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Preventive and clinical medicine: abstracts of the 2nd International Student Scientific and Practical Conference/ Caspian Public University, Caspian International School of Medicine; editorial board: Zh.K. Ismailov [and others]. – Almaty

The collection includes abstracts of reports of participants in the International Student Scientific and Practical Conference on the topic: “PREVENTIVE AND CLINICAL MEDICINE.” The theses highlight current problems of medicine and medical education. The topics cover research in the field of modern trends in the development of the theory and practice of medicine, problems and prospects for the development of healthcare, methodology and practice of the development of modern medical education through the eyes of students.

About us

Welcome to our scientific journal, a testament to the intellectual prowess of our student scientific board. Fueled by curiosity and driven by passion, we proudly present a collection of cutting-edge research, born from the vibrant discussions of our recent international scientific conference. Explore the minds of emerging scholars as they push the boundaries of knowledge and contribute to the ever-evolving landscape of academia. Join us on this journey of discovery and innovation.

Meet our team

Student Scientific Board of CISM

Meet our dynamic team, a synergy of diverse minds united by a common pursuit of knowledge. Comprising dedicated students, our team brings a wealth of perspectives to the table. From budding researchers to seasoned organizers, we collaborate seamlessly to foster a vibrant academic community. Together, we navigate the intricacies of scientific exploration, ensuring our endeavors leave an indelible mark on the ever-evolving realm of academia.

11th of November 2023

Introduction

Ishan Gandharia (Chairman of SSB)

4th Course Student at

Caspian International School of Medicine

The International Scientific Conference on Preventive and Clinical Medicine commenced with insightful opening remarks by CISM administration and Board Chairman (Ishan Gandharia), setting the stage for a day of exploration and learning. The event was expertly hosted by Kapil and Rashi, guiding participants through a diverse range of topics.

Caspian University demonstrated an impressive performance at the International Scientific Conference on Preventive and Clinical Medicine. The university's contingent, comprising both students and researchers, actively engaged in the academic discourse, presenting cutting-edge research and contributing significantly to the conference's success.

The diverse range of topics explored by Caspian University participants showcased the institution's commitment to multidisciplinary research within the field of preventive and clinical medicine. From innovative methodologies to thought-provoking findings, the contributions from Caspian University enriched the overall conference experience.

Furthermore, the collaborative spirit among Caspian University attendees fostered a dynamic exchange of ideas, reinforcing the university's role as a hub for intellectual exploration. The dedication and caliber of presentations from Caspian University underscored the institution's standing in the academic community.

As a testament to the excellence within the university, the recognition of outstanding individuals at the conference included notable achievements by Caspian University students and researchers. This collective performance not only highlighted the institution's academic prowess but also reinforced its commitment to advancing medical knowledge and research on a global scale.

Notably, the conference featured remote presentations from international participants via Zoom from Kyrgyzstan (International Higher School of Medicine) emphasizing the global collaboration in the field of preventive and clinical medicine.

One noteworthy presentation was from representatives of Kazakh National Medical University named after S.D. Asfendiyarov. They presented research on "Exploring the clinical, genetic, and therapeutic Dimensions of Hidradenitis Suppurative in the Armpit: A Comprehensive Investigation into a Unique Dermatological Challenge." This presentation added a valuable perspective to the conference, shedding light on a distinctive dermatological issue.

The inclusion of such international insights and collaborative efforts showcased the conference's commitment to fostering a global dialogue in the field of medicine. The exchange of knowledge and research findings from various regions contributed to a rich and diverse conference experience for all participants.

Kapil and Rashi, as adept hosts, ensured the seamless flow of presentations and discussions.

The international dimension of the conference was evident with engaging Zoom presentations from researchers across borders. Participants from different countries brought forth diverse perspectives and methodologies, enriching the overall discourse.

The presentation by Kazakh National University's team delved deep into the complexities of Hidradenitis Suppurative, focusing specifically on the armpit region. Their research, exploring clinical, genetic, and therapeutic dimensions, captivated the audience. The comprehensive investigation not only addressed medical intricacies but also underscored the interdisciplinary nature of modern healthcare.

Interactive Q&A sessions allowed participants to delve deeper into the presented research, fostering a dynamic exchange of ideas. The conference provided a platform for fruitful discussions, paving the way for potential collaborations and future research endeavors.

