



OPD management of general surgical patient in Covid-19 situation –

Ayurvedic and modern perspective

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Abstract

On 11th March 2020, the World Health Organization declared Severe Acute Respiratory Syndrome COVID-19 as a pandemic and hence lockdown imposed in India resulted in a significant depletion in surgical practices even after unlock down. There were some guidelines for patient care in general surgical practice have been published, overall, publications focusing exclusively on guidelines on starting surgical outpatient departments (OPD) after the COVID-19 lockdown amidst the on-going pandemic are lacking. We hereby propose the evolving knowledge in changes in OPD management practices for general surgeons in the COVID- 19 era. The priority on online registration (e-registration) should be given impetus and become the new norm supplemented by telephonic and spot registration for the uneducated patients.

The article also mentions the duties of the help desk, OPD hall supervisor and the new norms of air conditioning, ventilation, safe use of elevators, sanitization of OPD premises and biomedical waste disposal. The optimum and safe utilization of human & material resources DO's and DON'Ts for patients & health staff have also been proposed.

In *Ayurveda*, a concept similar to the epidemic is narrated by *Acharya Charak* under a broad heading 'Janapadodhwamsa'. The word '*Janapadodhwamsa*' comprises of two words *Janapada* (large population) & *Udhvamsa* (destruction) which means the diseases affecting & causing damage of a large number of people. Factors which are familiar to the people under a particular community like air (*Vayu*), water (*Jala*), habitat (*Desha*) and seasons (*Kala*), Sinful acts (*Adharma*) in the form of war, affliction by attacks of monsters, demon, *alliants* (*Rakshas*) etc. & curses (*Abhishap*) are

responsible for '*Janapadodhwamsa*'. These diseases can be considered as either airborne or waterborne infectious diseases or diseases occurring due to soil contamination or conditions arising due to weather or seasonal hazards. Further, under the heading of *Adidaivika Bala Pravritta Vyadhi* (diseases arising due to such causes that cannot be controlled by human intelligence), terms such as *Sansargaja* and *Upsragaja* are mentioned which indicate that there are certain diseases which can be transmitted directly from infected persons to healthy persons such as contagious diseases or certain diseases can be transmitted by respiration/air borne

Keywords: COVID 19, Outpatient, general surgery, Corona virus, OPD, *Janapadodhwamsa*

Introduction:

The 2019 novel corona virus (2019-nCoV) or the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) as it is now called, is rapidly spreading from its origin in Wuhan City of Hubei Province of China to the rest of the world [1]. Till 12/10/2020 around 37,901,848 cases of corona virus disease 2019 (COVID-19) and 10, 83,408 deaths have been reported [1]. India has reported 7,160,805 cases till date. India and the rest of the world are going through a difficult, decisive and stressful phase of existence due to novel Severe Acute Respiratory Syndrome- SARS CoV2 (COVID-19) pandemic. In these unprecedented circumstances where COVID-19 pandemic has indiscriminately engulfed the world and as social distancing and limitation are essential tools to contain its spread; the outpatient healthcare model needs rebooting to prevent it from spreading

further. The high infectivity rate of COVID-19 has not only created a health emergency in most parts of the world but overwhelmed the existing health system of all countries alike. To avoid such a situation, physical distancing being practiced by India and remaining world is probably the best precautionary measure.

CONCEPTUAL STUDY:

➤ *Janapadodhwamsa Vyadhi:*

Concept of outbreaks, epidemics and pandemics had mentioned in *Ayurvedic* classics 5000 yrs back. In the *Charaka Samhita Vimansthan* (one of the principle textbooks of *Ayurveda*) both the concept epidemics and pandemics are clearly described together with its preventive aspects. In *Ayurveda* pandemics are *Janapadodhwamsa roga*. Corona virus is an example of *Janapadodhwamsa*.

Due to the vitiation of the factors which are common to the population, produces same signs and symptoms result in the manifestation of same disease causing death to a community can be termed as *Janapadodhwamsa*. [17]

❖ ***Aupasargic Roga:*** According to *Ayurveda* *Aupasargic Roga* can be compared to contagious diseases in contemporary science, According to WHO contagious or infectious diseases, are caused by microorganisms such as bacteria, viruses, parasites and fungi that can be spread, directly or indirectly, from one person to another.

