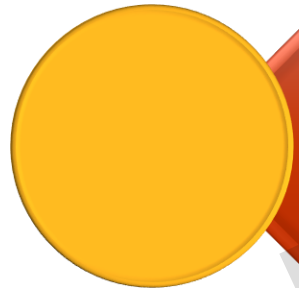
COVID-19 : How it Kills



***Virus Does Not Kill Directly
It kills By Immune Inflammation***



***Treatment Must Centre Around the monitoring of
Clinical and Biochemical Inflammatory Parameters***



Fight Inflammation at Right time

Stages of COVID Course



1. Active Viral Replication

2. Immune Inflammation

3. Immune Hyper-inflammation

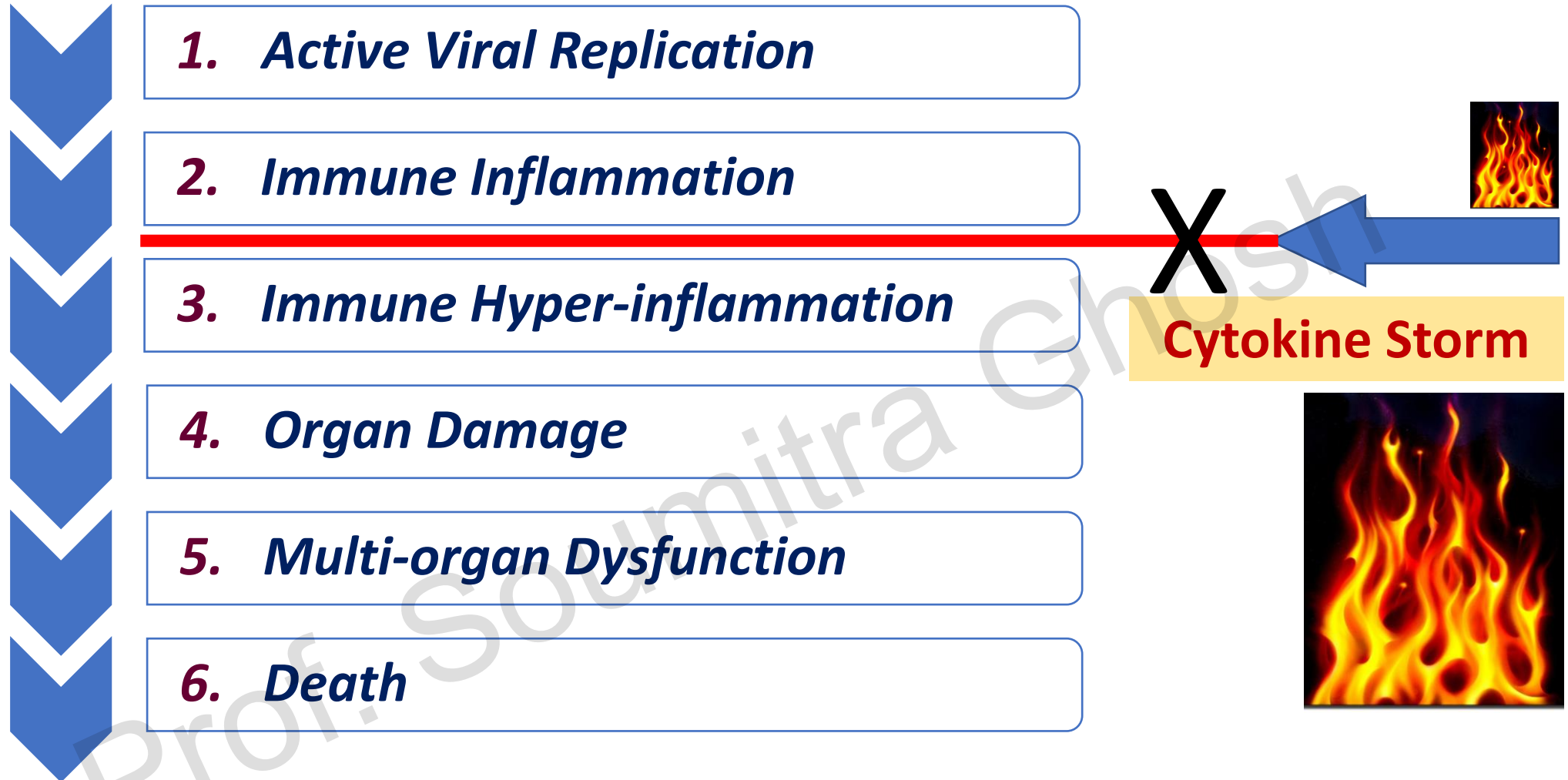
4. Organ Damage

5. Multi-organ Dysfunction

6. Death

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Right Time to Fight COVID



Same As the Principles of “Fire Fighting”