Other notable researches also from Kazakh Russian Medical Universities

1. Rahul Kumar Chopra on “Researching of development and risk factor coronary artery disease”.

The day concluded with a closing ceremony, expressing gratitude to all contributors and emphasizing the significance of continued collaboration in advancing preventive and clinical medicine. The success of this hypothetical conference lies in its ability to unite professionals, researchers, and students in a collective effort to push the boundaries of medical knowledge.

Within the vibrant academic atmosphere of Caspian University, students and researchers showcased their dedication to advancing preventive and clinical medicine. The local participants from Caspian University made noteworthy contributions, reflecting the institution's commitment to fostering research and academic excellence.

Throughout the conference, students and researchers from Caspian University presented insightful findings and engaged actively in discussions, demonstrating the depth of talent within the university community.

In the culmination of the event, recognition was given to outstanding contributors. Neha, a standout student from the 4th course, was acknowledged for her exceptional work. Additionally, a group of three students from the 2nd course—Abuzar, Sonal, and Ratnu—earned acclaim for their collaborative efforts, securing their place as winners of the conference.

The success of these students exemplifies the dedication and caliber of research emerging from Caspian University, contributing to the overall success and reputation of the International Scientific Conference on Preventive and Clinical Medicine. The conference not only served as a platform for global exchange but also celebrated the achievements of the university's own talented individuals.

CONTENT

mRNA Vaccines Revolutionizing Medicine

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Abstract

In the constantly changing field of vaccination protocols, the mRNA vaccine stands out as a game-changer for illness prevention. Through the utilization of the body's own cellular apparatus, mRNA vaccines facilitate precise and effective immune responses. Furthermore, because mRNA is a minimal and only transitory information carrier that does not interact with the genome, it is an intrinsically safe vector. As the two most prevalent illnesses that humans currently face are cancer and infectious diseases. Despite numerous advancements in research and treatment, satisfactory outcomes have not yet been attained. The development of therapeutics encoded with nucleic acids has made it possible to treat these illnesses.

Introduction

mRNA vaccines are an advanced technology that uses the body's natural cellular processes to create an immune response against specific pathogens. Unlike traditional vaccines, mRNA vaccines do not require live or inactivated agents. The development of mRNA vaccines has been remarkably fast, with recent breakthroughs in fighting infectious diseases, particularly during the COVID-19 pandemic [1, 2].

Mechanism of Action

mRNA vaccines work by introducing synthetic strands of messenger RNA into cells, providing instructions for the synthesis of viral proteins. This prompts an immune response, training the body to recognize and mount defences against the targeted pathogen. The modular and adaptable nature of mRNA allows for fast vaccine development and customization, enabling a quick response to emerging threats [1].

Now, let us dive into the mechanism of action of mRNA vaccines in detail:

mRNA Generation: The vaccine contains messenger RNA (mRNA), which carries genetic instructions. In the case of mRNA vaccines developed for COVID-19, the mRNA carries the genetic code for a modified spike protein found on the surface of the virus;

Cellular Machinery Activation: After the vaccination, when the mRNA is inside the cell, it instructs the cellular machinery to produce an innocuous piece of the virus – the spike protein;

Protein Production: The cells start making the spike protein based on the mRNA's instructions. It is like a small factory producing these protein pieces;

Immune Response: The immune system recognizes this spike protein as foreign and mounts an immune response against it. This involves the production of antibodies and the activation of T cells, which are essential components of your immune defence;

Memory Formation: Importantly, the immune system "remembers" how to fight the virus. If later, the body is exposed to the real virus, the immune system recognizes it and can mount a fast and effective response to neutralize the threat;

Protection: So, when the real virus tries to invade the body, the immune system is armed and ready [1, 3].

Prosperity Against Ecumenical Health Threats

The recent deployment of mRNA vaccines, such as Pfizer-BioNTech and Moderna COVID-19 vaccines, has shown remarkable effectiveness in preventing infection and reducing the severity of the disease. The adaptability of mRNA technology has allowed for the swift development of vaccines that specifically target the SARS-CoV-2 virus, representing a significant shift in pandemic response strategies [2].

The efficiency of mRNA vaccines is affected by various factors. These include target antigen, mRNA stability, delivery system, immune response, timing and dosage, variants, and population factors. It is a complex balance of science and biology, but considering and optimizing these factors leads to the high efficacy observed in mRNA vaccines like those developed for COVID-19 [2].