Some are transmitted through bites from insects while others are caused by ingesting contaminated food or water. Acharya Susruta elaborates very nicely the mode of spread of Aupasargic Roga. It can be spread by one person to another by [18]

- ❖ *Gatrasamprasa* (Frequent contact of the body of the patient)
- ❖ *Niswasa* (inhaling his expired air)
- ❖ *Sahabhojanat* (dining together with the patient)
- ❖ *Sahasayasan* (sleeping and sitting together with the patient).
- ❖ *Vastramalaanulepana* (wearing dress, garlands and unguents used by the patient)

➤ **Pranvahasrotas:**

The human body contains several channels through which the *Doshas*, *Dhatus* and *Malas* travel which are called as *Srotamsi* [19]

These are the basic thing of *Ayurveda*. Acharya Charak had explained *Srotas* as medicinal point of view while acharya sushrut had explained *Srotas* according to surgical aspect. There are thirteen *Abhyantrasrotamsi*, each of which relates to specific organs, and are increased and vitiated by specific factors. [20] *Pranavahasrotas* is first & important *Srota*, which carry *Pran*(vital things) all over body.

➤ **Possible aspects of Ayurvedic preventive measure and Management for Covid-19**

Ayurvedic treatments may not helpful to cure corona virus infection. But the *Ayurvedic* holistic approach to keep health of healthy person which we can say indirectly to prevent develop a diseases is the key for this pandemic. *Ayurveda* emphasizes remain abstain from causative factors and improving immunity through proper diet, drugs, sleep, lifestyle, yogasan, *pranayam* etc.

❖ **Nidanparivarjan:**

Chikitsa is *rukpratikriya*(*Amarkosha*). Prohibition on restraint from *Nidan* constitutes the real treatment of disease. Acharya Sushruta emphasizes that the sum of all kind of *Chikitsa* in a particular disease is “*Nidanparivarjan*” i.e. by removing the *Karan* or *Hetu* the manifestation of disease get dissolved itself. [21] It is the first principle of *Chikitsa Sutra*. It is a communicable disease and according to *Ayurveda* it comes under *Sangkramikroga*. The causes of transmission as described above should be avoided at first. It means we should keep social distance means should not touch or remain close to the diseased person, avoid dining, sitting with the infected person, to avoid from droplet infection we should keep cover the mouth, should not share cloths, cosmetics with the diseases person.

❖ **Sanshodhanchikitsa:**

❖ *Charak* has mentioned *Panchakarma Chikitsa* in *Janapodadhwamsa*.

As it is a *Roga* of *Pranvahasrota* so here *Vaman* and *Virechan* is applicable. *Cakradutta* has clearly mentioned in *Hikkaswasa* chapter that *Vaman* and *Virechan* is applicable here as *Panchakarma*.

❖ *Samshamana chikitsa*:

Proper administration of *Rasayana* therapies advised in the effective management of communicable diseases which is described in *Janapadodhwamsa*. [22]

Methods

A literature search was performed for relevant research articles through the major data bases including Pub Med and Google scholar. In addition, the World Health Organization (WHO), other government health agency websites were searched for any relevant information on this topic. In particular, interest was paid to strategies and advises on managing the surgical patient flow during outpatient clinics including the necessary safety measures, while still providing a high-quality patient experience.

Results

Health care staff and COVID-19

Healthcare workers are at the higher risk of contamination by COVID-19 especially at the early stage of outbreak when they are not aware of the risks of COVID-19 and the personal protections are suboptimal (2). At the beginning of the epidemic, about 30% of

the infected cases in Wuhan were healthcare workers (3). It has been stated that continuous exposure to high concentration of virus may increase the risk of transmission, significantly (4). All hospital staff should strictly stick to the infection prevention rules, highly dedicated to hand hygiene and using the personal protective equipment (PPE) (2). The minimum standard of PPE for those who take care of COVID-19 patients consists of NIOSH certified N95 respirator (or equivalent such as FFP2 standard), personal goggles, full face shield, cap, gown, and gloves (1). The role of shoe cover in infection prevention is not clear and there is no evidence regarding COVID-19 contamination by footwear (5). It is crucial to fit the mask properly; for instance, beard is required to be shaved (6).

Hospital staff that takes care of COVID-19 patients must be separated from those who are responsible for other patients. Working shifts must balance to avoid healthcare provider's burnout (7). All clinical staff must focus on control of the new COVID-19 outbreak and other outpatients while all elective services must set to the minimum level (7). Pregnant and immune compromised healthcare providers should not get involved in the management of COVID-19 patients (2).

