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RHO CHI Px post

VOLUME 9, ISSUE 3

An award-winning, bimonthly, electronic, student-operated newsletter publication by the St. John's University College of Pharmacy and Health Sciences Rho Chi Beta Delta chapter

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TABLE OF CONTENTS

PUZZLE OF THE MONTH

A	X	A	L	P	R	A	Z	O	L	A	M	Z	I	T	H	R	O	M	A	X	C	J	A
L	A	X	S	Q	P	Q	O	R	P	I	C	R	V	N	E	F	O	R	P	U	B	I	L
B	I	N	I	T	A	T	S	A	V	M	I	S	A	D	O	M	N	F	H	A	K	P	E
U	A	E	S	V	H	R	O	F	E	X	O	F	E	N	A	D	I	N	E	S	H	F	N
T	E	Z	N	P	A	S	R	I	A	L	U	G	N	I	S	F	O	S	A	M	A	X	D
E	H	D	F	I	O	L	U	H	F	I	Q	C	S	A	V	R	O	N	M	Y	R	H	R
R	R	B	I	A	R	X	P	L	M	U	E	M	U	P	R	O	A	I	R	H	F	A	O
O	G	N	I	M	X	P	J	A	P	F	L	O	N	A	S	E	A	M	Q	V	B	P	N
L	L	I	C	O	E	W	A	O	J	L	S	T	K	U	V	J	K	B	O	O	R	N	A
T	U	C	N	X	C	S	M	Z	D	X	A	M	B	I	E	N	N	J	L	I	N	I	T
S	C	Y	I	I	L	B	O	Z	N	E	A	T	D	A	U	T	U	A	L	W	O	M	E
A	O	M	D	C	O	T	X	R	E	E	N	N	A	O	L	S	Q	O	Q	Z	C	R	I
K	P	O	O	I	P	E	I	O	U	S	B	I	A	N	M	L	S	N	Z	A	I	O	S
U	H	R	C	L	I	N	L	C	I	F	T	O	X	X	T	E	E	L	Z	J	P	F	D
L	A	H	I	L	D	O	F	O	P	O	H	R	L	E	C	R	P	G	V	H	R	T	C
E	G	T	V	I	O	R	N	Z	D	W	D	B	I	C	L	B	A	R	R	Z	O	E	Q
T	E	I	D	N	G	M	M	P	F	P	E	S	V	L	Y	A	I	U	A	A	F	M	X
N	E	Z	K	Y	R	I	R	U	H	N	I	R	T	O	M	C	H	T	T	Z	L	A	U
O	P	A	P	A	E	N	O	D	O	C	O	R	D	Y	H	M	U	P	V	S	O	P	W
M	I	K	Z	O	L	P	I	D	E	M	X	E	L	F	E	K	F	Y	E	R	X	L	A
R	I	L	E	N	I	P	I	D	O	L	M	A	M	S	P	G	O	Y	S	C	A	X	E
G	O	F	L	E	X	E	R	I	L	D	L	I	R	P	O	N	I	S	I	L	C	W	J
F	P	R	E	N	A	T	A	L	P	L	U	S	R	F	X	I	S	A	L	T	I	Z	A
F	L	U	T	I	C	A	S	O	N	E	M	M	L	O	L	O	N	E	T	A	N	R	Z

FUROSEMIDE
LASIX
ATENOLOL
XANAX
TENORMIN
ALENDRONATE
FOSAMAX
PRILOSEC
CEPHALEXIN
FEXOFENADINE
ALLEGRA
ALPRAZOLAM
ZOLPIDEM
AMBIEN
AMLODIPINE
NORVASC

MONTELUKAST
SINGULAIR
LISINOPRIL
ZESTRIL
CYCLOBENZAPRIL
FLEXERIL
OMEPRAZOLE
CLOPIDOGREL
PLAVIX
METFORMIN
GLUCOPHAGE
SIMVASTATIN
ZOCOR
IBUPROFEN
MOTRIN
FLUTICASONE

FLONASE
ALBUTEROL
PROAIR HFA
CIPROFLOXACIN
CIPRO
ZITHROMAX
AZITHROMYCIN
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HYDROCODONE APAP
VICODIN
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COVID-19: The 2019 novel coronavirus

