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URTI Associated with Reuse of Mask during COVID 19

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CLINICAL HISTORY:

39 year old doctor presents to ENT OPD with history of throat irritation for the last 2 weeks. He felt the constant urge to take menthol based lozenges. He had no history of cough or fever. The doctor would use N95 mask, most of the days but had limited supply of N95 masks, hence frequently reuse them after UV sanitization.

There is no history of comorbidities.

No habits.

EXAMINATION AND INVESTIGATIONS:

General physical examination- a middle aged male , moderately built and nourished, alert conscious and cooperative and well oriented to time, place and person.

Pulse: 86 bpm

BP: 130/80 mmHg

Respiratory rate: 18 cpm

Temperature: 98.2 F

No pallor,icterus, cyanosis, clubbing, edema, lymphadenopathy

ENT examination

Ear and nose examination: NAD

Throat examination revealed mild congestion of posterior pharyngeal wall with no other abnormality.

SYSTEMIC EXAMINATION:

RS: b/l NVBS, No added sounds

CVS: S1,S2 heard, no murmurs

P/A: Soft, non-tender.

CNS: No focal neurological deficits

AEC: 500

COVID RT-PCR: Negative

FINAL DIAGNOSIS:

Rhinopharyngitis

DISCUSSION:

Tab. AZITHROMYCIN 500mg OD x 3 days

Tab. FEXOFENADINE 120mg OD x 7 days (because patient had h/o drowsiness with Cetrizine/ levocetizine)

Patient was advised salted warm water gargling as needed.

Patient was also advised to reduce the reuse of N95 masks.

COVID19 Pandemic is unprecedented in recent time and wearing mask is now considered norm, and lifesaving. More so in health workers, masks are worn for most of the time in a day. In recent time, the emergence of life-threatening infections such as severe acute respiratory syndrome (SARS) and re-emerging infectious diseases like tuberculosis have highlighted the need for efficient infection control in all health care settings. Health care workers (HCW) who are routinely exposed to viral respiratory infections in the workplace may get infected and transmit infection to others.(1) Following of the infection control guidelines including that for COVID19, hand hygiene and masks cause a breach in spread of infection and therefore ensure safety to HCW, patients and close contacts.

A surgical mask protects HCW from inhaling pathogens transmitted by the droplet route such as varicella and meningococcal diseases. Medical masks prevent hand-to-face contact and facial contact with large droplets and sprays while protecting the mucous membranes of nose and mouth. An N95 mask protects HCW from respiratory pathogens transmitted as aerosols which may even be less than 5 microns and can remain suspended in the air for a long period of time especially when bounded by dust. This helps to prevent the spread of infectious diseases such as TB, MDR-TB, pulmonary plaque, measles,etc..(1) Elastomeric full-face N95s, N100s, and self-contained breathing apparatuses provide full protection but their availability is limited and hence reserved for critical procedures with high contamination risk. These devices should be cleaned and decontaminated as per standard procedures, which may be labor-intensive.(2)

Type of mask	When to wear	Comments
N95 or P2	Open/active pulmonary TB, pneumonic plague, SARS	Ideally recommended; but single-use, cost and continuous availability may restrict the use. In such situations, standard surgical masks may be used
N100 or P3	During invasive procedures, collection of respiratory secretions, laboratory work and work in an environment where organisms in concentrated form may be encountered	Ideally recommended; but the fact that filters need to be kept continuously available and can be used only once, may mean that cost considerations restrict their use. In such situations, standard surgical masks may be used.
Standard surgical splash proof masks (not gauze mask)	Mainly when dealing with droplet infections; use for airborne infections when N95 masks are not available	Change mask when wet, soiled or contaminated. Do not reuse Discard according to health care facility protocol

N95 indicates that they are not resistant to oil or solvents (N) and that they are intended to filtrate at least 95% of airborne particles $>0.3 \mu\text{m}$ in size. N95 filters are made of several layers of woven synthetic material treated to sustain an electrostatic charge (i.e., an electret). In addition to creating a mechanical barrier against aerosols, N95 filters retain charged particles, such as bacteria. However, N95 filters provide no protection against fumes, oils, or vapors(2)

A study conducted by Peng Yan et al on mask wearing and respiratory infection in HCW in Beijing in showed that out of 400 subjects 336 developed adverse effects which included allergy, breathing difficulty, discomfort, pain. 59.5% developed (RTI) respiratory tract infection (defined as having at least 2 of the following symptoms fever, cough, sore throat, nasal congestion, rhinorrhea). The study also proved that the cloth/cotton yarn masks that are widely used are less efficacious than medical masks.(3)

Single-use N95 respirators are important to protect staff and patients from airborne infections, but shortages may occur during disease outbreak or any similar crisis which can be prevented by extended wear(wearing N95 for hours at a time)or reusing it several times.

(2)

Reusing masks without cleaning can cause bacteria, virus, dust and allergens to accumulate which can pass on to the throat causing irritation and strain. Individuals with weaker immunity and those with history of allergy are more prone to it.

URTI due to reuse of mask is a frequent complaint especially among health care works as there is a need for them to wear masks for prolonged time periods. Shortage of respirators have led to reuse of respirators. (4)

Comprehensive guidelines released by the All India Institute of medical sciences (AIIMS), New Delhi on Standard operating procedures for extended use of N-95 masks for HCW advises to use 4 masks with fifth mask kept as reserve. The masks are used in order up to 5 times and are to be discarded in the yellow bin after 20 days of use. These masks cannot be treated and reused as the filtering capacity of mask reduces.(5)

To prevent sore throats due to masks, all health care workers should be educated and advised to change masks regularly and avoid touching masks in frequent intervals.

ACKNOWLEDGEMENTS: None

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