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Short Communication

Tear Gas Related Health Issues Concerned among Protesters in Myanmar

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Currently in Myanmar, countrywide mass protest is going on due to the military coup on February 1st 2021. Police are using violent and non-violent ways to crackdown the crowd of peaceful protesters. Among them, firing tear gas bombs is one of the daily encountering dangers for protesters in Myanmar.

Tear bombs, effective lacrimating agents, are common riot control agents worldwide for nearly a century. Tear gas is also known as CS gas since the main constituent is chlorobenzylidene malononitrile. Exposure with teargas can bring ocular, respiratory and dermatological complications. Typically, ocular and respiratory tract irritation occurs within 20 - 60s of exposure. Common eye problems include watering, redness, mild pain, blepharospasm, photophobia, blurred vision, conjunctivitis and periorbital oedema. Even corneal neovascularization, persistent conjunctivalization, corneal opacities and reduced visual acuity can be seen in some victims. Regarding respiratory problems, stinging or burning sensation in the nose, tight chest, sore throat, coughing, dyspnoea and difficulty breathing can happen due to the inhalation of teargas. It can cause skin irritation, bulla formation like in burn injury depending on the distance and duration of exposure [1,2].

There are other interesting health problems following the exposure of tear gas mentioned in literatures. In the study of Yara., *et al*. [3], they assumed that the tear gas was associated with the menstrual disturbance among female protesters in France. The reason of the fact can be related to the stress after the exposure of tear gas. In Celebi., *et al*. [4] it was mentioned about depression and post-traumatic stress disorder (PTSD) of protesters who exposed with tear gases. And PTSD prevalence rate was high in 2019 Hong-Kong mass protest, also known as the Anti-Extradition Law Amendment Bill Movement. 16000 round of tear gases were fired during 4-month long early stage of the movement [5].

In Myanmar, the country wide mass protest started in February, 2021 due to the military coup. Anti-coup mass protest, also known as the spring revolution is only 2 months old by now but the violence is more extreme than anyone can imagine. The police and junta are using brutal and unnecessary violence against peaceful protesters even though the world is watching. At least 570 citizens were killed and more than 3000 of citizens were abducted by the end of March. The rest of the citizens are also bodily or mentally traumatized with the heavy use of tear gas and the gun shots day and night. And not only the protesters on the road suffer from tear gas but also the citizens including children who stay inside their houses or who run the shops because the police throw the tear gas just in front of or sometimes inside the houses.

The main problem of the victims of tear gas is that they cannot receive proper and urgent medical care soon after the exposure because they have to run and hide somewhere safe which took overnight sometimes in order not to get arrested or shot by the junta. And almost all civil hospitals are shut down due to the civil disobedient movement (CDM) of medical professionals against the coup and the military junta destroyed emergency medical centers volunteered by local CDM doctors, they even beat or arrest the medical volunteers and threaten not to accept the injured protesters in private hospitals. These are some sad truth behind the late medical treatment for victims of tear gas and other injured patients due to the violent crackdown.

Even though the medics face difficulties, they are struggling to give urgent or emergency medical care to the injured protesters on the spot or in safe medical base-camps or help with online medical advices. Most of the tear gas victims find helpful with the online emergency medical advices such as moving to a gas free area, facing towards free air, cleaning the eyes with drinking water, coke or normal saline, putting wet towel or t-shirt on the eyes or on areas of skin exposed with the gas, and using easily available artificial eye-drop frequently. Some patients who do not relieve their eye pain or who suffer decrease vision only visit to available Ophthalmologists. Personally, I have seen less than 10 patients exposed with the tear gas so far. Two of them complained of painless blurred vision soon after the exposure of tear gas and their pupils were found dilated on my slit-lamp examination and the pupils constricted back to normal within 24 hours. I did not find any fact in literature mentioning about the relation of tear gas and pupil dilatation but temporary blurred vision. Another 2 of them suffered signs and symptoms of acute conjunctivitis, 1 of them had foreign body on cornea and the rest of the patients suffered only minimal congestion of conjunctiva with mild pain.

The patients whom we encountered are only the tip of the iceberg and we cannot predict how many of the victims still do not get proper physical care, how many of them is suffering mental stress and how many more will suffer PTSD due to the increasing violence daily. We, the health professionals in Myanmar, are trying our best to help the alive victims physically and mentally although we cannot compensate the loss of many innocent lives in front of our eyes. We, the citizens in Myanmar are united and will continue our fight for democracy and the world is supporting us to protect the human right. Therefore, we believe our country will be out of turmoil in the near future.

Conflicts of Interest

None.

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