By: Darien Lee, PharmD Candidate c/o 2021

Wuhan, the most populous city in Central China, has a population of over 11 million people. The city is one of China's largest transportation and manufacturing centers with dozens of railways and roads as well as thousands of technological enterprises and institutions, respectively. In late December 2019, Chinese physicians discovered multiple pneumonia cases in Wuhan in association with a seafood market that sells live and dead animals.[1] This situation relates to a prior zoonotic viral outbreak known as the severe acute respiratory syndrome (SARS) epidemic in 2002, in which the infection started in a similar type of animal market. Similar to SARS, the zoonotic viral infection in Wuhan (COVID-19) is classified as a coronavirus that primarily originates from bats. As of March 2, 2020, the countries at highest risk of being exposed to the disease include China, Thailand, Japan, Republic of Korea, Hong Kong, Taiwan, Singapore, Malaysia, Macau, Italy, Cambodia, Laos, Myanmar, and Vietnam.[2] The World Health Organization (WHO) has declared the coronavirus a pandemic; the number of confirmed cases of COVID-19 surpasses one hundred thousand worldwide with over one thousand cases in the United States.[3]

COVID-19 shares many characteristics that are similar to the flu. Many medical offices have coronavirus testing kits that look for signs of the infection in nasal secretions, blood, or other body fluids.[4] People who have the highest risk of getting very sick from this disease include older adults and those who have serious chronic medical conditions like asthma or any respiratory condition, heart disease, and diabetes.[5] The median estimated incubation period is five to six days.[2] A clinical report on the cases of 41 patients hospitalized in Wuhan for COVID-19 revealed that the most common symptoms were fever, cough, and fatigue.[1] Fifty-five percent of patients developed dyspnea and 29 percent of patients demonstrated acute respiratory distress syndrome.[1] Another study focusing on 99 patients at Jinyintan Hospital in Wuhan revealed that reports on imaging techniques showed bilateral pneumonia in 75 percent of the cases.[1]

Currently, there are no vaccines or treatments for COVID-19. Similar to the SARS epidemic, COVID-19 must be controlled through public health measures. Syndromic surveillance, isolation of patients, and quarantine of contacts are important measures that will play a role in preventing further transmission of this disease.[1] Many governments worldwide have authorized lockdowns on endemic areas including Wuhan, all Italian cities and parts of Germany.[1] As hospitals admit more patients, it is apparent that a greater focus needs to be placed on protecting healthcare workers from nosocomial infections; N95 masks, goggles, and protective gowns are required for adequate protection from the virus.[1] For the general public, handwashing, cough/sneezing etiquette, and wearing masks when visiting public places are recommended.[1] In the event that a person suspected of having COVID-19 is undergoing testing and is not critically ill, it is recommended that the person remains in self-quarantine—staying indoors for 14 days from the date of contact with a confirmed case or return from endemic areas, avoiding contact with people, and separating themselves from the rest of their household.[2]

Although there are currently no FDA-approved treatments for COVID-19, Chinese researchers have already conducted in-vitro efficacy tests against the coronavirus.[1] The most effective drugs that demonstrate inhibition of the virus include the nucleotide analog remdesivir and the anti-malaria compound chloroquine.[1,6] Out of 7 antiviral drugs tested, the in-vitro tests showed that remdesivir (EC50 = 0.77 μM; CC50 > 100 μM; SI > 129.87) and chloroquine (EC50 = 1.13 μM; CC50 > 100 μM, SI > 88.50) displayed the highest inhibitory responses and safety index at a low micromolar concentration range.[6] Remdesivir functions on a post-virus entry level; it interferes with viral RNA transcription by incorporating itself into nascent viral RNA chains, resulting in pre-mature termination.[6] On the other hand, chloroquine inhibits infection by interfering with viral/cell fusion and glycosylation of cellular receptors for SARS-CoV-2.[6] China is currently in the enrollment phase for two randomized, placebo controlled clinical trials testing the therapeutic efficacy of remdesivir in patients with mild or moderate COVID-19 and patients with severe disease, respectively.[6]

The COVID-19 pandemic has not only affected our communities on a physical level, but on a psychological level as well. Although social media is often considered one of mankind's greatest achievements, it can also be our greatest downfall. News of COVID-19 originating and spreading from Asian countries has, in some areas, caused a mass panic. There have been growing reports of xenophobia and stigma against people of Asian descent, people who have traveled abroad, emergency responders, and healthcare professionals.[7] It is important that we do our part to curb the stigma associated with COVID-19 by remaining calm and knowledgeable of the situation at hand. António Guterres, Secretary-General of the United Nations, has stated, "As we fight the virus, we cannot let fear go viral."