1. Active Viral Replication

2. Immune Inflammation



InFlammation Term coined from **Flame**



Same As the Principles of “Fire Fighting”

1. Active Viral Replication

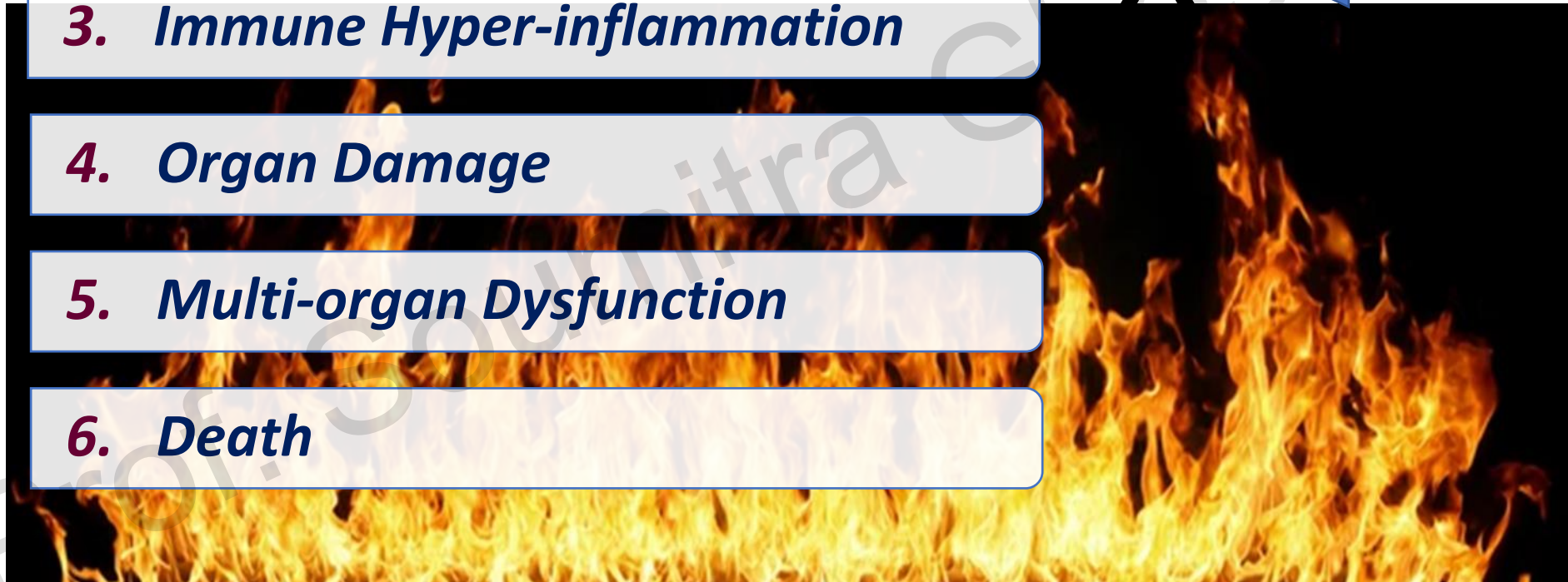
2. Immune Inflammation

3. Immune Hyper-inflammation

4. Organ Damage

5. Multi-organ Dysfunction

6. Death



How to Identify the Ignition



2. Immune Inflammation

3. Immune Hyper-inflammation



Increasing CRP, D-Dimer, N : L Ratio

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Management Step Up

Diagnosis

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When to Step Up the Management

