

ANA 308 Embryological Mechanism and Teratology and Reproductive Techniques assignment

Submitted by



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ANATOMY DEPARTMENT

**TERATOLGY**

Teratology is the science that studies the causes, mechanisms, and patterns of abnormal development. Teratology is the study of abnormalities of physiological development. It is often thought of as the study of human congenital abnormalities, but it is broader than that, taking into account other non-birth developmental stages, including puberty. The related term developmental toxicity includes all manifestations of abnormal development that are caused by environmental insult. These may include growth retardation, delayed mental development or other congenital disorders without any structural malformations.

**COVID-19**

COVID-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhea. These symptoms are usually mild and begin gradually. Some people become infected but don’t develop any symptoms and don't feel unwell. Most people (about 80%) recover from the disease without needing special treatment. Around 1 out of every 6 people who gets COVID-19 becomes seriously ill and develops difficulty breathing. Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness. People with fever, cough and difficulty breathing should seek medical attention.

**COVID-19 AS TERATOGEN**

Pregnancy is a state of partial immune suppression which makes pregnant women more vulnerable to viral infections, and the morbidity is higher even with seasonal influenza. Therefore, the COVID‐19 epidemic may have serious consequences for pregnant women. Although the vast majority of cases of COVID‐19 are currently in China, the risk of outward transmission appears to be significantly raising global concern. Human to human transmission of the virus is proven to occur, perhaps even from asymptomatic patients, and the mortality is substantial, especially among frail, elderly patients with comorbidities. Although there have been some criticisms surrounding suppression of early warnings, and slow initial response followed by heavy‐handed quarantine measures, as well as concerns expressed about the capacity to cope with the large number of patients, and shortage of protective equipment and in‐hospital infections leading to deaths among a substantial number of healthcare professionals, China's effort to contain the disease and slow down its spread in China and world‐wide has been commendable. A large number of cases requiring hospitalization and intensive care is a serious burden even for affluent countries with well‐developed healthcare systems. However, the Chinese government, its health professionals, and the public, have set a new standard for handling the epidemic, and they have certainly contributed to reducing the potential risk of outbreak in neighboring countries with weaker healthcare systems. Furthermore, Chinese researchers and health professionals have generously shared their data, knowledge, experience and expertise that has helped to develop diagnostic tools, clinical management algorithms, set up clinical trials, and accelerate vaccine development. Clinical course and outcome of a substantial number of COVID‐19 patients have been reported, and recommendations regarding the care of such patients have been issued by several national health authorities across the world. However, the practices seem to vary considerably.

Interim guidance has been issued by the World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) on managing COVID‐19, which include some recommendations specific to pregnant women, mostly drawn on experience from previous coronavirus outbreaks. Chinese expert recommendations for the care of pregnant women with suspected and confirmed COVID‐9 were developed and disseminated in China quite early following the outbreak in Wuhan. These recommendations have been dynamic, evolving as more knowledge about epidemiology, pathogenesis, disease progression and clinical course among infected pregnant patients has been gathered. Limited clinical experience in managing pregnant women with COVID‐19 and their neonates has been reported from China recently based on a case series of nine pregnancies with confirmed COVID‐19 treated in Zhongnan Hospital of Wuhan University and 10 neonates (nine pregnancies) delivered at five different hospitals, although many more cases (>100) of suspected or confirmed COVID‐19 have been treated and delivered in several hospitals in China according to the news releases and media reports. So far, no maternal deaths have been reported.

There appears to be some risk of premature rupture of membranes, preterm delivery, fetal tachycardia and fetal distress when the infection occurs in the third trimester of pregnancy. However, there is no evidence suggesting transplacental transmission based on very limited data, as the analysis of amniotic fluid, cord blood, neonatal throat swab, and breast milk samples available from six of the nine patients were found to be negative for SARS‐COV‐2. Whether virus shedding occurs vaginally is also not known.

Whether COVID‐19 increases the risk of miscarriage and stillbirth is unknown. Concerns have been expressed by experts in the media about women undergoing termination of pregnancy for fear of congenital infection and teratogenicity. However, information on the effect of COVID‐19 on the course and outcome of pregnancy in the first and second trimesters is not available yet.

As COVID‐19 still appears to be spreading, more infections in pregnant women are likely to be encountered in different regions, countries, and continents. Therefore, it is important that pregnant women and their families, as well as the general public and healthcare providers, receive as accurate information as possible. So to say that the corona virus is a teratogen is inconclusive

**IMPACT OF AGEING AND ENVIRONMENT IN THE OUTBREAK OF THIS NOVEL COVID 19.**

**AGE**

Older people are at highest risk from COVID-19, but all must act to prevent community spread

he COVID-19 pandemic is impacting the global population in drastic ways. In many countries, older people are facing the most threats and challenges at this time. Although all age groups are at risk of contracting COVID-19, older people face significant risk of developing severe illness if they contract the disease due to physiological changes that come with ageing and potential underlying health conditions.