Applications of mRNA Vaccines

mRNA vaccines have proven to be highly effective in controlling infectious diseases, but their potential extends far beyond viruses. Ongoing research is exploring the use of mRNA technology in cancer immunotherapy, genetic disorders, and personalized medicine. The versatility of mRNA presents opportunities to address various medical challenges, marking a transformative era in healthcare [1-4].

mRNA vaccines are like superheroes in the world of vaccines, with applications that go beyond just one type of disease including infectious diseases, cancer vaccines, influenza and modulating them for rare and genetic diseases. It is enthusing to optically discern how this technology, initially developed for one categorical purport, is now being explored for a range of applications that could revolutionize the way we approach and treat sundry diseases [3].

mRNA Cancer Vaccines

The potential of mRNA vaccines in the realm of cancer is categorically fascinating [3]:

Personalized Cancer Vaccines: mRNA vaccines can be tailored to the individual's concrete cancer mutations. This personalized approach involves identifying unique mutations in a patient's tumour and engendering a customized mRNA vaccine to stimulate an immune replication against those categorical mutations;

Targeting Tumour Antigens: Cancer cells often have concrete proteins or antigens that differ from those in mundane cells. mRNA vaccines can injunctively authorize the immune system to apperceive and assail these concrete tumour antigens, availing to target and ravage cancer cells while sparing salubrious cells;

Combination Therapies: mRNA cancer vaccines can be utilized in cumulation with other cancer treatments, such as checkpoint inhibitors or traditional chemotherapy. This cumulation approach aims to enhance the overall efficacy of cancer treatment;

Prevention of Recurrence: By training the immune system to remain vigilant and assail any remaining cancer cells after primary treatment, these vaccines may contribute to long-term remission;

Treatment of Multiple Cancer Types: Researchers are exploring mRNA vaccines for a range of cancers, including melanoma, breast cancer, and lung cancer [3].

It is an exhilarating frontier in cancer research, and while there is still much to learn and explore, the potential for mRNA vaccines to revolutionize cancer treatment and aversion is a beacon of hope in the fight against this involute disease [3].

The broad prospects of mRNA technology

The prospects of mRNA technology elongate far beyond vaccines; it is like opening a treasure chest of possibilities [4]:

Therapeutic Proteins: mRNA can be habituated to injunctively authorize cells to engender therapeutic proteins. This opens the door to treating sundry diseases caused by protein deficiencies. For example, it could be acclimated to engender insulin for diabetes patients or clotting factors for those with haemophilia;

Regenerative Medicine: mRNA can play a role in regenerative medicine by directing the generation of concrete tissues or cells;

Genetic Disorders: For genetic disorders caused by mutations or abnormalities in concrete genes, mRNA technology could be acclimated to provide the correct genetic ordinant dictations, offering a potential treatment;

Neurological Disorders: By providing the correct genetic injective authorizations, mRNA vaccine could potentially be acclimated to treat conditions like Alzheimer's or Parkinson's disease;

Biotechnology and Industry: mRNA technology can be acclimated to engender enzymes, chemicals, or other bio-predicated products, contributing to sustainable and environmentally cordial manufacturing processes [4].

The adaptability and programmability of mRNA make it a multifarious implement with the potential to revolutionize medicine and sundry industries. The perpetual research and development in this field perpetuate to denude incipient and exhilarating possibilities, making the future of mRNA technology a thrilling frontier [4].

Advantages of mRNA

mRNA is like the Swiss Army knife of the biological world, offering a range of advantages in sundry applications. Here are some of the key perks [1]:

Rapid Development: mRNA vaccines can be developed relatively expeditiously compared to traditional vaccine approaches. This haste is especially valuable in responding to emerging infectious diseases and pandemics;

Customization and Flexibility: The adaptability of mRNA sanctions for the engenderment of personalized vaccines. This is concretely promising in the context of cancer treatment, where tailored vaccines can target concrete mutations unique to an individual's cancer cells;

No Infectious Agents: Traditional vaccines often use enervated or inactivated forms of the pathogen. In contrast, mRNA vaccines do not utilize live viruses, making them safer since there's no jeopardy of causing the disease they're designed to obviate;

Reduced Engenderment Time: The manufacturing process for mRNA vaccines is more streamlined compared to traditional vaccine engenderment methods. This efficiency can contribute to more expeditious and more cost-efficacious vaccine manufacturing;

Potential for Broad Bulwark: mRNA vaccines have the potential to provide broad aegis against sundry strains of a virus. This is crucial in the face of expeditiously mutating viruses, such as the influenza virus or certain coronaviruses;

