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Intranasal vaccines: a panacea to vaccine hesitancy?

Globally, vaccination hesitancy is a significant obstacle to the uptake of vaccines and poses a serious threat to global health. With the recent increase in the rate of infectious diseases, this becomes a topic of great concern. Vaccination remains a proven global strategy to curb disease outbreaks, hence, it becomes a necessity to address the pandemic of hesitancy. A good understanding of vaccine hesitancy and its causes will aid public health communication. Besides from safety concerns being the most common cause of hesitancy, it could also be attributed to injection phobia. A study in the United Kingdom of about 15,014 adults reported an injection phobia in approximately 10 per cent of the population [1]. Therefore, the effectiveness of vaccination programs will undoubtedly increase if these anxieties are addressed.

A good number of the globally available vaccines are administered by needle-based injections. There are currently only a few intranasal vaccines that are licensed for use in humans, and they are all live attenuated influenza virus vaccines. However, there are several benefits to administering vaccines intranasally rather than by needle-based injection. According to a study, the intranasal vaccine provided durable protection against SARS-Cov-2 variants in mice [2]. The administration of inactivated vaccines via the mucosa with the ability to trigger immune responses that are protective against respiratory infections has long been a focus of vaccine researchers. In healthy children, a live, attenuated, cold-adapted influenza virus vaccine proved immune-stimulating, safe, and efficient against influenza A(H3N2) and B according to Belshe et al., (1998) [3] while inactivated intranasal influenza vaccine is believed

to be unsafe due to the risk of Bell's palsy [4]. This calls for more research studies to be carried out to ascertain the safety and efficacy of these vaccines.

A major advantage of the intranasal vaccine is that it could easily be manufactured, distributed and delivered globally. Additionally, intranasal vaccination is known to induce local mucosal immunity against COVID-19 [5]. Intranasal vaccines are also less invasive in nature. This makes them painless and more appealing to those who have a phobia of needles. Its ability to survive in ambient temperatures is also an interesting fact to consider, making it easily accessible in terms of storage and transport. In administering the vaccine, highly skilled vaccine providers and the level of sterility needed with injectable vaccines are no longer required.

This is not to water down the impact of the invasive vaccines in recent years, but rather a call to embrace the innovation that intranasal vaccines bring towards addressing vaccine hesitancy. It is therefore pertinent that vaccines are presented in more acceptable forms to improve vaccine uptake. This could mean adopting both injectable and intranasal forms. While governments and international organizations work to prevent vaccine hesitancy, innovative strategies must also be employed by scientists to address injection phobia. With the resurgence of infectious diseases like COVID-19, monkeypox and the new Langya virus, we must take up the responsibility of increasing vaccine uptake and decreasing hesitancy.

Conflict of interest: None.

Funding: None.

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 Medical Research Journal 2022; Volume 7, Number 3, 274–275, 10.5603/MRJ.a2022.0043; Copyright © 2022 Via Medica, ISSN 2451-2591, e-ISSN 2451-4101

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