The majority of those who are infected with COVID-19 have a self-limiting infection and do recover. However, we know that a minority go on to suffer more severe disease, with 10% of cases requiring intensive care unit admission. Sadly, some patients will pass away: so far 30,098 persons are reported to have died with COVID-19 in the European Region, with 90% of the deaths occurring in the mainly affected countries of Italy, Spain and France.

Older adults are at a significantly increased risk of severe disease following infection from COVID-19. This is a very important observation for the European Region: of the top 30 countries with the largest percentage of older people, all but one (Japan) are our Member States in Europe. The countries most affected by the pandemic are among them.

We know that over 95% of these deaths occurred in those older than 60 years. More than 50% of all deaths were people aged 80 years or older. We also know from reports that 8 out of 10 deaths are occurring in individuals with at least one underlying co-morbidity, in particular those with cardiovascular diseases/hypertension and diabetes, but also with a range of other chronic underlying conditions.

Some of the reasons older people are greatly impacted by COVID-19 include the physiological changes associated with ageing, decreased immune function and multimorbidity which expose older adults to be more susceptible to the infection itself and make them more likely to suffer severely from COVID-19 disease and more serious complications.

The CDC has identified older adults and people who have severe chronic medical conditions like heart, lung, or kidney disease at higher risk for more serious COVID-19. According to the CDC, early data suggest older people are twice as likely to have serious COVID-19.

This is likely because as people age, their immune systems change, making it harder for their body to fight off diseases and infection, and because many older adults are also more likely to have underlying health conditions that make it harder to cope with and recover from. Age increases the risk that the respiratory system or lungs will shut down when an older person has COVID-19 disease.

**ENVIROMENTAL**

Environmental factors can come into play in this matter depending on the following conditions that impact the spread of the covid-19 virus. These factors include:

Weather and climate

Pollution

Awareness

**Weather and climate**

Although much of the data has not been peer-reviewed yet, emerging evidence appears to suggest that weather conditions may influence the transmission of the novel coronavirus, with cold and dry conditions appearing to boost the spread. This phenomenon may manifest itself through two mechanisms: the stability of the virus and the effect of the weather on the host. The weather effect is minimal, and all estimates are subject to significant biases reinforcing the need for robust public health measures.

A cross-sectional study correlated cases with mean temperature explored the effect of temperature on transmission in 429, mainly Chinese, cities. They found that for every 1℃ increase in the minimum temperature led to a decrease in the cumulative number of cases by 0.86.

Many viruses wither under high temperatures and there is some evidence that the same might be true for SARS-CoV-2, the novel coronavirus that causes COVID-19.

In an experiment using SARS-CoV-2 in a lab solution, increasing temperature decreased the amount of viable virus that could be detected, according to an April 2 study in the Lancet Microbe. No infectious virus remained after 30 minutes at 56° Celsius (133° Fahrenheit). And just five minutes at 70° C was enough to inactivate the pathogen.

**Pollution**

The novel coronavirus is changing nearly every aspect of life in places with an outbreak. Like any disaster, the COVID-19 pandemic will hit some people harder than others. Since it’s a disease that affects the lungs, people who live in places with way more air pollution could be more vulnerable. This pollution tends to be worse in communities with more poverty, people of color, and immigrants.

When it comes to the US, “We’re the richest country in the world yet we have some of the greatest inequities. These inequities have real consequences and COVID-19 will show that,” John Balmes, a physician and a spokesperson for the American Lung Association, tells The Verge. “The air pollution interacts with multiple other factors that increase risk,” he says.

This crisis isn’t simply a public health issue. It is directly related to social equity and environmental justice. (GinaNRDC)

It is directly related to our fight for clean air, clean water, a healthy environment, and healthy communities.#COVID19 is affecting all of us—our health and our way of life, but low-income communities and communities of color may face added risk. (GinaNRDC)

Severe cases of COVID-19 can lead to pneumonia, which can kill. The disease is deadliest in older people and those with preexisting health conditions that make it harder to breathe or fight off the infection. Even without a pandemic, living with air pollution has been linked to higher rates of lung disease like asthma and chronic obstructive pulmonary disease (COPD) in populations. High levels of air pollution have also been linked to larger numbers of people hospitalized with pneumonia, studies in the US and China have found.

During the 2003 SARS outbreaks, which was caused by another coronavirus, patients from places with the highest levels of air pollution were twice as likely to die from SARS compared to those who lived in places with little pollution, a study on SARS cases in China found. Even moderately bad air pollution significantly increased the risk of death.

There isn’t data yet on how air pollution is playing into the current pandemic, but Balmes points out that international hotspots for COVID-19 — Wuhan, Northern Italy, and South Korea — have pretty high levels of air pollution. He believes air pollution may be one reason, although not the primary factor, for why outbreaks in those places have been so devastating.

Another data point from China backs up the air pollution hypothesis. More men have died from the novel coronavirus in China than women, and there’s been some speculation that this could be because fewer women there smoke. If smoking does put someone at higher risk, then the same is probably true of air pollution, Ana Navas-Acien, a physician-epidemiologist at Columbia University, tells The Verge. “If we extrapolate from there, we could speculate that maybe individuals, communities that have higher air pollution levels could also be at higher risk of developing a more severe infection,” she says. “It’s a hypothesis at least worth testing.”