1. PRE-OPD/Clinic- (Decision to visit, registration and appointment)

First and foremost, the patient should decide that he/she has an surgical problem significantly affecting lifestyle, and is not being relieved. If one is not sure that the surgical problem can be tackled at home or not, there are two options, one is to visit the

hospital and the other better way is to contact the concerned telemedicine portal of the particular hospital for consultation. This will reaffirm his decision to visit the hospital in these times.

After the decision to visit the hospital has been made, the next step is to register; and the best way for the time being should be *Online Registration* at Hospital Portal. Patients should be encouraged to use this online facility by wide publicity on hospitals websites, hospital social welfare department and media. The hospital needs to *update its existing* online service or develop a *new* online registration portal which is convenient to use and multilingual. It should host basic services like:

- a) How to Fix an Appointment Online-Video presentation
- b) All in one basic FAQ (frequently asked questions) related to registration
- c) How to register and filling registration form.

Form to be filled online and uploaded at hospital web site at the time of booking an appointment

- ❖ Name.....
- ❖ Age.....
- ❖ Sex.....
- ❖ Address.....
- ❖ Zone of covid stay as per government notification:

Containment/Red/Orange/Green

- ❖ Mobile no.....
- ❖ Department you want to visit.....
- ❖ Have you consulted Telemedicine department of the hospital-

Date/Advice

- ❖ History of travel/contact with COVID-19 positive patient/coming from containment zone. (flu/fever clinic first).....yes/no (If yes please give detail)
- ❖ Are you working in a medical facility in the last 14 days?
- ❖ Fever, CHILLS sweating/difficulty breathing/new or worsening cough/sore throat/aching throughout the body/running nose/loss of smell/vomiting/5diarrhea or symptoms as notified.....
..... yes/no. (if yes please give details –go to flu/fever clinic)
- ❖ Have you come in contact with

COVID positive patient in last 14 days (flu/fever clinic consult)
❖ Any history of severe constant chest pain or pressure, extreme difficulty breathing, severe constant light headedness serious disorientation or unresponsiveness---GO TO EMERGENCY
❖ Any previous investigation and treatment
❖ Whether your symptoms are such that it hampers your day today life. Yes/no
❖ History of diabetes, high blood pressure, cancer, kidney disease or heart ailments.
❖ Do you live in long-term care facility?

Table 1

Table 2

DO'S AND DONT'S' of hospital OPD visit

- ❖ Don't visit for minor ailments; use telehealth portal for consultation.
- ❖ Wear triple layer mask and preferably disposable head gear/cap
- ❖ Visit hospital only during time slot assigned for consultation
- ❖ Don't touch wall, door knob, shake hands, touching of elevator switch, power switch while visiting in hospital
- ❖ Line up in queues at entry gate and follow social distancing
- ❖ Bring your own food, essential medicine and water bottle and keep them in a plastic bag
- ❖ Visit with one attendant only if required. Hospital may not allow unnecessary attendant
- ❖ Sanitize mobile before and after hospital visit mobile phones (company guidelines)
- ❖ Don't bring unnecessary file covers or paper
- ❖ Keep your wallets and belt in private vehicles
- ❖ Take hygienic bath before and after hospital visit
- ❖ Make digital payments as far as possible
- ❖ Carefully follow layout plan for hospital entry and exit gates
- ❖ Don't make unnecessary travel in hospital premises
- ❖ Don't lean over doctor while seeking consultation
- ❖ Don't cough or sneeze over doctor. Maintain social distancing with your

health care providers

- ❖ Keep 1 m distance from doctor while consultation
- ❖ Use health care facility number in case of an emergency
- ❖ Don't bring mobile phone or if necessary bring it in clean plastic wrap and keep it in silent/vibration mode
- ❖ Containment zones and COVID positive patient should attend hospital only in case of emergency and after the quarantine restriction of that area are lifted and that too at designated COVID points of the hospital, location of whose is made available by telephonic helpline and website
- ❖ Patient with symptoms as in [Table 1](#) should go to flu clinic/fever clinic first.

2. Online filling of OPD registration form pre-visit

The patient needs to fill a Registration Form as in ([Table 1](#)) correctly and follow the instructions given thereof when visiting hospital OPD. Every patient should upload his previous records (treatment and investigation) to the hospital site after taking an appointment. The site should unambiguously state which OPD of the hospital tackles to which health problem. It should inform the benefits of online registration over the physical system of registration at the hospital that is it maintains minimum contact with hospital staff, is faster, avoids fomite born spread of disease

and will help in maintaining social distancing in crowded hospitals. Its duty of reception/help desk- OPD staff to arrange digital documents of the appointments for the day submitted online and transferred by central hospital portal (of registrations done through Aarogya Setu app and helpline).