Clinical
SpO₂
CRP
D-Dimer
CBC

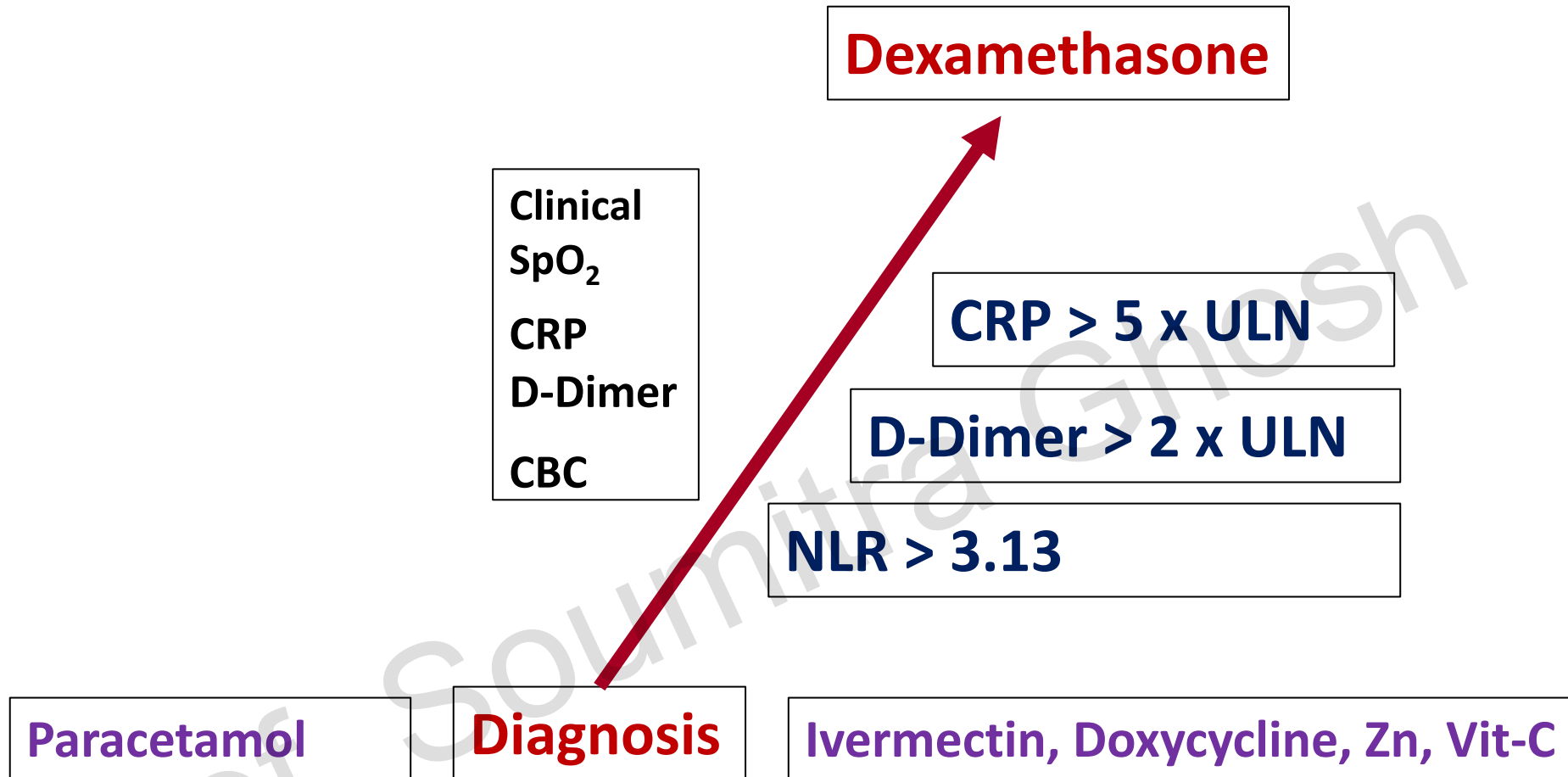
Paracetamol

Diagnosis