For more information and updates on the COVID-19 outbreak, please visit the CDC, WHO, and NYC Department of Health websites or call the novel coronavirus hotline at 1-888-364-3065. If you are sick with COVID-19 or suspect you are infected with the virus, stay at home, limit contact with others, and practice good hygiene habits. If your illness is worsening (i.e., difficulty breathing), call your doctor or seek emergency medical help right away.

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Overview of the use of neuromuscular blocking agents in surgery and critical care and their reversal agents: sugammadex (Bridion®) and neostigmine methylsulfate (Bloxiverz®)

By: Joseph DiPaola (PharmD Candidate c/o 2022), Nishanth Viswanath (PharmD Candidate c/o 2022)

Neuromuscular blocking agents (NMBAs) are drugs that induce a physiological state of paralysis, and are used in a variety of surgical procedures, disease states, and situations in clinical pharmacy and anesthesiology. Practitioners have been successfully using NMBAs since 1995 after the publication of the first clinical guidelines by the Society of Critical Care Medicine. Advances in medicine have since encouraged their use as adjunctive agents in anesthetic procedures.[1] Though their use is widely restricted to critical care operations and surgical procedures, they are used heavily in emergency events and, as a result, it is imperative that clinicians in these respective fields understand their uses and implications with respect to clinical outcomes.

Most notably, the emergency use of NMBAs is highlighted in the practice of Rapid Sequence Intubation (RSI), a form of endotracheal intubation used to provide ventilation during surgical procedures that involve rapid anesthesia, delayed gastric emptying, ileus, the use of opioids, gestation, or neurological/neuromuscular disorders due to their high risk of aspiration.[2] While conventional endotracheal intubation involves a large volume of air being displaced into a patient's gastrointestinal tract, it is contingent on the assumption that the patient's stomach contents are emptied via perioperative fasting or the use of prokinetic agents. RSI, by contrast, offers respiratory ventilation for the patient with a lesser risk of regurgitation or aspiration of stomach contents, making it convenient for use in emergency surgical procedures. Most RSI protocols will require the use of an induction agent such as propofol or etomidate (Amidate®) to facilitate the loss of consciousness and a fast acting NMBA such as succinylcholine (Anectine®) or rocuronium (Zeumuron®) for muscle paralysis.[2] It is important to note that while RSI procedures most commonly warrant NMBA use, other intubating procedures such as laryngoscopies have been known to include neuromuscular blockade at the discretion of practitioners.[3]

NMBAs are broadly classified as either depolarizing or nondepolarizing agents, both of which prevent muscular contraction through the alteration of acetylcholine receptors in varied mechanisms. Depolarizing NMBAs work by agonizing nicotinic acetylcholine receptors on postsynaptic membranes, which then exhibit muscular contraction as expected, but eventually continue to induce complete paralysis as the muscle end plates are unable to repolarize.[1,4] This physiological status is known as phase 1 block.[1] After continued binding or exposure to higher concentrations of a depolarizing NMBA, the receptor may undergo conformational changes which render it partially dysfunctional even in response to normal acetylcholine levels.[1] This phenomenon is known as phase 2 block, and results in a longer recovery time and eventual neuromuscular weakness upon recovery or reversal.[1] To date the only available depolarizing NMBA is succinylcholine.[1] Though is it conventionally used and inexpensive, succinylcholine is associated with post-anesthetic muscle weakness and cardiac arrhythmias, and therefore, is not commonly used for prolonged periods of neuromuscular blockade.[4]

Nondepolarizing NMBAs contrast depolarizing NMBAs as they induce paralysis by competitively antagonizing nicotinic acetylcholine receptors.[1,4] Paralysis is seen sequentially, starting with fast twitch muscles in the eyes

and larynx and then progressing to the limbs, trunk and diaphragm, while reversal occurs in the opposite order. Uniquely, nondepolarizing NMBAs do not have any effect on the conformation of acetylcholine receptors, rendering them useful for long term neuromuscular block via continuous infusion.[1] This, in a sense, makes them novel entities that contrast the emptying of ions at neuromuscular end plates which is seen with depolarizing NMBAs.