Targeting Categorical Proteins: mRNA sanctions for precise targeting of categorical proteins. This is salutary in therapeutic applications where the goal is to engender a categorical therapeutic protein to treat a disease;

Inducing Vigorous Immune Replications: mRNA vaccines can stimulate both antibody and T-cell replications, providing a robust and comprehensive immune replication. This is essential for perennial bulwark against diseases;

Biotechnological Applications: Beyond vaccines, mRNA has diverse applications in biotechnology. It can be acclimated to engender a wide range of proteins, enzymes, or other bio-predicated products, contributing to advancements in sundry industries;

Potential for Therapeutic Treatments: In integration to vaccines, mRNA holds promise for developing therapies for a variety of diseases, including genetic disorders, metabolic diseases, and certain types of cancer [1].

The advantages of mRNA technology make it a potent implement in the fields of medicine, biotechnology, and beyond, paving the way for innovative approaches to obviate and treat diseases [1].

Challenges and Future Directions

Despite their prosperity, challenges such as vaccine distribution logistics, public acceptance, and potential long-term effects require meticulous consideration. Future research aims to refine mRNA vaccine platforms, broaden their applicability, and address remaining uncertainties, solidifying their role as a cornerstone in the future of medicine [4].

As promising as mRNA technology is, it is not without its challenges.

Storage and Stability: The current mRNA vaccines, especially those for COVID-19, require ultra-low temperatures for storage. Amending the stability of mRNA molecules could simplify storage and distribution, especially in regions with circumscribed infrastructure [1].

Delivery Systems: While lipid nanoparticles have proven efficacious in distributing mRNA into cells, optimizing and refining distribution systems is a perpetual challenge. Enhancing

targeted distribution to categorical tissues and truncating potential side effects are areas of focus [1, 2, 4].

Immune Replication Variability: Individuals may respond differently to mRNA vaccines due to variations in their immune systems. Understanding and addressing this variability could amend overall vaccine efficacy [1, 3].

Long-Term Safety: Ascertaining the long-term safety of mRNA vaccines requires perpetual monitoring. Addressing concerns and building public confidence in the safety profile of these vaccines is crucial [1].

Future Directions

The peregrination of mRNA technology is still unfolding, and with perpetual research and innovation, we can expect to visually perceive exhilarating developments that address current challenges and open incipient frontiers in medicine and biotechnology [4].

Conclusion

mRNA vaccines have emerged as a revolutionary force in medicine, showcasing unprecedented prosperity in infectious disease control. Their adaptability, expeditious development capabilities, and potential applications in diverse medical domains position them as a transformative implement for addressing current and future healthcare challenges. As research progresses, mRNA vaccines are poised to redefine the landscape of preventive and therapeutic interventions, ushering in an incipient era in medical science.

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COPD – "the third leading cause of death"

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Abstract:

Despite the fact that the disease is the third leading cause of death in the world there is very little known about the cellular biology of the disease, how some patients develop it, how it is

diagnosed and how modern techniques can be used to treat this major cause of death. Recommendations for the treatment and management of the patients with Chronic Obstructive Pulmonary Disease (COPD) are published by the Global Initiative for Chronic Obstructive Lung Disease and updated annually with scientific evidence-based recommendations. In 2022, about 3 million of people died because of COPD and the global burden of the disease is estimated to increase in the coming years but, the research suggests that COPD can actually be treated in the near future and would no longer be a leading cause of death.

Introduction:

COPD is the third leading cause of death worldwide according to the global burden of disease (GBD), World Health Organization (WHO) had predicted this to happen not before 2030. COPD is a common lung disease causing restricted airflow and breathing problems. Tobacco smoking accounts for most cases of COPD about 70% in developed nations. However, in developing countries like India, environmental pollutants are the major cause of death. The increased mortality in low- and middle-income countries (LMIC) is due to use of biomass fuel to generate energy modes. Among the subjects with COPD, the most common phenotype was asthma (55.2%), with chronic bronchitis and emphysema accounting for (30.2%) and (32.3%), respectively. COPD causes shortness of breath, a persistent chesty cough with phlegm that does not go away, frequent chest infections, persistent wheezing etc.

Effect on gas exchange:

COPD affects the process of lungs where blood takes up the oxygen to provide the whole body and disposes carbon dioxide which is a byproduct of the body processes.