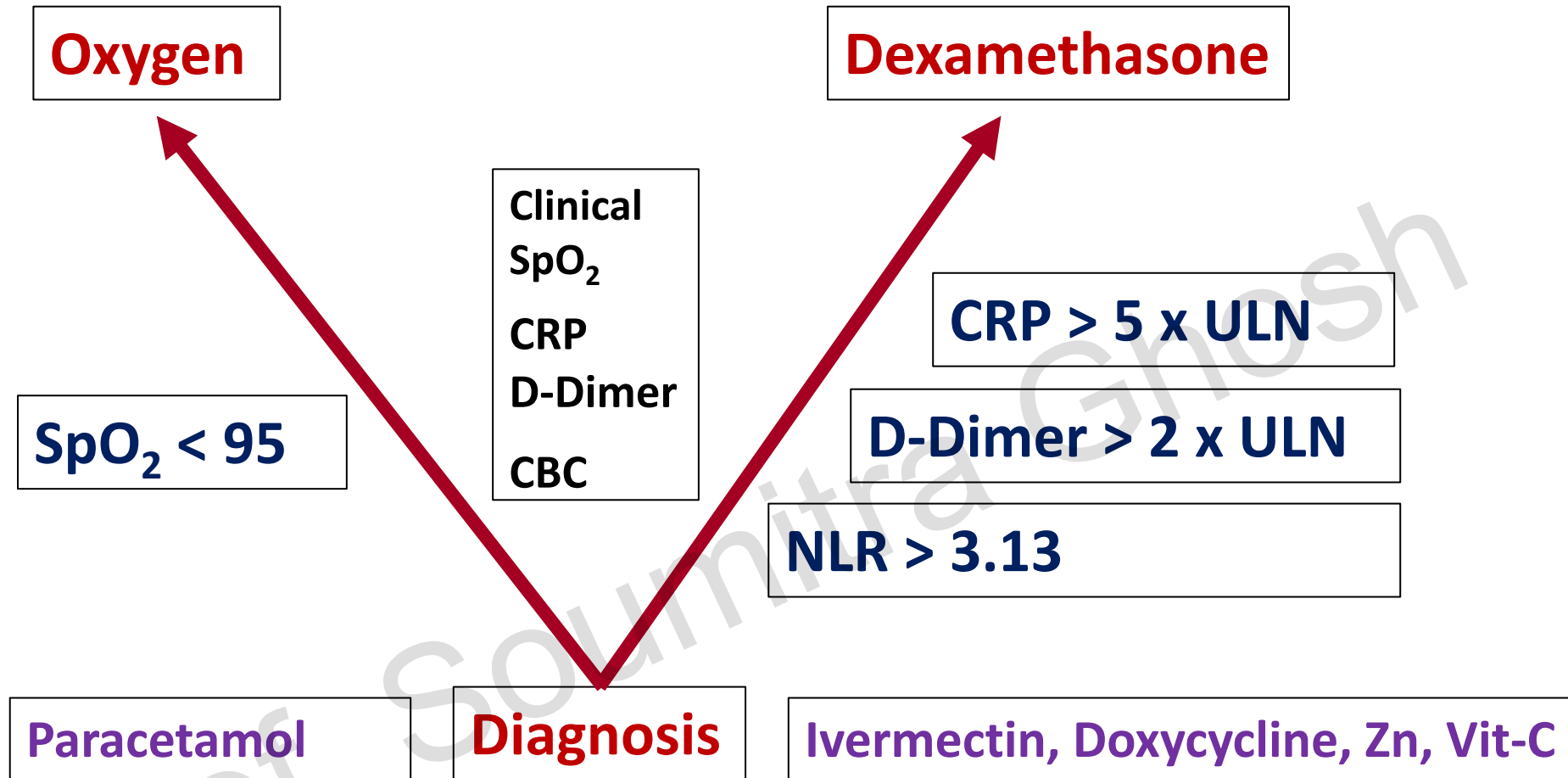
Ivermectin, Doxycycline, Zn, Vit-C

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