Chemically, nondepolarizing NMBAs are further classified as either benzylisoquinolines or aminosteroids, which are both structurally related to acetylcholine.[1] The aminosteroids were first introduced with the approval of pancuronium (Pavulon®) in 1964, which exhibits a slow onset of action but a long duration of action.[1] A notable drawback to pancuronium use, however, is its vagolytic effect induced by blockage of cardiac muscarinic receptors, which results in moderate tachycardia.[1] In response, vecuronium (Norcuron®) was introduced soon after, being branded as an agent that lacked any vagolytic side effects and possessed a shorter time of onset and duration of action than pancuronium.[1] The release of rocuronium soon followed, which boasts the shortest time of onset and duration of action of the aminosteroids, but at higher doses can present mild vagolytic activity similar to pancuronium.[1]

The benzylisoquinolines consist of a chain of methyl groups connecting two quaternary ammonium groups which allow for the variation of several stereoisomers with different metabolic rates, ranging from short to intermediate acting.[1] Structurally, they are ideal for the patient who may have renal or hepatic dysfunction since benzylisoquinoline NMBAs are degraded by plasma cholinesterases or Hoffman elimination, which is a phenomenon that causes quaternary salts to undergo degradation in slightly alkaline conditions.[1] The agents currently approved in this class and used in practice are mivacurium (Mivacron®), atracurium (Tracrium®), and cisatracurium (Nimbex®), which exhibit an increasing duration of action in that order.[4] Clinically, it is important to note that atracurium has the potential to cause seizures induced by a toxic metabolite called laudanosine.[4,5] In response to this, cisatracurium was marketed as the cis-cis isomer of atracurium which produces around a third of the amount of laudanosine as a byproduct when compared to atracurium, and is three times as potent.[1,6] Additionally, doses of both atracurium and mivacurium have exhibited post-marketing instances of varying histamine release, making some patients susceptible to hypersensitivities.[5,7]

Sugammadex (Bridion®) and neostigmine methylsulfate (Bloxiverz®) are postoperative critical care agents indicated for the reversal of nondepolarizing and depolarizing NMBAs after surgery and or intubation.[3,8,9] Neostigmine methylsulfate is an acetylcholinesterase inhibitor which has been conventionally used by clinicians as a principal reversal agent for neuromuscular blockade for many years. By allowing it to bypass degradation, neostigmine methylsulfate increases the competitive pressure of acetylcholine, causing it to resume binding to nicotinic receptors.[4] However, if NMBA concentrations are too high, neostigmine methylsulfate is not able to overcome the antagonism regardless of the dose given.[4] Since neostigmine methylsulfate works on both nicotinic and muscarinic acetylcholine receptors, concomitant administration of an antimuscarinic agent, such as atropine or glycopyrrolate, is required to offset instances of bronchospasm, bradycardia and post-operative nausea and vomiting.[3]

In 2015, the Food and Drug Administration (FDA) approved sugammadex, a novel selective relaxant binding agent (SRBA) for the reversal of neuromuscular blockade specifically induced by rocuronium or vecuronium.[3,4,8] Sugammadex is a modified gamma cyclodextrin that encapsulates rocuronium or vecuronium molecules in a 1:1 ratio, which allows for reversal of neuromuscular block of any degree, as opposed to neostigmine methylsulfate.[8] Furthermore, as sugammadex has no effect on cholinergic receptors, an antimuscarinic agent does not need to be co-administered.[8,10] In a series of studies registered on the Cochrane Central Register of Controlled Trials, the times for reversal of rocuronium using sugammadex versus neostigmine methylsulfate registered as 6.6 times faster (1.96 versus 12.87 minutes) in moderate neuromuscular blockade, and 16.8 times faster than neostigmine methylsulfate (2.9 versus 48.8 minutes) in deep neuromuscular blockade on average.[9] These trials, however, represented recovery of rocuronium induced neuromuscular block exclusively. While data exists for the reversal of vecuronium using sugammadex, it is important to note that sugammadex has an 2.5 times higher affinity for rocuronium than vecuronium (25,000,000 M versus 10,000,000 M) in neuromuscular blockade reversal.[10,11] Additionally, though it has a greater affinity for aminosteroid NMBAs, sugammadex may cause the plasma levels of endogenous and exogenous hormones or compounds that follow a structural similarity to aminosteroids to decrease during administration.[8,11]

