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Clinical News

All about immunisation - Friend or Foe?

Immunisation and vaccination are explained in this article by Dr Lim Hong Tak and Dr Kejal Hasmukharay to clear doubts. The definition of immunisation, the functions of vaccine, vaccines for older persons, several types of vaccines available for Covid-19, herd immunity and exploration into the side effects of Covid-19 vaccines are elaborated for MSGM members to have a better understanding of immunisation, especially the several types of Covid-19 vaccine.

1. What do these terms mean?

- Immunisation: the process whereby people are protected against an illness caused by infection with micro-organisms (formally called pathogens)[1].
- Vaccine: the material used for immunisation.
- Vaccination: the act of giving a vaccine to a person.
- Immunity: the state of protection that occurs when a person has been vaccinated or has had an infection and recovered.
- Microorganism: infectious agents that can only be seen under the microscope - these include bacteria, viruses, fungi and protozoa.
- Antigens: a tiny components/fragments from pathogens or their toxins.

2. Is this concept of immunity new?

No. The knowledge that underpins immunisation has been evolving for more than 2,000 years. The ancient Greeks knew that people who had recovered from the bubonic plague were resistant to getting it again. Based on this observation, the authorities in Athens used survivors from previous epidemics to nurse sufferers when the same infection re-emerged[2].

In the 18th century, Edward Jenner, a British general practitioner, introduced the practice of what we now know as vaccination[3]. This was based on the observation that milkmaids who developed a mild skin infection caused by the vaccinia virus (commonly called cowpox) were resistant to smallpox, a highly dangerous disease. Because of its success in protecting against smallpox, vaccination with cowpox became widespread, finally leading to global elimination of smallpox in the late 1970s[4].

3. Vaccines that are often recommended in older persons.

● **Influenza (recommended annually)**
A flu vaccine is needed annually for two reasons. First, a person's immune protection from vaccination declines over time, so an annual vaccine is needed for optimal protection. Second, because flu viruses are constantly changing, flu vaccines may be updated from one season to the next to protect against the viruses that research suggests may be most common during the upcoming flu season. Hence, even if you catch the flu, the course of the illness will be shorter and not severe[5]. This vaccine is an extremely important preventive tool for those with chronic medical conditions such as - chronic lung conditions, ischemic heart diseases, diabetes, hypertension, chronic kidney diseases as well as those on immune-suppressive drugs. In fact, all caregivers (formal/informal) and healthcare personnel are recommended to have this vaccine annually. You may have some mild side effects such as soreness, redness, and/or swelling where the shot was given, headache (low grade), fever, muscle aches, nausea and fatigue.

● **Pneumococcal (Guidelines recommend a shot of PCV 13, followed by PPSV-23 in older persons > 65 years old)**
Pneumococcal disease (a type of bacteria that can cause serious lung, brain and bloodstream infections) is common in young children, but older adults are at greatest risk of serious illness and death. There are two types in the market - PCV13 and PPSV 23. Both these vaccines are made from inactivated (killed) bacteria. The pneumococcal polysaccharide vaccine (PPSV23) contains long chains of polysaccharide (sugar) molecules that make up the surface capsule of the bacteria. Polysaccharide vaccines are good but does not stimulate memory cells to confer long term protection/immunity. On the other hand, the pneumococcal conjugate vaccine (PCV-13) includes purified capsular polysaccharides from the bacteria that are "conjugated" (or joined) to a protein (a harmless variety of diphtheria toxin). The resultant conjugate vaccine is able to produce a sustained immune response with memory cells recruited. These PCV-13 vaccine is recommended for all adults without a prior PCV13 vaccination who have certain high-risk conditions, including immunocompromising conditions, cerebrospinal fluid (CSF) leak, and cochlear implant. This PCV13 and PPSV23 should not be given at the same office visit, however. You also may have some mild side effects such as soreness at the site of the shot as well as feeling feverish, fatique and muscle aches. These are all signs that your immune system has gotten to work!