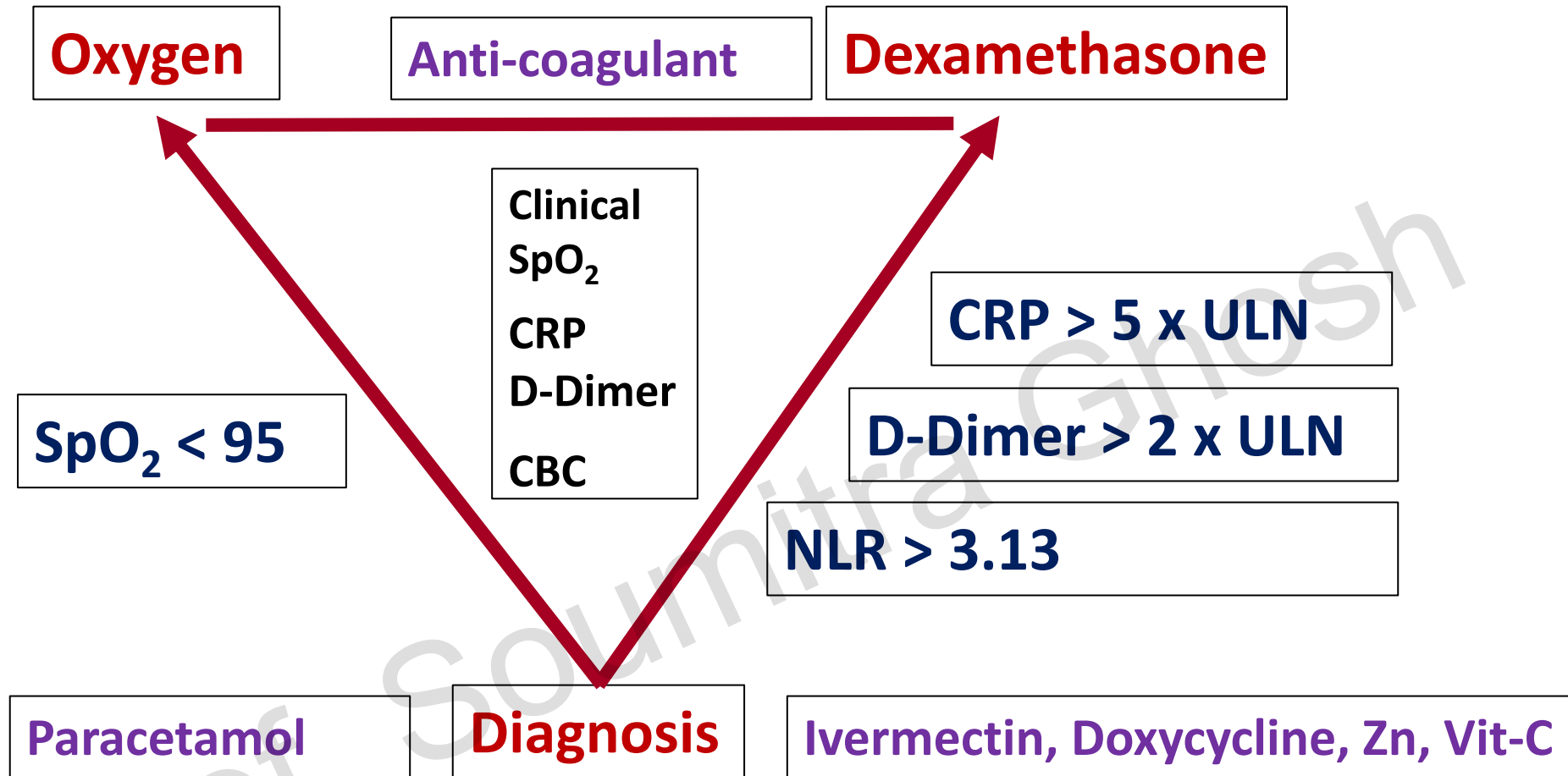
When to Step Up the Management