When evaluating sugammadex as an alternative to traditionally used cholinesterase inhibitors, it is important to take sugammadex's cost into consideration. Since sugammadex is only indicated for use in reversal of rocuronium and vecuronium, one of its main issues is that it cannot completely replace neostigmine methylsulfate on formularies.[7] Additionally, the price of sugammadex is approximately 59.84 dollars/mL in a 2mL vial, while the price of neostigmine methylsulfate ranges from 0.72-5.40 dollars/mL in a 10mL vial.[10,12,13] However, though its use is slightly limited and its cost is exponentially larger compared to neostigmine methylsulfate, there is sound justification for sugammadex to be included on hospital formularies for certain situations.[10] One such scenario where it is commonly seen is in RSI. While succinylcholine is commonly used as a first line agent in RSI, a trending option for institutions is to use rocuronium instead of succinylcholine as the first line agent. This has been supported by a Cochrane review, which found that the combination of rocuronium with sugammadex is potentially safer than succinylcholine due to a lower side effect profile.[10] A rising issue, however, is inadequate training of anesthesiologists in sugammadex dosing calculations. This coupled

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with lower overall accessibility due to cost can delay administration of sugammadex by 6.7 minutes, on average, in an emergency scenario.[10] Although these issues do not correspond to the drug itself, it is important to acknowledge that additional training is required to make the combination effective.

While sugammadex does show a clear difference in recovery time when compared to neostigmine methylsulfate, this does not necessarily mean there is a reduction in length of hospital stay or cost to the patient. Most cost analyses available do not demonstrate a pharmacoeconomic advantage in adding sugammadex to formulary, as its use seems to increase costs by approximately 9.04 dollars per case.[10] Even though sugammadex is more effective than neostigmine methylsulfate and other similar agents for the reversal of rocuronium and vecuronium, there is no consensus regarding whether it would be beneficial for an institution to add sugammadex to formulary. Such decisions are dependent on individual institutions taking budget, staffing, logistics, and other internal and external factors into account.

NMBAs have been implicated in critical care events for many years and continue to show efficacy in many surgical procedures. The introduction of sugammadex in 2015 for reversal of steroidal NMBAs encourages the use of nondepolarizing NMBAs in surgical procedures, furthering patient safety and the predictability of paralytic agents. By understanding the uses and indications of NMBAs and the utilization of their reversal agents in practice, clinicians, including pharmacists, can provide an invaluable impact on patient safety and outcomes.

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Combating the neglected consequences of the opioid crisis

By: Mah Noor, PharmD Candidate c/o 2021

Although the opioid crisis began in the late 1990s, there has been a recent increase in prescription and illicit opioid drug use which has led to an increased prevalence of opioid overdoses due to misuse and dependency. In 2017, the number of overdose related deaths involving opioids, including prescription opioids like oxycodone (OxyContin®) as well as illegal opioids like heroin and illicitly manufactured fentanyl (Duragesic®), was six times higher than in 1999.[1] Patients who are regularly prescribed opioids may have an increased tolerance and dependency to their medications, which means they require higher and more frequent doses to maintain analgesic effects. Additionally, nearly eighty percent of heroin users reported misusing prescription opioids prior to using heroin.[2]

According to the Centers for Disease Control and Prevention (CDC), there have been three waves of opioid overdose related deaths. The first wave was in the 1990s and included overdose related deaths involving prescription opioids such as oxycodone, hydrocodone (Vicodin®), codeine, morphine (MSContin®), methadone (Methadose®). Pharmaceutical companies, such as Purdue Pharma which manufactures oxycodone and was formerly owned by the Sackler Family, reassured healthcare providers that patients would not become addicted to prescription opioid pain relievers, and thus, propelled providers to prescribe them at greater rates, contributing to the growing epidemic. The second wave was in 2010 and consisted of rapid overdose related deaths involving heroin. The most recent wave in 2013, which led to a significant increase in overdose related deaths, was a result of synthetic opioid use, including illicitly manufactured fentanyl being sold on the streets in combination with heroin, counterfeit pills, and cocaine.[3]