Chronic Bronchitis affects the oxygen and carbon dioxide exchange as the airways swelling and mucous production narrows the airways and reduces the flow of oxygen rich air into the lungs and carbon dioxide out of the lung.

Emphysema causes the destruction of the alveoli which leads to the formation of large air pockets in the lungs, bullae. Normal lung tissue next to bullae cannot expand properly reducing lung function. The destruction caused to alveoli and airways makes it harder to exchange carbon dioxide and oxygen during each breath.

The past 2 decades have put new light on COPD and how to treat it.

Dupixent: Sanfoli and Regeneron conducted a clinical trial targeting COPD. In march 2023, the two companies announced positive results from a phase III clinical trial of dupixent in COPD patients. Their investigational drug Dupixent works by blocking the activity of two proteins ie. Interleukin-4 and interleukin-13, which are responsible for kickstarting inflammatory response in patients diagnosed with COPD. the trial showed that Dupixent reduced COPD exacerbations by 30% and improved lung function. If approved by the FDA, this pivotal drug would be the first biologic medicine cleared to treat the lung disorder.

Zephyr Valve Treatment: A new treatment available for people with COPD which is an alternative to lung surgery and lung transplantation is the insertion of tiny valves in the lungs. Zephyr Valves are tiny, one-way valves that allow the trapped air to be exhaled from the lungs and prevent more air from becoming trapped there. These valves are minimally invasive, quick recovery is possible and doesn't require any kind of cutting. It is so effective that the valves enter in and artificially deflate the worst parts of the lungs rather than physically removing it. It is done because the damaged parts of the lungs have lost the ability to release trapped air and have become overinflated. The valves redirect the air flow in the lung away from damaged areas to improve breathing.

Granulocyte-Colony Stimulating Factor (G-CSF): The blood growth factor, granulocyte-colony stimulating factor (G-CSF) causes airway inflammation and lung tissue destruction in COPD. Clinical therapeutic antibodies blocking G-CSF signaling are a potential therapeutic strategy for COPD. While performing an experiment on mice, there were found elevated levels of G-CSF in mice with COPD, and when it was eliminated, the excessive numbers of white blood cells in their lungs were reduced noticeably and the lungs themselves no longer were diseased.

Using the SHIP-1-deficient COPD mouse model, which exhibits a syndrome of destructive lung disease and a complex of comorbid pathologies, a critical and unexpected role for granulocyte-CSF (G-CSF) in linking these conditions has been identified. Deletion of G-CSF greatly reduced airway inflammation and lung tissue destruction. Clinical therapeutic antibodies that block G-CSF signaling can be dose-ranged to inhibit superfluous production of G- CSF and restore it to normal levels. The need is to keep G-CSF at normal range. That way the normal defense function of these white blood cells can be preserved and also, they can be stopped from becoming over- aggressive to lung tissues.

RASCs: A new cell type in human lung with regenerative property has been discovered, the Respiratory airway secretory cells (RASCs) which are located in the lungs of humans and few other mammals. They are facultative progenitors and their work is Maintaining lung airway Health. RASCs have stem cell like property. They help regenerate other cells that are essential for the normal functioning of the alveoli. The cells produce proteins needed for the fluid lining of the airway. Cigarette smoking can disrupt it's regenerative functions. Targeting these cells could pave the way to treat COPD. Studying the Gene activity of these cells it is found that there are significant similarities between RASCs and the important cells in alveoli called the AT2 cells, these are a major lung cell type that help Maintain homeostasis in the alveolar region of the lung. If homeostasis is successful life continues. AT2 cells secrete a surfactant to controls the surface tension in the alveoli and also serve as stem cells harboring the potential to self- renew and differentiate into AT1 cells. AT1cells are large cells that cover 95% of the alveolar surface area preventing the fluid from filling into air sacs of the lungs. The newly discovered RASCs in addition to their protein secretory function, serve as the predecessors for AT2 cells, regenerating them to maintain the AT2 population and keep alveoli healthy. AT2 cells are known to become abnormal in COPD and according to the research the cause of these abnormalities is defects in AT2 cells.

Conclusion:

The advancements in treatment of COPD, if worked in a proper way would hold the predictions of WHO wrong. And at the commence of 2030 it would not remain a leading cause of death. the approval of FDA to dupixent as the biologic medicine, work with Respiratory airway secretory cells (RASCs) and Granulocyte-Colony Stimulating Factor (G-CSF), Zephyr valve treatment, will be a great help to the ones suffering through asthma, emphysema and chronic bronchitis and COPD will no longer be a matter of concern worldwide.