When to Step Up the Management



When to Step Up the Management



When to Step Up the Management

Oxygen

Anti-coagulant

Dexamethasone

SpO₂ < 95

**Clinical
SpO₂
CRP
D-Dimer
CBC**

CRP > 5 x ULN

D-Dimer > 2 x ULN

NLR > 3.13

Paracetamol

Diagnosis

Ivermectin, Doxycycline, Zn, Vit-C

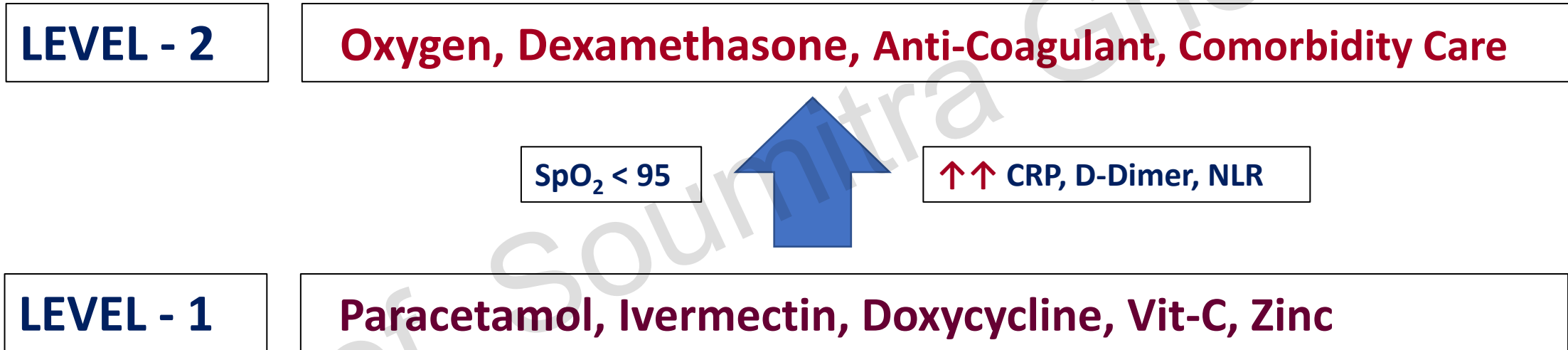
Three Management Levels

LEVEL - 1

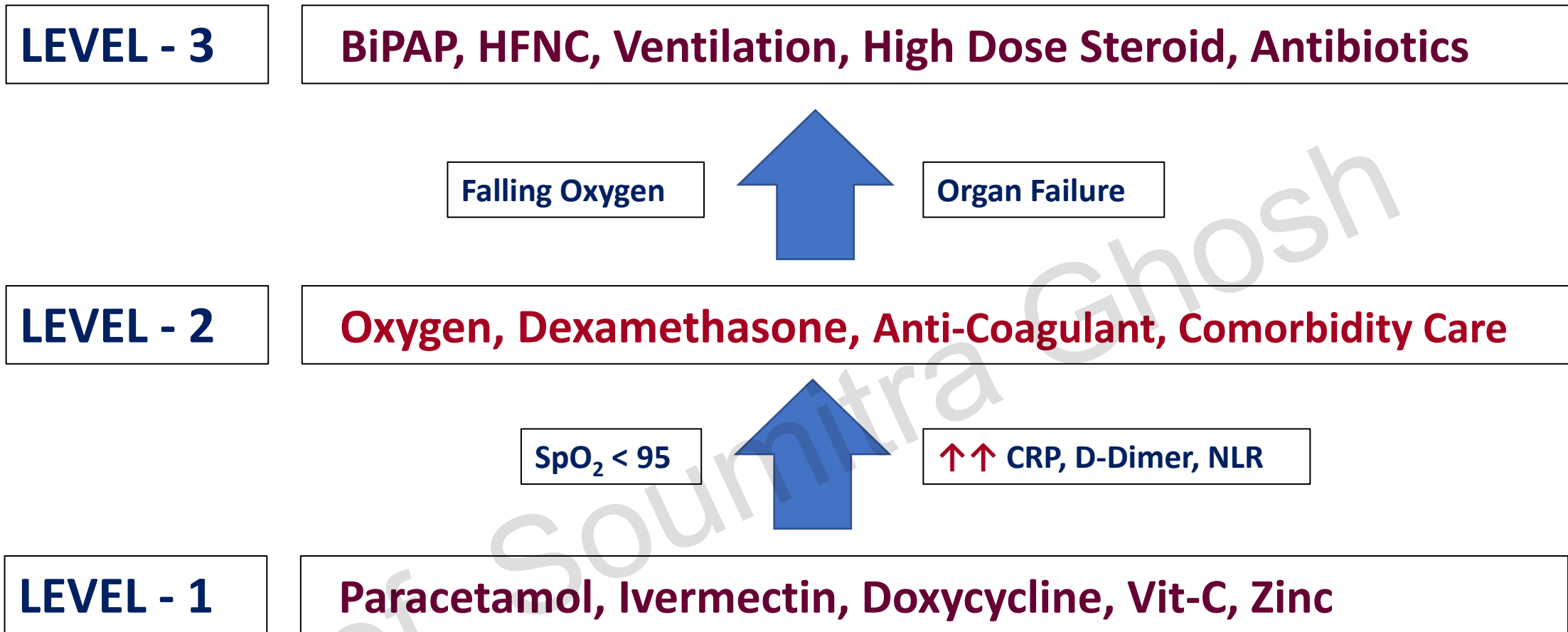
Paracetamol, Ivermectin, Doxycycline, Vit-C, Zinc

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Three Management Levels



Three Management Levels



FIGHT Inflammation at RIGHT Time

Dexamethasone is the Game Changer

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FIGHT Inflammation at RIGHT Time

Dexamethasone is the Game Changer

- **Moderate** 0.1 – 0.2 mg/kg/day (6 – 12 mg /day)
- **Severe** 0.2 – 0.4 mg/kg/day (12 – 24 mg /day)

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PREVENT Hospitalisation, Oxygen and DEATH