In November 2019, federal prosecutors in New York State opened investigations on Johnson & Johnson, Teva Pharmaceutical Industries Ltd., Mallinckrodt PLC, Amneal Pharmaceuticals Inc., AmerisourceBergen Corporation and McKesson Corporation.[4] These pharmaceutical companies are under investigation in order to determine whether they intentionally neglected regulations and promoted the sale of addictive opioids by claiming low addiction rates so that physicians would prescribe opioid medications in increasing numbers. Prosecutors sent subpoenas and requested documents from the aforementioned companies in order to better understand their marketing and sale of opioids, internal programs and policies to stop the abuse of opioid medications, and examine if the companies violated the Controlled Substances Act, which regulates federal drug distribution and possession.[4] Although many recognize pharmaceutical companies and physician prescribing patterns as the root causes of the opioid crisis, the impact socioeconomic factors have on one's likelihood to use and abuse opioids should not be underestimated. In socioeconomically disadvantaged communities, circumstances of life may influence individuals to turn to substance abuse. Psychological and environmental factors such as peer pressure, physical and sexual abuse, early exposure to illicit drugs, stress, and parental guidance, or lack thereof, can greatly af-

fect one's likelihood to use illicit drugs. Repeated drug use also makes it difficult to battle substance abuse due to chemical and psychological changes in the brain which lead to increased tolerance and changes in one's self-control.[5]

Pharmacists are responsible for ensuring safe and effective medication use and distribution through assessing pharmacotherapy, counseling patients, and monitoring medication-use outcomes. As healthcare providers who have the most frequent and consistent interaction with patients, pharmacists should actively work to improve the way patients are prescribed pain management therapies by referring to clinical practice guidelines and tailoring regimens to each patient's circumstances. A pharmacists' role on the front lines of community health care makes it vital for them to be skilled at identifying patients struggling with opioid use disorder. Pharmacists have the skills to not only provide care through substance abuse prevention and assistance programs as well as educational awareness events, but also to serve in leadership positions which are focused on mitigating the opioid epidemic. Only half the world's nations provide access to effective treatment options for opioid dependence and less than ten percent of patients who are in need of such treatment are currently receiving it.[6] In order to make strides in the realm of opioid use disorder, healthcare professionals of all disciplines must work collaboratively to provide the knowledge and support their communities need, both medically and socioeconomically.

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Please like our Facebook page @ FB.com/RhoChiPost

RHO CHI POST: TEAM MEMBERS

@ Anna Diyamandoglu

6th Year, STJ; Editor-in-Chief

Throughout my time in the PharmD program, my understanding of pharmacy as a profession has evolved and deepened, as has my desire to raise awareness, particularly to non-science students, about the diverse role pharmacy plays in various healthcare and non-healthcare settings. I have always had an affinity for writing and look forward to combining my interests in literary composition, editing and pharmacy to produce relevant issues which both pharmacy students and non-pharmacy students alike will find relatable and take an interest in.

@ Jonathan Mercado, PharmD

Graduate Copy Editor [Content-Focused]

The Rho Chi Post breaks barriers for students that want a glimpse of their future and acts as an inspiration to work harder to achieve their goals. It is an embodiment of the motivation and intelligence that drives pharmacy students to be the most informed and capable professionals they can be. I am glad to a part of that mission and to channel my passion and interests through this newsletter.

@ Joseph Eskandrous, PharmD

Graduate Staff Writer

In the world of pharmacy, knowledge becomes outdated within hours of when you learned it. The miracle drug that used to be considered the standard of therapy is replaced by the latest and greatest. My role as a Staff Writer for the Rho Chi Post is to bring these changes to the forefront in order to empower future pharmacists and to improve the quality of patient care.