● **Shingles**
Shingles is a sequelae of "chicken pox" that you may have had previously. Though the characteristic rash of "chicken pox" eventually disappears, the virus is never entirely cleared from the human body. Your immune system normally keeps the virus in check. But as we age, immunity can wane. By the age of 55, 30-40% of people have lost the specific immunity they had to the varicella-zoster virus and the virus can re-awaken. When this happens, you get shingles, a painful rash that usually develops on one side of the body, often the face or body. The rash consists of blisters that typically scab over in 7 to 10 days. For some, the pain can last for months or even years after the rash goes away. This long-lasting pain is called postherpetic neuralgia (PHN), and it is the most common complication of shingles. Your risk of getting shingles and PHN increases as you get older. This vaccine is an inactivated recombinant vaccine, which needs to be taken in 2 separate doses at 0 and 2 or 6 months apart. You should take it if you have had shingles or can't recall if you ever had chicken pox. You may experience a sore arm, fever, chills, mild headache after the shot and would resolve by 2-4 days.

4. What are the types of vaccines available for Covid-19?

● mRNA vaccines - These vaccines contain material from the virus that causes COVID-19, that give our cells instructions to make a harmless spike protein that is unique to the virus(as illustrated in all images of a COVID virus). After our cells make copies of the protein, they destroy the genetic material from the vaccine. Our bodies now recognize that the protein should not be there and build T-lymphocytes and B-lymphocytes (soldiers) that will remember how to fight the virus that causes COVID-19 if we are ever infected in the future.

● Protein subunit vaccines - these vaccines include harmless pieces (proteins) of the virus that cause COVID-19 instead of the entire germ. Once vaccinated, our immune system recognizes that the proteins don't belong in the body and begins making T-lymphocytes(soldiers) and antibodies. If we are ever infected in the future, our memory cells will recognize and fight the virus.

● Vector vaccines - these vaccines contain a weakened version of a live virus—a different virus than the one that causes COVID-19—that has genetic material from the virus that causes COVID-19 inserted in it (this is called a viral vector). Once the viral vector is inside our cells, the genetic material gives cells instructions to make a protein that is unique to the virus that causes COVID-19. Using these instructions, our cells make copies of the protein. This prompts our bodies to build T-lymphocytes and B-lymphocytes that will remember how to fight that virus if we are infected in the future[6]. Essentially, all the vaccines are training and priming the body to prepare a stronger and larger army of soldiers to fight in the event we are infected in the future.

5. If I recover from COVID infection, should I still get vaccinated? If yes, when?

Yes. Studies thus far have shown that post-COVID infection, our immunity wanes. The magnitude and the duration of the protection is still under investigation with majority studies showing waning/depleting antibody after 3-6 months. The CDC guidelines too recommends that you should get the vaccine as scheduled (minimum 2 weeks after an active infection). However, you should wait for at least 3 months (90 days) if you had received monoclonal antibodies as part of the treatment for the COVID-19 infection.

6. Does the COVID-19 vaccine confer lifelong immunity?

As this is a new virus added into the medical encyclopedia, we will still need to wait and see if these vaccines require a booster dose. But like any other vaccines, historically, based on the science, it would / should confer long term immunity. Long term studies would be able to answer that question, which may take 10-20 years.

7. With so many uncertainties about COVID vaccines, is it safer if I allow myself to be infected?

It is better to be vaccinated than infected. The benefits of being vaccinated far outweigh infections with the pathogen. The rates of complications, both short- and long term, are much higher and more severe after natural infections than the rates of side effects associated with the corresponding vaccines. For example, COVID-19 has several stages of presentation from asymptomatic (category 1) to life-threatening with multi-organ failure (category 5). If you are older with more co-morbidsities / medical conditions, you are more vulnerable to get a more severe form of the disease. Hence why, getting vaccinated would be much safer for you.

8. Would life be back to pre-COVID era, without worrying about masks and social distancing after vaccination?

The vaccine would protect you from getting sick, but it may not protect you completely from catching COVID or being an asymptomatic carrier. As such, using masks would still be necessary in a near/ short future.