Dexamethasone is the Game Changer

If Started in RIGHT Time, in HOME ISOLATION phase

We can AVOID HOSPITALISATION, OXYGEN REQUIREMENT and DEATH

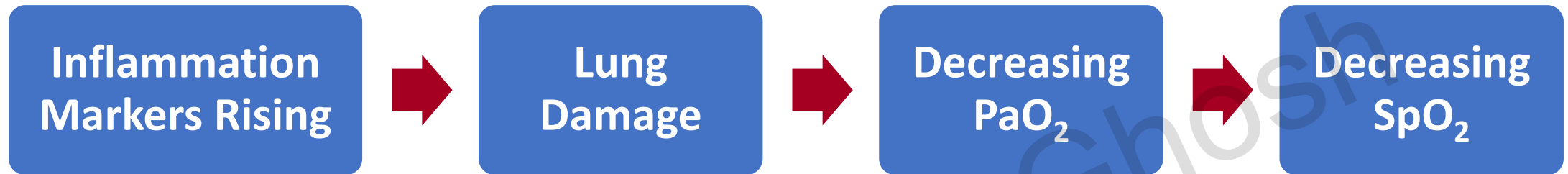
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FIGHT Inflammation at RIGHT Time

- **COVID has an Unpredictable Course**
- **It is Possible to Make it Predictable**
- **Nothing Happens Suddenly**
- **We Need to Demystify COVID**

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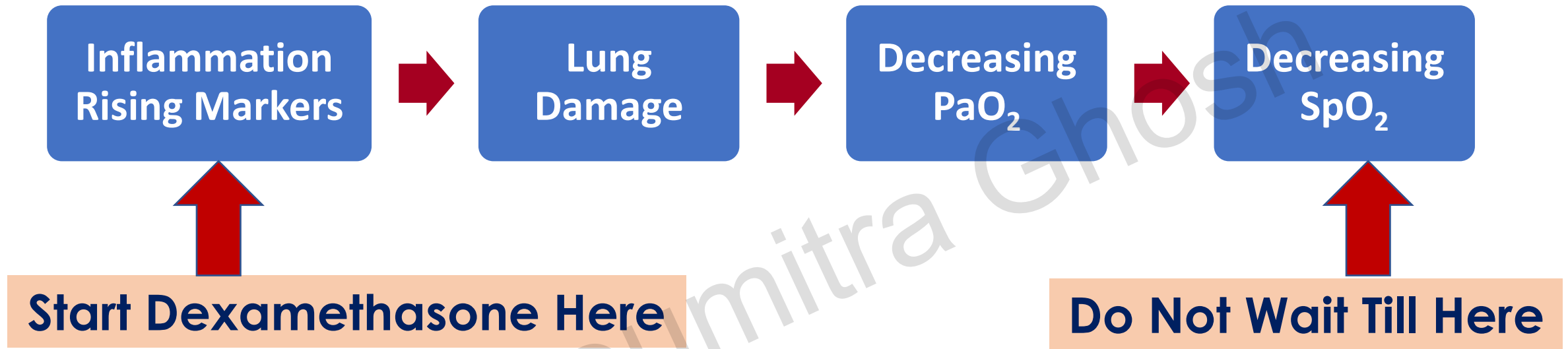
Sequence of Events



Decreased SpO₂ is a very Late Finding

Act Before This Stage to Save Life

Sequence of Events




Laboratory and Clinical Monitoring to Guide Treatment

- **CBC, CRP, D-Dimer : every 48 - 72 hourly**
- **LFT, KFT : every 48 - 72 hourly**
- **Trop T, ECG**
- **HRCT Chest / CXR - PA**
- **Change in Oxygen Requirement, Work of Breathing**
- **Hemodynamic instability**

Warning Signs to Step Up Treatment

1. Difficulty in Breathing
2. Persistent Fever/ High grade fever
3. Recurrence of Fever after Remission
4. Palpitations
5. Chest pain/ Chest tightness
6. Severe Cough
7. Any new onset symptoms
8. SpO2 <95% (Room Air)
9. CRP > 5 times of ULN
10. D-Dimer > 2 times of ULN
11. NLR > 3.13
12. Or, as advised by physician specially in High-Risk Group

Warning Signs to Step Up Treatment

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 12. Or, as advised by physician specially in High-Risk Group
- 

Oxygen is A Drug – Needs Prescription

1. **Nasal Canula** (2 - 6 Litters/min)
2. **Face Mask** (6 - 10 Litters/min)
3. **Non Rebreathing Mask** (10 - 15 Lit/min)
4. **BiPAP** (25 - 60 Litters/min)
5. **HFNC** (25 - 60 Litters/min)
6. **Ventilator** (10 Litters/min)