@ Shireen Farzadeh, PharmD

Graduate Copy Editor [Content-Focused]

I am excited to join Rho Chi Post and contribute to the award-winning newsletter for students to share ideas, opinions, and pertinent topics! Writing for the Rho Chi Post is an opportunity to express our appreciation for pharmacy and educate ourselves and our peers. I hope to inspire students to discover their passion for writing and to stay up to date on our evolving profession!

@ Nicollette Pacheco, PharmD

Graduate Editor [Graphics-Focused]

As a member of the Rho Chi Post team, I have a vast appreciation of what it means to be a pharmacist in the rapidly evolving world of healthcare. As a graduate editor, I will continue to bring my passion for science and creativity to the Rho Chi Post.

@ Judy Koag

5th Year, STJ; Copy Editor [Graphics-Focused]

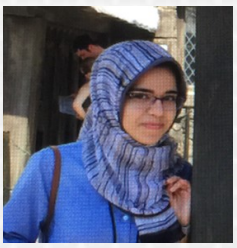
I am so excited to join the Rho Chi Post, a newsletter which strives to create high quality and creative content. I look forward to working with the team to promote the profession of pharmacy and communicate ideas that inspire and attract readers through the use of graphic design. Graphic design has always been my passion and I hope my contributions continue the Rho Chi Post's mission.

RHO CHI POST: TEAM MEMBERS

@ Oudit Balkaran

5th Year, STJ; Social Media Manager & Website Liaison

The Rho Chi Post is not only a great way for students to voice their opinions, but also a great way for them to continue expanding their knowledge of pharmacy. Today's news becomes old news very rapidly in the ever-changing world of pharmacy. Though my involvement in Rho Chi Post, I hope to help students learn and motivate them to take a deeper dive into the vast world of pharmacy. It is crucial we stay on top of our knowledge as future pharmacists. By doing so, we can maximize our abilities to help our patients.



@ Sarah Hewady

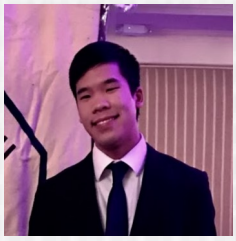
6th Year, STJ; Staff Editor

The importance of staying updated on relevant healthcare matters cannot be overstated. I appreciate the mission of Rho Chi Post in that it successfully compiles clinically relevant and up-to-date information for its audience. Wanting to contribute to this cause is what sparked my interest to become a staff editor. I hope to broaden the scope of knowledge of the public as well as aid healthcare practitioners in the clinical decision-making process.

@ Katharine Russo

5th Year, STJ; Staff Editor

In my first two years as a pharmacy student, I was exposed to numerous opportunities to write medical based articles for classes and clubs. This is what first sparked my interest in health care literature and I look forward to being a Staff Writer for the Rho Chi Post in hopes of being able to share my passion and enthusiasm in writing health-care related publications.



@ Adrian Wong

5th Year, STJ; Finance & Outreach Manager

As future "drug experts", I believe it is our responsibility to keep up to date with the ever-changing and dynamic world that is pharmacy. The Rho Chi Post provides a unique platform for students to stay well informed on current healthcare related events, as well as fine-tune their writing skills--both of which are essential for being a successful pharmacist. I am excited for the privilege to work alongside the editorial board to produce a newsletter that can be appreciated by everyone!

@ Kathleen Horan

6th Year, STJ; Staff Editor

I have always loved writing, and I hope to couple my passion for writing with my interest in clinical pharmacy by becoming a writer and staff editor for the Rho Chi Post. As a writer and staff editor for the Rho Chi Post, I hope to write and edit informative and interesting articles that relate to the world of healthcare and pharmacy. I am so excited to join this team of student pharmacists and writers.

@ Daniela Farzadfar

6th Year, STJ; Staff Writer

Pharmacy is a constantly evolving profession. Writing for the Rho Chi Post gives me the opportunity to enlighten my peers and myself on changes occurring in the field that we are often not taught in the classroom. The Rho Chi Post serves as a creative outlet where students can express their opinions and share new information by combining their passion for writing and the pharmacy profession. I hope that my contribution to this newsletter inspires others to improve patient outcomes by staying up to date on recent changes.