3. Patient instructions on day of appointment

Each patient should visit the hospital after taking a hygienic bath, wears a triple-layered mask, disposable clean headgear/cap, preferably keep a handy(>70% alcohol) sanitizer, carry own food/others medicines prescribed and come in clothes which can be sanitized & temporarily discarded for next 6 days. They should be informed of the procedure of OPD visit by computer animation at the hospital website. Each hospital can customize their OPD animation according to their infrastructure for entry and safety measures. Patients must download the Aarogya Setu app. and check their status to be safe before visiting, in the queue and after leaving hospital premises. Containment zones and COVID positive patients should attend hospital only in case of emergency and after the quarantine restriction of that area are lifted and that too at designated COVID points of the hospital, location of whose is made available by telephonic helpline and website.

4. Visit to the hospital

- I. **MAIN ENTRANCE** – There should be a single separate entrance and exit (separated by at least 2 m for smooth patient flow, better to have them located diagonally or at ends of hall

length or breadth) allowing one person at a time to the main OPD hall/Complex. The entrance should have installed thermal monitors, running video screens and posters on patient information – what health service this OPD offers, it should clearly state in the bold form (bilingual) and audio format that patients with fever and Acute Respiratory Infection should visit the flu/designated fever clinic first.

The main gate is to be manned by security staff, trained paramedics and a doctor with an erected fixed barricaded perimeter of 1 m by rope/removable tapes. It is proposed that personnel here should wear PPE consisting of water repellent surgical gown, triple-layer medical mask, headgear, face shield, waterproof shoe cover and gloves as they are *the first contact* and have to triage patients into COVID/suspect/non-COVID. This kit can be used for the whole day with proper repeated sanitization of gloves unless a mishap occurs. They will thermal scan each and every patient, ask for a basic history of CCCATTT that is Containment zone, Contact with COVID positive patient, Cough, Aarogya Setu app indication of himself and patients', Travel, health Trouble and Temperature.

II. Reception:

At the reception 2 medical data operator and a helper located 1 m apart, wearing a triple-

layered medical mask and Latex examination gloves (termed "mini PPE" by us) are seated behind an easily cleaned smooth tabletop counter with glass partitions. At the OPD reception, the patient should first show his registration slip so that the reception staff can retrieve his form and uploads for forwarding to the doctor. Besides this the receptionists have to complete and forward forms of patients who have done spot registration via intercom at the entry gate. Its duty of reception/help desk- OPD staff to arrange the digital documents of the online appointments and of registrations done through helpline(transferred by central hospital portal) a day in advance. After further ensuring that the patient is wearing a proper face mask above his nostrils, he/she should be directed to the designated OPD room/clinic or in the waiting hall.

III. Waiting outside OPD room/clinic

Each OPD room should *always* have a paramedical staff stationed at its door with mini PPE; these staff should be allowed to work in shifts of 6 h. The paramedic at this stage will check again the CCCATTT status, and ensure that the patient is wearing a triple-layered mask. The patient's hand should be sanitized with 60–80 % alcohol solution for at least 20 seconds before entry in the room

At this point only the patient should be allowed and in only exceptional circumstances (e.g. for non-ambulatory patients) one attendant may be allowed into the OPD with a face mask and hand sanitization. The patient and his attendant

should be asked to maintain social distancing.

In OPD waiting area hand hygiene station should be installed, television (TV) screens should be installed to educate the people regarding signs and symptoms of COVID 19, hand hygiene, how to wear and make a homemade mask, social distancing, not to worry videos, and prevention & treatment of corona virus, do's and don'ts and other health education videos. The OPD waiting hall should have a minimum number of furniture and instruments and that too should be adequately spaced. It is necessary to convert OPD air conditioner into a non-circulatory system this can be done by blocking off the return air vents of the air conditioner; additionally, an independent exhaust blower shall be installed to extract the room air; The OPD Hall should have a Trained floor supervisor (paramedic/support staff) who has two I's as duties (a) *infection control*-to ensure social distancing (1 m), no crowding, seats are properly spaced, and the OPD furniture and floor including computers, screens and keyboards are properly sanitized daily 3 hourly (twice in a shift of 6 h) or earlier in inadvertent spillage and (b) *Health Information-ensuring that* patient information video and displays are running properly.