However, we can probably hope to return to some normalcy when a huge proportion of the global population is already vaccinated, because when this state is reached, the circulating virus would be so low and there will be herd immunity and hence the virus will no longer be a threat.

Also, we need to remember that most of the available COVID-19 vaccines come with a 2-dose regimen and immunity (protection) begins to be effective only about 2 weeks after the first dose. Although vaccination does reduce the incidences of you becoming really ill with Covid, it hasn't been proven that the vaccines prevent asymptomatic transmissions.

9. What is herd immunity?

An important feature of immunisation is that it brings benefits not only for the individual who receives the vaccine, but also for the entire population through a phenomenon called herd immunity. Herd immunity occurs when a significant proportion of individuals within a population are protected against a disease through immunisation. This situation offers indirect protection for people who are still susceptible to the disease, by making it less likely that they will come into contact with someone who is carrying the pathogen.

In addition to protecting unvaccinated individuals, herd immunity benefits the small proportion of people who fail to respond adequately to vaccination[7]. To bring this global pandemic crisis to an end, we would need about 70-80% of the total population to be vaccinated to achieve herd immunity.

10. Since this vaccine production has been accelerated, have the safety measures been compromised?

Based on all the evidence that we have thus far, there is neither cutting corners nor scientific- integrity compromise. The speed of these vaccines creation is related to the advances in the scientific world that have happened in the last decade! Historically, it takes 2 years for the production of the first bivalent flu vaccine (1940-1942). This time, we have the vaccine created in less than a year. It is historic from the scientific achievements without compromise in safety.

The Moderna trial had 30,000 volunteers while Pfizer had 44,000 volunteers trying the vaccine. As we are in the midst of a ferociously raging pandemic, it is easy to get the huge number of volunteers!

All vaccine candidates underwent 3 phases of trials for their safety and efficacy. We are lucky here in Malaysia, as we have about 3-4 months of observations or learning from other countries – which have started the vaccination programme since December 2020.

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11. Can the side effects occur many years later after vaccination?

The risk of these occurring is very low or almost none. Historically in vaccinology, most adverse effects occur with 30-60 days after the vaccine trial. In Pfizer-BioNTech trial, significant adverse effects were only reported in very tiny portion of vaccinated individuals (<0.0001%)[8]. Nevertheless, it is understandable that when you see reports of deaths / someone after a vaccine, it would raise a concern. These deaths occurred not as a direct result of the vaccination.

12. What are the strategies of COVID vaccination should a country adopt?

Till date, over 80% of COVID deaths in our country have occurred in persons aged >50 years old with > 80% having at least one medical condition. As such, older persons with co-morbidties as well as those with frailty should be prioritized. Amongst these, older persons in care homes should be given top priority as any single outbreak in a nursing home can potentially wipe out the whole home with heart-wrenching numbers of deaths and morbidities which can bring our healthcare system and resources to a breaking point. As much as we hope that Malaysians are to be vaccinated soon, it is important to prioritise correctly. As young geriatricians, we would prioritise the following groups:

1st: Essential services front-liners: healthcare workers, law-enforcing officers (police, army), staff and residents in care homes.

2nd: All persons (including staff) in detentions centres, factory dormitories and prisons as well as all older persons > 75 years old or > 60 years old with two or more medical comorbidities or immunocompromising states.

3rd: Everyone with comorbidities

4th: The general population who are not included in the above

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Link to position statement on influenza vaccination in the elderly: https://msgm.com.my/pdf/SFAI-Position-Paper.pdf

Community News

● You may be dealing with some care homes and probably know that some of them do not have sufficient personal protective equipment. As senior citizens are more vulnerable to the coronavirus, we appeal your help to source for PPE for the care homes. Please contact **secretariat@msgm.com.my** if you are able to contribute PPEs.

● The deadline for care homes to submit name list for the Covid-19 vaccination programme has been extended to 19 March, 2021. Form can be downloaded here: https://drive.google.com/file/d/1OINWGayYNasXe69Ble88jMhSL4GqSfIL/view?usp=sharing
Please email completed forms to **sektorwargaemas@gmail.com** by 19 March 2021.