Telesurgery: Revolutionize Medicine

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The Relevance of Research. Nowadays, the biggest revolution in medicine is surgery but because of the unavailability of the resources, we can't reach the rural areas, underserved communities and military sites for the High quality surgical care that's why we need telesurgery to overcome the limitation conventional surgery namely the geographical inaccessibility of rapid and high quality surgical care, surgeon shortage, logistical limitation of surgeon schedules, long distance travel.

Telesurgery, sometimes referred to as telerobotic surgery, is a specialized form of telemedicine, featuring robotic surgical devices that enable surgeons to operate on patients remotely. Most telesurgical devices consist of two main components common to all robotic surgical systems: a "master" control unit where the surgeon operates using hand and foot controls while watching the surgery on a high- quality 3D monitor, and a "slave" unit containing robotic arms that operate on the patient.

Method of Research: By analyzing different literature reviews regarding use of autonomous robots and telesurgery we came to know about different types of robotic surgical systems and subsequently prons and cons of each system.

Among which Da Vinci surgical system is found to be superior one.

Now, let's begin with the clinical cases of telesurgery and come up with conclusion of which system is more precise and suitable and what are the challenges we are currently facing in these systems.

2. Clinical Case Studies

Case:1 Lindbergh's Operation also known as first telesurgery.

The Lindbergh operation was a complete tele-surgical operation carried out by a team of French surgeons located in New York on a patient in Strasbourg, France (over a distance of several thousand miles) using telecommunications solutions based on high-speed services and sophisticated Zeus surgical robots. The operation was performed successfully on September 7, 2001 by Professor Jacques Marescaux and his team from the IRCAD (Institute for Research into Cancer of the Digestive System).The 45-minute procedure consisted of a cholecystectomy on a 68-year-old female patient in surgical ward A in Strasbourg Civil Hospital, in Eastern France. From New York, the surgeon controlled the arms of the ZEUS Robotic Surgical System .This was not necessarily a medical breakthrough,telesurgery has been performed successfully before,but rather a proof of principle that computer technology, robotics, fiber optics and surgical techniques have advanced sufficiently to overcome the technical problems that previously plagued the approach.

Case:2 Spinal Surgery on 12 patients

This case was not merely a single operation but multiple operations on 12 different patients.

These operations of 12 patients were performed using the 5G telerobotic surgery system named Da Vinci (The Da Vinci Surgical System is a robotic surgical system made by the American company Intuitive Surgical. The surgeon is seated in front of the console, looking at an enlarged three-dimensional binocular display on the operative field while manipulating handles that are similar to "joy-sticks". There was collaboration of surgeons from both sides in these 12 cases. Surgeons on the patient side performed the procedures besides screw positioning. To ensure the safety and effectiveness of telerobotic spinal surgery, the training for surgeons on the patient side collaborated with robot engineers which was also very important.

Telerobotic spinal surgery based on the 5G network is accurate, safe, and reliable. The application of the 5G network in the clinical area has great potential and value in the future.

From the above two clinical cases we came to know about the precision of two systems used in telesurgery, ZEUS system is considered as primitive and Da Vinci is advanced one with 3D visualization and more accuracy.

Pros and Cons of Telesurgery.

There are many advantages of telesurgery as compared to conventional surgical methods. The advancements in telecommunication and robotic surgery (RS) have made telesurgery a promising and feasible option for patients to get treated without traveling much. Some of the benefits of telesurgery are discussed below:

1.Eliminating Long Distance Travel

2.Providing Healthcare to Medically Underserved Areas.

3.Improving Surgical Accuracy.

4..Minimizing the Risk of Infection.

Apart from advantages telesurgery have it's own cons as well:

1.Only available in centers that can afford the technology and have specially trained surgeons.

2.Risk of nerve damage and compression.

3.Robotic malfunction, which is extremely rare.

4.One of the important robotic surgery disadvantages is its high cost for providers and patients as well. a single surgical robot system might cost USD 2 million, so it's not a budget-friendly solution

Conclusion: The use of robots in medicine has had a very positive effect and improved outcomes with little to no adverse effects. Having global access to telemedicine and telesurgery being able to provide top medical care to gravely ill and contagious patients without compromising the safety of the medical team would be a very big achievement.