In places like Chicago’s Little Village neighborhood, the COVID-19 pandemic is piling on top of other stressors. Social distancing immediately took its toll on the city’s street vendors, a majority of whom live in the neighborhood, according to Pino. “It’s like today, right now, they can’t afford the groceries because they would have taken that day’s cash to go get supplies,” says Pino. “It’s those folks in really precarious day-to-day situations that the community’s rallying around — even still, it’s not enough,” she says.

**AWARENESS**

WHO and the World Food Programme (WFP) are exploring ways to work with the Pandemic Supply Chain Network

(PSCN) and Logistical Emergency Teams (L.E.T.) to ensure that logistical assets are in place to support the increasing

global demand for COVID-19 supplies. This is to ensure that supplies are allocated effectively and equitably in the

places where they are needed the most.

WHO is also working with the World Bank to develop demand modeling from a country-based perspective. This will

allow the sharing and support of technical guidance and allocation mechanisms and ensure that critical supplies are

distributed with most impact.

The planning effort will support the mapping of scenarios as well as what is needed for stocks and procurement.

With the engagement of the World Bank, the PSCN seeks to bring together the overview of the market’s capability to

provide and distribute the necessary supplies, WHO demand forecasting and the necessary financial and political

support to fight COVID-19.

Representatives from both WFP and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA)

have joined the WHO team at HQ to establish the Supply Chain Coordination Cell (SCCC). The objectives of the SCCC

are to:

• Establish a COVID-19 supply chain working group to deepen inter-agency collaboration with the aim of

minimizing disruptions to current humanitarian operations, while increasing efficiency and coherence of the

COVID-19 response.

• Provide a centralized voice through the collection and dissemination of information to the UN Crisis

Management Team (UNCMT), other relevant forums, as well as the wider humanitarian community, to

support strategic guidance, operational decision-making, and overall monitoring.

• Foster the creation of regional and country level coordination mechanisms aimed at implementing efforts,

while maintaining the overall coordination of the response.

• Create a smaller joint procurement group of medical equipment buying agencies.

WHO and its partners are constantly working to strengthen the chains of essential COVID-19 supplies. As global

demand rises, WHO and its partners aim to ensure that those areas most at need receive as much assistance as much as possible.

**PERSONAL HYGIENE**

What is personal hygiene?

Personal hygiene is how you care for your body. This practice includes bathing, washing your hands, brushing your teeth, and more.

Every day, you come into contact with millions of outside germs and viruses. They can linger on your body, and in some cases, they may make you sick. Personal hygiene practices can help you and the people around you prevent illnesses. They can also help you feel good about your appearance.

Learn more about why hygiene is so important, the best ways to practice it, and how you can change your habits to make yourself feel and look better.

Types of personal hygiene

Each person’s idea of personal hygiene differs. These main categories are a useful place to start for building good hygiene habits:

Toilet hygiene

Wash your hands after you use the restroom. Scrub with soap for 20 to 30 seconds, and be sure to clean between your fingers, on the back of your hands, and under your nails. Rinse with warm water, and dry with a clean towel.

If you don’t have running water or soap, an alcohol-based hand sanitizer will also work. Use one that’s at least 60 percent alcohol.

Shower hygiene

Personal preference may dictate how often you wish to shower, but most people will benefit from a rinse at least every other day. Showering with soap helps rinse away dead skin cells, bacteria, and oils.

You should also wash your hair at least twice a week. Shampooing your hair and scalp helps remove skin buildup and protects against oily residues that can irritate your skin.

Nail hygiene

Trim your nails regularly to keep them short and clean. Brush under them with a nail brush or washcloth to rinse away buildup, dirt, and germs.

Tidying your nails helps you prevent spreading germs into your mouth and other body openings. You should also avoid biting your nails.

Teeth hygiene

Good dental hygiene is about more than just pearly white teeth. Caring for your teeth and gums is a smart way to prevent gum diseases and cavities.

Brush at least twice a day for 2 minutes. Aim to brush after you wake up and before bed. If you can, brush after every meal, too. Floss between your teeth daily, and ask your dentist about using an antibacterial mouthwash.

These two steps can help prevent tooth decay and eliminate pockets where bacteria and germs can build up.

Sickness hygiene

If you’re not feeling well, you should take steps to keep from spreading germs to others. This includes covering your mouth and nose when sneezing, wiping down shared surfaces with an antibacterial wipe, and not sharing any utensils or electronics. Also, immediately throw away any soiled tissues.

Hands hygiene

Germs on your hands can easily enter your body through your mouth, nose, eyes, or ears. Wash your hands:

* when you handle food
* before you eat
* if you handle garbage
* when you sneeze
* any time you touch an animal

Likewise, wash your hands after changing a baby’s diaper, helping someone clean themselves, or when cleaning a cut or wound.