Campus News

Well done for winning second prize in an international debate competition

Two students from the Faculty of Medicine, University of Malaya, John Paul Sim and Santia K. Lingam won the second prize in an international debate competition on "Euthanasia is ethical: Why prolong painful existence" held on 20 February via Zoom. They were coached by Prof Dr Tan Maw Pin and Dr Terence Ong, both consultant geriatricians at the Faculty of Medicine, UM.

The Faculty of Medicine congratulated the winners and the coaches on Facebook. https://www.facebook.com/487044508358359/posts/1267766513619484/?d=n

The Discourse International Debate 2021 was organised by The Student Chapter of Indian Academy of Geriatrics, Association of Gerontology (India), Asian Medical Students Association- India, Medical Education Unit, University College of Medical Sciences, Delhi, The International Network for the Prevention of Elder Abuse (INPEA), Sri Lanka Association of Geriatric Medicine (SLAGM) and Universitas Respati Indonesia (URINDO). Sim, a second year medical student, said he was intrigued by the topic.

"Research for this topic to prepare for the debate competition made me realise how important philosophy is to medical students especially in the field of medical ethics where rapid advancement of science and technology continues to blur the lines.

"During training sessions, Prof Tan and Dr Ong provided invaluable insights into the fields of geriatrics and palliative care. We were exposed to many real life experiences and moral decisions doctors have to make on a daily basis,'' said Sim.

"Through research for the competition, it was very exciting to apply different ethical theories on the topic of euthanasia ranging from Kantian ethics to the ever classic, deontology vs utilitarianism argument,'' Sim said.

The competition was a great introduction to the fields of medical ethics and platform to encourage discourse on the topic of Euthanasia, he said.

Silver Book by BGS

The Silver Book II, written by leading international experts in frailty, addresses a wide range of urgent care issues specific to older people. Launched by the British Geriatrics Society for clinicians and other healthcare professionals working in emergency departments and urgent care, this updated resource is presented in a highly accessible digital format and is free of charge.

The focus of the Silver Book II is on care for older people over the first 72 hours of an urgent care episode, with the specific remit to:

* Help decrease variation in practice
* Influence the development of appropriate services across urgent care systems
* Identify and disseminate best practice
* Influence policy development

Frailty is increasingly everyone's business, so it seems timely to capture the latest concepts, not least to try and reach a common understanding of 'what good looks like' in the care of older people in 2021 moving forwards. We hope that your organisation will be able to support the launch of the Silver Book II via its communications channels.
The Silver Book II URL https://www.bgs.org.uk/silverbook2

Osteoporosis Update

Asia Pacific Consortium on Osteoporisis (APCO) launched the first Pan-Asia minimum clinical standards for the screening, diagnosis and management of Osteoporosis. Published in Osteoporosis International, 'The APCO Framework' comprises 16 minimum clinical standards set to serve as a benchmark for the provision of optimal osteoporosis care in the region.

This set of clear, concise, relevant and pragmatic clinical standards aim to support national societies, guidelines development authorities and health care policy makers with the development of new guidelines, and to encourage the revision of existing guidelines. Implementation of The APCO Framework, or a similar set of standards of care informed by the Framework, is expected to significantly reduce the burden of osteoporosis not only in the Asia Pacific region, but also worldwide.

Download The APCO Framework at www.apcobonehealth.org/apco-framework.
To learn more, visit www.apcobonehealth.org or email **secretariat@apcobonehealth.org.**

Upcoming MSGM Events

Do not miss the 16th National Geriatric Conference or eMCGM scheduled to be held from 19-21 August, 2021.

Deadline for submission of abstracts: 5 June 2021. Click here to submit an abstract.

Remember to look out for the programmes and registration on https://msgm.com.my/ or https://mcgm.msgm.com.my/

The Asia-Pacific Geriatric Network **(APGN)** will also be held during the eMCGM.
The MCGM Kuching is now tentatively scheduled for 2022.