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Curtailing the Risk of COVID-19 Infection Among Medical Students Through Safer Handling of Cadavers During Anatomical Dissection

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The novel COVID-19 pandemic has produced broad consequences on medical training globally. The resulting disturbances led to the shift from physical to virtual learning. A serious feature of medical training demanding pressing consideration is the avoidance of COVID-19 spread among medical students during cadaveric dissection. This can be attained by guaranteeing the protection of cadavers from COVID-19 afore been used for anatomical dissection. This article highlights the safety procedures necessary for handling cadavers and its' significances on the SARS-CoV-2 virus spread among medical students amidst the pandemic.

Keywords: COVID-19, prevention, transmission, cadaveric dissection

Introduction

The novel COVID-19 pandemic has produced broad effects and drastic impacts on medical education all over the globe. Its influence and consequent disruptions led to the shift from face-to-face to virtual learning, thus affecting millions of learners to suspend learning or learn remotely (1, 2). A critical aspect of medical training demanding pressing attention is the prevention of COVID-19 transmission among medical students during cadaveric dissection (3-5). This is necessary as cadaver dissections are widely practiced in most medical schools, and arguably remain the gold standard in gross anatomy teaching globally (4, 6-8).

Although the advent of COVID-19 has brought a major setback in teaching anatomy via cadaveric dissections resulting from cessation or sharp decline in body and organ donations, the use of cadavers for anatomical dissection can hardly be completely erased or canceled (9). The use of cadaver dissection for anatomy training during and post- COVID-19 pandemic is possible and necessary (10). However, for medical schools that rely heavily on donor or

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unclaimed body to resume cadaveric dissection, there is a need to guarantee the protection of cadavers from potential COVID-19 infection afore been used for anatomical dissection (3-5). The article explores the safety measure needed for cadaver handling and its consequences on the SARS-CoV-2 virus spread among medical students amidst the COVID-19 pandemic.

Global Rising Cases of COVID-19 Infections, Public Health and Safety Concerns

According to John Hopkins University and Medicine (JHUM), about 164,284,766 confirmed cases and 3,406,261 deaths arising from COVID-19 have been reported globally as of May 19, 2021 (11). This novel COVID-19 pandemic produced by SARS-CoV-2 has brought about huge effects on populations (12), socio-economic, and health care systems universally (13-16). These disruptions including; prohibition of several human activities such as restraint on movements (17), ban of mass gatherings (18), use of face masks, hand hygiene (washing and sanitizers), physical distancing among other strict actions are the result of the spike in COVID-19 cases (19,20). These interventions are necessary to be enforced by several countries and governments to curtail its further spread and the tendencies of succeeding wave of infections following the WHO recommendations and standards.

Public Health Concerns About Cadaveric Dissection During COVID-19 Pandemic

While the pandemic unfolds, many health regulatory authorities and public health organizations have raised critical questions and issues concerning the health, safety, and ethics of body and organ donations to medical schools (21). Although there is currently no evidence of contagion resulting from exposure to COVID-19 associated bodies, the alleged danger of COVID-19 infection from individuals who died from the disease to medical students dissecting such bodies cannot be ignored (3-5).

The International Federation of Associations of Anatomists (IFAA) stated in a published report that direct contact with body fluids and intrusive procedures on the bodies, like dissection, autopsy, or related techniques that produce droplets or aerosols could increase the likelihood of disease spread (22). This stemming situation has placed a grave problem on medical education largely, and precisely cadaveric dissection. Thus, there is a dire need to explore the safety measures needed for cadaver handling during anatomical dissection, and its consequences on the SARS-CoV-2 virus spread among medical students amidst the COVID-19 pandemic.

Adoption and Curricular Integration of Effective Alternative Models for Teaching Gross Anatomy

Though the advent of the recent pandemic has rejuvenated the need and call for adoption and use of other alternatives models for studying gross anatomy such as virtual dissection amongst others (4), cadaveric dissection remains a chief, renowned, and widely accepted standard for teaching gross anatomy in anatomy education (6-8). The importance and gains that cadaveric dissection gives to students cannot be over-emphasized. More significantly is that students do not derive anatomical understanding alone, but likewise life teachings in humanity and ethics (23).

In this light, notwithstanding that the pandemic had and is still causing difficulties with medical education delivery; medical schools must constantly strive to pursue means to guarantee pedagogies like dissection are incorporated into the revised curriculum (9).

Pressing on, medical schools will certainly trust profoundly on technologies including anatomical lectures and online dissection videos. Nevertheless, cadaveric dissection possesses immense and valuable educational opportunities, experiences, and advantages for medical schools to forever curb its usage as an anatomical pedagogy (10, 23). Thus, it is obligatory for medical schools and educators to continually provide a well-balanced dissection-centered anatomy education (10).

Curtailing the Risk of COVID-19 Infection Through Safer Handling of Cadavers

A high level of safety concerns rest on nations and medical schools who depends mostly on free bodies and/or donor program for anatomical dissection, as medical histories to establish the reason of death may be absent, hence posing a risk for students observing cadaveric dissection during and after the coronavirus pandemic (3-5). Thus, providing a COVID-19 infected body for dissection will be disastrous if not well handled.

It is, therefore, necessary for medical students to dissect cadavers following the standard operating procedures (SOPs) and all safety procedures and guidelines (3-5), while fully protected with necessary personal protective equipment and maintaining proper personal hygiene (PPE) (22,24). In addition, before students are permitted to dissect cadavers, it is expected that all the essential COVID-19 assessments should be carried out. They must also strictly follow all laboratory and COVID-19 safety precautions and guidelines, to avert unintended infection spread as the battle against COVID-19 remains (3-5).