- **Target SpO₂ 94 % ± 2 %**
for admitted COVID pts.
with Oxygen
- **Once achieved, flow rate should not be increased**
as it does not provide any
additional benefit

Management

1. **ANTIPYRETICS:** Paracetamol for fever
2. **STEROID** • Dexamethasone 0.1 to 0.2 mg/kg for at least 5-10 days
3. **OXYGEN SUPPORT**
 - Target SpO₂ ≥ 95% (≥90% in pts. with COPD)
 - Oxygen Flow Rate and Oxygen delivery device (Canula/Face mask/NRBM / BiPAP/HFNC/Ventilation/ECMO)
 - Conscious proning when hypoxia persist despite high flow oxygen (position change @ 1-2 hours)
4. **ANTICOAGULATION** • Prophylactic dose of UFH or LMWH (Enoxaparin 40mg/day SC)
5. **ANTIVIRAL** • REMDESIVIR - Oxygen Requiring Moderate Disease of < 10 days. **Not to start after 10 days**
6. **CONVALESCENT PLASMA** • Not Great. Overhyped. May be considered in selected cases
7. **ANTIBIOTICS** • Judiciously Use as per Antibiotic protocol

Management

- **Fight Inflammation in Right Time** - Key Slogan to Save Life
- **Dexamethasone in Right Time is the Game Changer**
- **Don't Give Steroid in Early Viral Replicative Phase**
- **“Cat Like Observation” and “Timely Step Up”**

Rule of Three in COVID management

- **Three Things to Care**
 - **Inflammation**
 - **Oxygen**
 - **Comorbidity Care**

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Rule of Three in COVID management

- **Three Levels of Management**
 - **Non Oxygen Requiring Mild Disease**
 - **Low Oxygen Requiring Moderate Disease**
 - **High Oxygen Requiring Severe Disease**

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Rule of Three in COVID management

- **Three Clinical Parameters for Monitoring**
 - **Temperature**
 - **Blood Pressure**
 - **SpO2**

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Rule of Three in COVID management

- **Three Laboratory Parameters for Monitoring**
 - **CRP**
 - **D-Dimer**
 - **N : L Ratio (CBC)**

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Rule of Three in COVID management

- **Three Drugs to Begin with at Level 1**
 - **Paracetamol**
 - **Ivermectin**
 - **Doxycycline**

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Rule of Three in COVID management

- **Three Drugs to Step up in Level 2**
 - **Dexamethasone**
 - **Oxygen**
 - **Anticoagulant**

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Rule of Three in COVID management

- **Three Drugs to Step up in Level 3**
 - **High Dose Dexamethasone**
 - **High Dose Oxygen**
 - **Therapeutic dose of Anticoagulant + Antibiotics**

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Rule of Three in COVID management

- **Three Modes of Oxygen Therapy in Ward**
 - **Nasal Canula (2 - 6 Litters/min)**
 - **Simple Face Mask (6 - 10 Litters/min)**
 - **NRBM (10 - 15 Lit/min)**

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Rule of Three in COVID management

- **Three Modes of Oxygen Therapy in CCU**
 - **BiPAP / NIV (25 - 40 Litters/min)**
 - **HFNC (25 - 40 Litters/min)**
 - **Ventilation (10 Lit/min)**

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Rule of Three in COVID management

- **Three Things to Remember**
 - **Cat Like Observation is the Key**
 - **Dexamethasone is the Game Changer**
 - **Timely Escalation and De-escalation**

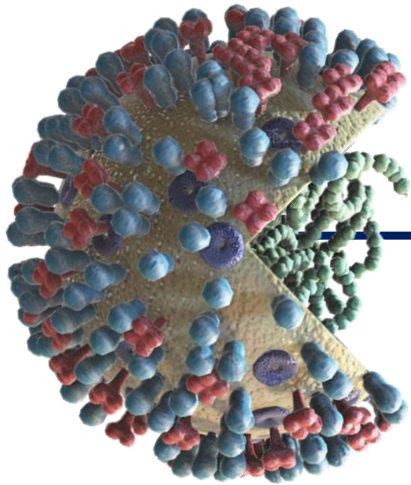
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SAVE LIFE with Right Knowledge, Right Practice, and Courage

But, while Managing COVID Patients

Kindly Take Your Own Care

By COVID Appropriate Behaviour and Precautions



Thank You

Prof. Soumitra Ghosh