There should be a security staff stationed in the OPD Hall for the help of patients and health staff. The toilets should be frequented one at a time, properly sanitized with 1% hypochlorite solution after every patient visit, and so should the drinking water facility by maintaining social distance. The PPE for sanitary toilet cleaning is disposable

rubber boots, gloves (heavy duty), and a triple layer mask[9].

5. Entry into doctor chamber:

Doctors should have ready access to uploaded documents of patients on computer duly forwarded by receptionists. After seeing them the patient is called by a bell or patient digital display board or a single health staff operated token number system. The paramedic at doorstep should allow the patient whose consultation is complete to exit first and give an interval time of 3–5 min for doctors to get sanitized ready before allowing the other patient inside the doctors' room. The bed sheet of the examination couch and anything contacted by a patient should be sanitized as per above norms.

Doctor and all staff in OPD must wear PPE kit consisting of triple-layer medical mask and Latex examination gloves. No aerosol-generating procedure (AGP) should be performed in OPD. Doctor and other staff should perform hand hygiene using proper technique [10] and according to instruction known as My 5 moment of hand hygiene [11] before donning and doffing of this mini PPE. Patients should be seated at a distance of 1 m and should be examined by a doctor swiftly behind a plastic curtain. The patients' body part may be cleaned by soap solution/spirit before examination. Before and after each patient's examination doctor should sanitize his hand with prescribed alcohol sanitizer and change gloves after every examination. The female patient may be examined in the presence of a sister with

the above PPE. Only the digital-uneducated patients may be given OPD prescription slips by the doctor.

6. Diagnostics and prescription

The prescription and diagnostic test ordered may be paperless (as far as possible) with prescription emailed to the patient or sent by an app and to the hospital laboratory services. The investigations should be written which are essential for a particular patient. As the x rays & diagnostic films can be the source of infection it should not be handled. The hospital should have or develop a server/Picture Archive and Communication System (PACS) so that imaging and investigative procedures are available online to the surgeon. Teleradiology may be used for X rays, MRI and CT scan services. If PAC services are in developing stage, X Rays prescribed by doctors should be done hand to hand, this will limit the further visit of patients to the hospital for collection of films/reports and brought by staff (not patient) with due COVID precautions. *Entry to the diagnostic facilities in house* should be separate and all precautions as above in an OPD should be taken.

7. OPD infrastructure usage

It is suggested that only 50% OPD rooms may be utilized in a day. Every day when OPD is finished the hall, toilets and rooms should be sanitized with 1:9 dilution of 5% concentrated liquid bleach [12] or 1% hypochlorite solution and closed for the next

day and the next set of OPD rooms are utilized for the next day. A thorough cleaning should be done twice a day. Fogging is no longer recommended. Gloves and face shields should be disposed of in a red bag and disposable masks, gown, gloves and respirators in a yellow bag after use [9] [13]

A roster may be made for doctors and staff, so that only 50% doctors and staff should be utilized to attend for OPD in the first 14 days. Remaining 50% should come to the hospital and be in reserve for any emergency, telemedicine, frontline duties (as some may be on leave, or quarantined) or backup. In the next 14 days, the backup team should attend OPD and the previous OPD team to remain for backup.

7. Dressing and injection room

It should be sanitized as any operation theatre is, that is fumigated every night, each table should have disposable waterproof bed sheets, floor and table sanitized after each patient visit, the instrument and dressing autoclaved as per local hospital norms. The doctor/dresser should wear a mini PPE as at entry and patients should wear a gown and cap besides mask. The sister in charge should ask the patient history and sanitize patient's hand. All staff should change dress and sanitize themselves and OT with 1% hypochlorite bleaching powder after every dressing. Intra-articular, soft tissue and perineural steroid injections should be avoided, whenever possible during the COVID-19 pandemic to reduce the risk of reduced immunity to viral exposure.[14]

8. Mobile phones

The patient and health staff at the facility should minimize or avoid mobile phone use, use the intercom, perform hand washing after usage, and use of washable disposable covers/poly packs for mobiles should be encouraged. The mobile companies have recommended 70% isopropyl alcohol or Clorox disinfecting wipes for cleaning mobile phones in the off mode with mobile disconnected from all cables.[15]

Elevator etiquettes(facing the wall inside the elevator, limiting the number of people to three in each elevator, waiting for the next elevator to avoid crowding, avoiding touching of the face after pressing the elevator buttons, washing or sanitizing hands after leaving the elevator, using the elbow to press buttons) should be followed.[16]

Continuing Medical Education of staff and case review meetings with infectious disease specialists should be done regularly.

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