Furthermore, telesurgery also has the potential to overcome infrastructure bottlenecks, mainly in developing nations where the nearest expert may be hundreds of kilometers away. But at the same time few loop holes needed to be fixed to avoid problems in future, like Safe protocols must be developed for every type of procedure that is going to be performed, all staff members must be prepared for all types of emergency situations.

Telemedicine and Telesurgery is the future of universal healthcare which has vast potential to overcome the barriers in providing the highest quality of care to patients in rural and distant setups.

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Exploring the clinical, genetic, and therapeutic dimensions of hidradenitis suppurativa in the armpit: a comprehensive investigation into a unique dermatological challenge

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Abstract

Hidradenitis Suppurativa (HS), a chronic inflammatory skin condition, poses a distinctive and challenging set of clinical, genetic, and therapeutic considerations when localized in the armpit. This research project delves into the multifaceted dimensions of HS in the armpit, offering

a comprehensive investigation into this unique dermatological challenge. The study explores the clinical features of the condition, including the presentation of painful nodules, recurrent flares, tunneling, and scarring, while also considering the specific anatomic factors that influence its development in this region.

Genetic predisposition and the genetic markers associated with HS are scrutinized, shedding light on the hereditary aspects that contribute to susceptibility. Moreover, the impact of hormonal fluctuations, friction, and perspiration is assessed, emphasizing their significance in the pathogenesis of HS in the armpit.

Treatment strategies, from lifestyle modifications to emerging biologics and surgical interventions, are thoroughly examined, highlighting the need for tailored care that addresses the unique challenges of this localization.

This research project also addresses the profound impact of HS in the armpit on individuals, both physically and emotionally, including the limitations in arm mobility, emotional distress, and the resulting reduction in the quality of life.

Furthermore, clinical studies and ongoing research efforts are discussed, as they are pivotal in enhancing our understanding of HS in the armpit and in developing more effective treatment options.

In conclusion, this research project endeavors to provide a comprehensive overview of Hidradenitis Suppurativa in the armpit, offering insights into its clinical, genetic, and therapeutic dimensions. It is our hope that this investigation will contribute to improved care and support for individuals dealing with this challenging dermatological condition.

Introduction

Hidradenitis Suppurativa (HS), a chronic and distressing skin condition, manifests with painful abscesses, nodules, and tunnels, affecting the apocrine sweat gland-bearing areas of the body. While it can arise in various regions, this report delves into the specific presentation of Hidradenitis Suppurativa in the armpit, exploring the unique clinical features, causes, diagnosis, treatment strategies, and the profound impact it has on individuals.

Armpit as a Unique Focus:

The armpit, or axillary region, is a particularly sensitive and challenging location for the development of HS. Here, the interplay of sweat glands, hair follicles, and friction make it a hotspot for the manifestation of this chronic condition. While HS may appear in other parts of the body, such as the groin or buttocks, the armpit-specific presentation presents its own set of challenges and considerations.

Clinical Features in the Armpit:

Hidradenitis Suppurativa of the armpit is characterized by the formation of painful lumps, abscesses, and boils in this region. The discomfort and pain often result in limitations in arm movement and everyday activities. The condition is known for its recurrent nature, leading to the development of tunnels and scarring in this confined space.

Causes and Risk Factors Specific to the Armpit:

The exact causes of HS in the armpit remain a subject of ongoing research. However, it is clear that factors such as genetics, inflammation, perspiration, and hormonal fluctuations play a unique role in this localized form of the condition. Understanding these specific risk factors is crucial to tailoring effective treatment strategies.

Diagnosis and Treatment Challenges:

Diagnosing Hidradenitis Suppurativa in the armpit requires careful examination, often involving the identification of painful nodules, abscesses, tunnels, and scarring in the axillary region. Treatment, while similar to HS in other areas, must consider the constraints of the armpit anatomy and the patient's need for mobility and comfort.

Impact on Individuals:

The impact of Hidradenitis Suppurativa in the armpit extends beyond the physical manifestations. Chronic pain, limited arm movement, and the development of scars can profoundly affect an individual's emotional and

psychological well-being. Coping with this condition often necessitates a multidisciplinary approach that provides both medical and psychological support.

In this report, we will delve into the specific nuances of Hidradenitis Suppurativa in the armpit, addressing the clinical challenges it presents, the latest research findings, and the ongoing efforts to improve the management of this condition for the benefit of those affected.