Conclusively, if the spike in COVID-19 deaths raises the availability of cadavers for anatomy teaching, there is a need to enforce strict safety measures for cadaver handling by medical educators and students during cadaveric dissections to prevent COVID-19 transmission. Some of the recommended safety measures include the following: learners need to be fully protected with necessary personal protective equipment (PPE) during dissection, aerosols-producing techniques, and smearing of polluted fluids must be highly discouraged as the cadavers may still be infectious.

More so, it is vital to conduct screening for COVID-19 and/or obtain comprehensive medical histories of cadavers and bodies donated to medical schools to ensure educators and students have complete information before handling such bodies. It is also imperative that medical educators and students are well skilled in the spread and avoidance of COVID-19 infection, as negative laboratory investigation results might not completely exclude the chance of COVID-19 infection.

Conflicts of Interest

The authors have declared no conflict of interest for the present article.

Reference

1. Gill D, Whitehead C, Wondimagegn D. Challenges to medical education at a time of physical distancing. Lancet. 2020;396: 77-79
2. Oyeniran OI. Impacts of Novel COVID-19 Pandemic on Furtherance of Medical Education: Challenges and Possible Prospects. Ulutas Med J 2021;7(1):4-7
3. Onigbinde O, Ajagbe A, Oyeniran OI, Chia T. Post-COVID-19 pandemic: standard operating procedures for gross anatomy laboratory in the new normal. Morphologie. 2020; Oct 19
4. Onigbinde OA, Chia T, Oyeniran OI, Ajagbe AO. The place of cadaveric dissection in post-COVID-19 anatomy education. Morphologie, 2020; Dec 15
5. Oyeniran OI. Sourcing and Availability of Cadavers for Anatomical Dissection amid Covid-19 Pandemic: Safety Challenges and Possible Solutions. Ulutas Med J 2021;6(4): 188-192
6. Chia T, Oyeniran OI.Anatomy education in Nigeria: challenges and prospects. J Contemp Med Edu 2019;9(3):61-65

7. Chia T, Oyeniran OI. Ethical considerations in the use of unclaimed bodies for anatomical dissection: a call for action. Ulutas Med J 2020;6(1):5-8
8. Chia T, Oyeniran OI, Ajagbe AO, Onigbinde OA, Oraebosi MI. The symptoms and stress experienced by medical students in anatomy dissection halls. J Taibah Univ Med Sci 2020;15:8-13
9. Bond G, Franchi T. Resuming cadaver dissection during a pandemic. Med Educ Online 2021 Jan 1;26(1):1842661
10. Ross CF, Pescitelli MJ, Smith HF, et al. Teaching anatomy with dissection in the time of Covid-19 is essential and possible. Clin Anat 2020;Jun 25
11. John Hopkins University and Medicine (JHUM). Coronavirus Resource Center. 2020. Accessed May 19, 2021, from: https://coronavirus.jhu.edu/map.html
12. Ajagbe AO, Onigbinde OA, Oyeniran OI, Terkuma CH. Mental morbidity arising from social isolation during Covid-19 outbreak. Ulutas Med J 2020;6(2):97-100
13. Oyeniran OI. Strengthening Healthcare Workers and Professionals amid COVID-19 Pandemic. Ulutas Med J 2020;6(4):208-209
14. Oraebosi MI, Chia T, Oyeniran OI. Preparing the Next Generation of African Healthcare and Scientists: Lessons from Coronavirus Pandemic. Ethics Med Public Health 2020:100535
15. Oyeniran OI, Chia T. Fighting the Coronavirus disease (Covid-19) pandemic: Employing lessons from the Ebola virus disease response. Ethics, Medicine, and Public Health 2020; Oct15:100558
16. Igyuse SS, Chia T, Oyeniran OI. Implications of Coronavirus Pandemic on public health policy in Africa. Cumhuriyet Med J 2020;42(3):255-258
17. Chia T, Oyeniran OI. Human health versus human rights: An emerging ethical dilemma arising from coronavirus disease pandemic. Ethics Med Public Health 2020;14:100511
18. Oyeniran O, Terkuma CH, Onigbinde O, Ajagbe A. Avoiding an imminent catastrophe from COVID-19 pandemic in Africa: The need to urgently prohibit mass gatherings. Cumhuriyet Tip Dergisi 2020;42(2):203-207
19. Chia T, Oyeniran OI. Will Africa experience a spike in COVID-19 cases? Asian Pac J Trop Med 2020;13:285-287
20. Oyeniran OI, Chia T. Novel Coronavirus disease 2019 (COVID-19) outbreak in Nigeria: how effective are government interventions? Ethics Med Public Health 2020;14:100515
21. Ooi SZ, Ooi R. Impact of SARS-CoV-2 virus pandemic on the future of cadaveric dissection anatomical teaching. Med Educ Online 2020;25(1):1823089
22. International Federation of Associations of Anatomists (IFAA). Best practice guidelines for body donation programmes during the novel Coronavirus pandemic. 2020. Accessed May 5, 2021, from: https://www.ifaa.net/wp-content/uploads/2020/05/IFAA-Staement-on-COVID-19_-final-v2.pdf
23. Franchi T. The impact of the Covid-19 pandemic on current anatomy education and future careers: a student's perspective. Anat Sci Educ 2020;13(3):312-315
24. Aljerian K, Bahammam, AS. COVID-19: Lessons in laboratory medicine, pathology, and autopsy. Ann Thorac Med 2020;15:138

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