RHO CHI POST: TEAM MEMBERS

@ Michael Lim

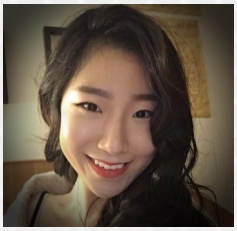
6th Year, STJ; Staff Writer

In the spirit of advancing the pharmacy profession, the Rho Chi Post never ceases to produce valuable content showcasing the innovation and diversity of the career. As a Staff Writer for the Post, I am honored to have the opportunity to use writing to both educate and push readers to strive for excellence in their professional pursuits. I hope that my contributions to the newsletter are able to foster growth in an informative and accessible manner.

@ Maryam Sekhery

6th Year, STJ; Staff Writer

I have always looked forward to reading Rho Chi Post's newsletters and can now proudly say that I am a member of the Rho Chi Post team! The field of pharmacy is always changing, and Rho Chi Post is one-way students can stay up to date regarding current events in the profession and express their views on the dynamic aspects of pharmacy. I look forward to contributing to Rho Chi Post as a staff writer and am grateful for the opportunity to create original content for the newsletter.



@ Yeonah Suk

6th Year, STJ; Staff Writer

As a student interested in various branches of healthcare, the Rho Chi Post has provided me the opportunity to be part of an organization that discusses this field in a broad scope. As modern society continues to amalgamate and globalize multiple disciplines, it is important that we harmonize these elements and keep ourselves updated on their interactions. I joined the Rho Chi Post to both learn and contribute to a team that has immense diversity and my goal is to continue exploring innovative ideas through writing.

@ Nishanth Viswanath

4th Year, STJ; Staff Writer

The profession of pharmacy is continuously expanding to meet new demands and offer novel platforms for innovation in healthcare. With an abundance of new information and guidance being published everyday, it can become difficult for students and professionals to stay updated with relevant information and find new outlets to learn. The Rho Chi Post not only allows us to be informed about the current state of our profession, but also allows students to voice their opinions and connect with each other through literature. I am excited to be part of its team, and hope to provide meaningful and resourceful contributions.

@ Mah Noor

5th Year, STJ; Staff Writer

Rho Chi Post is an amazing student-operated newsletter publication that is doing an astonishing job delivering updated news as well as giving students the opportunity to give back to the pharmacy community. As a staff writer, I hope to play a key role in educating students on the different aspects of pharmacy and how much growth takes place in this field. Reading the Post since freshman year has helped me gain a better understanding of what it means to be a pharmacist and I hope to achieve that same understanding in students who read my articles.

@ Shivani Shah

5th Year, STJ; Staff Writer

As students in an dynamic healthcare profession, it is important to keep up to date with literature and publications regarding the pharmacy profession. Rho Chi Post serves as a great outlet for students to catch up on pharmaceutical innovations and progress going on in the career. Being a staff writer motivates me to constantly research and share new, exciting advancements with fellow students. I look forward to reading articles in the Post and hope to spark others curiosity and interest!

@ Evanthia Siozios

6th Year, STJ; Staff Writer

Rho Chi Post is a newsletter that gives students the opportunity to learn and write about novel topics and broaden their knowledge while demonstrating their writing skills. For me, being involved with this newsletter is not just about learning something new but also sharing relevant topics which have an impact on patients' lives. I have learned so much from writing for the Rho Chi Post and hope to inspire others with my words. As a future pharmacist I want to learn to teach and get to give.

MISSION

The Rho Chi Post is an award-winning, monthly, electronic, student-operated, faculty-approved publication that aims to promote the pharmacy profession through creativity and effective communication. Our publication is a profound platform for integrating ideas, opinions, and innovations from students, faculty, and administrators.

VISION

The Rho Chi Post aims to become the most exciting and creative student-operated newsletter within St. John's University College of Pharmacy and Health Sciences

Our newsletter continues to be known for its relatable and useful content

Our editorial team continues to be known for its excellence and professionalism

The Rho Chi Post essentially sets the stage for the future of student-operated publications in pharmacy

VALUES

Opportunity

Teamwork

Respect

Excellence

GOALS

To provide the highest quality student-operated newsletter with accurate information

To maintain a healthy, respectful, challenging, and rewarding environment for student editors

To cultivate sound relationships with other organizations and individuals who are like-minded and involved in like pursuits

To have a strong, positive impact on fellow students, faculty, and administrators

To contribute ideas and innovations to the Pharmacy profession