"The effectiveness of masks and modern sterilization strategies being forgotten in current pandemic"

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To the editor:

Modern sterilization practices are routine in pharmaceutical laboratories at both small and industrial scales. Regular inspections at both pharmacy practices (in both community/hospital sectors) and at industrial level (within pharmaceutical firms) are done routinely during the stages of drug fabrication, during API processing, whether biological, biotechnological or chemical, but even more so during formulation and thus drug production stages. The inspections are carried out by regulators worldwide thus these processes are well known to pharmacists extending to all relating sectors. Such relating sectors may involve pure chemistry and pure biology labs which however still have industrial collaborators helping and making sure that ethical reviews are carried out. Other healthcare professionals are also regulated thus they are aware of some type of sterilizations available to them which is only applicable within their sector, being that they are implicated in the administration of healthcare to either animal or human subjects and thus again fewer restrictions apply.

An example of this is lyophilisation which although is used in both the food and drug industry, is not feasible on the human body. It could however be applied to chemical or biological labs involved in 'atoxic' organic chemistry and hormonal synthesis respectively where there's a higher requirement for hygiene.

Another example is Radiation sterilisation (a heating process opposite to lyophilisation) which is already used by pharmaceutical sectors and also in some clinical sectors (hospitals).

Nevertheless the majority of sterilization techniques involve disinfection via microcidal strategies.

Doctors on the other hand support the idea that 70% alcohol is important to sterilise surfaces, particularly prior to surgery.

It is also known that coronaviruses are inactivated by acetone and glycerin/glycerol which are products found in hand sanitizers and acetone inactivates all viral particles within 5 minutes. The issue with acetone is its neurotoxicity after 24 hour exposure which can be removed after the few minutes with soap and water. Similarly alcohol is toxic to animals.

As to face masks, several healthcare authorities believe that wearing them may not be effective.

Masks however may be effective.

It is known that coronaviruses occupy sizes within the range of 80-120 nm and surgical masks have a porous resolution to 0.5 mm. Based on this, surgical masks are said to be ineffective by contact. This is true when the mask has been in direct contact with the virus i.e. in a hospital setting where exposure to viral droplets is high. Nevertheless viruses that are expectorated are suspended in droplets of a larger size than that of the single particles. Cough droplets have a diameter range of 0.0001 mm to 0.9 mm which can be stopped by the mask.

Moreover an aseptic mask would remove the virus once it is deposited on it.

Therefore, changing masks frequently and washing the face each time should help doctors maintain asepsis aside the employment of other protective equipment¹.

Citing articles

1. Canelli R., Connor C. W., Gonzalez M. *et al.* (2020) Barrier Enclosure during Endotracheal Intubation, *NEJM*.

¹Letter to the editor