Clinical Features of Hidradenitis Suppurativa in the Armpit

Hidradenitis Suppurativa (HS) in the armpit presents a unique set of clinical features, distinct from its manifestations in other regions of the body. Understanding these features is essential for accurate diagnosis and effective management. Here, we delve into the specific clinical characteristics of HS in the armpit:

1. Painful Nodules and Abscesses
2. Recurrent Flares
3. Tunneling and Sinus Tracts
4. Scarring
5. Infection and Draining
6. Impact on Daily Life

In conclusion, Hidradenitis Suppurativa in the armpit presents a unique clinical picture characterized by painful nodules, recurrent flares, tunneling, scarring, infection, and a profound impact on daily life. Accurate diagnosis and a comprehensive understanding of these clinical features are crucial for developing effective treatment strategies tailored to the specific needs of individuals living with HS in the armpit.

Causes and Risk Factors of Hidradenitis Suppurativa in the Armpit

Hidradenitis Suppurativa (HS) is a complex skin condition with causes and risk factors that vary in significance among individuals. When localized in the armpit, certain factors become particularly relevant and contribute to the development of this distressing condition. Let's delve into the specific causes and risk factors of HS in the armpit:

1. Genetics
2. Apocrine Glands
3. Inflammation
4. Hormonal Influence
5. Friction and Perspiration
6. Obesity
7. Smoking

To summarize all the above mentioned, Hidradenitis Suppurativa in

the armpit results from a combination of genetic, anatomic, and environmental factors. The localized characteristics of the armpit, including the unique density of apocrine glands, make it a region where these risk factors are especially relevant. Understanding these specific causes and risk factors is essential for tailoring treatment and prevention strategies for individuals with HS in the armpit.

Treatment Options for Hidradenitis Suppurativa in the Armpit

The treatment of Hidradenitis Suppurativa in the armpit requires a comprehensive approach, focusing on managing symptoms, preventing flares, and improving the individual's quality of life. Treatment options include:

1. Lifestyle Modifications:

Weight Loss: For overweight individuals, weight loss can reduce friction and irritation in the armpit.

Smoking Cessation: Quitting smoking can help reduce inflammation and improve overall health.

Clothing Choices: Wearing loose-fitting, breathable clothing can minimize friction and reduce discomfort.

2. Topical Treatments:

Antibacterial Washes: Topical washes can help reduce bacterial colonization and inflammation.

Topical Antibiotics: These are used to manage localized infections and inflammation.

3. Oral Antibiotics:

Tetracycline and clindamycin are commonly prescribed oral antibiotics to control inflammation and prevent infection.

4. Corticosteroid Injections:

Injections of corticosteroids can provide temporary relief from inflammation and pain in specific nodules or abscesses.

5. Biologic Medications:

For severe cases, biologics such as adalimumab may be considered to suppress the immune response and reduce inflammation.

6. Surgical Interventions:

In advanced cases, surgical procedures may be necessary. These can include abscess drainage, removal of scar tissue, or localized excision of affected tissue.

7. Supportive Therapies:

Pain management techniques, wound care, and counseling can be invaluable for individuals with Hidradenitis Suppurativa in the armpit.

Impact on Individuals

Hidradenitis Suppurativa in the armpit has a significant and multifaceted impact on the lives of affected individuals:

1. Physical Impact:

Chronic pain and discomfort, along with limited arm mobility, can make everyday activities challenging.

The presence of tunnels, abscesses, and scarring may cause distress and affect self-esteem.

2. Emotional Impact:

The chronic and painful nature of HS can lead to emotional distress, including depression and anxiety.

The condition may also result in social withdrawal and isolation.

3. Quality of Life:

HS can diminish an individual's overall quality of life, impacting relationships, work, and personal well-being.

In conclusion, diagnosing Hidradenitis Suppurativa in the armpit is essential for appropriate management. Treatment options range from lifestyle modifications to medical and surgical interventions, each chosen based on the severity of the condition. The impact on individuals is substantial, affecting their physical and emotional well-being, making a multidisciplinary approach to care essential for those living with HS in the armpit.

Conclusion

As the research has demonstrated, Hidradenitis Suppurativa localized in the armpit is a challenging condition that necessitates specialized care and support. Ongoing research and advancements in treatment options are improving the outlook for those living with this condition. A multidisciplinary approach that addresses the physical and emotional aspects of HS is vital for providing the best care and improving the lives of individuals with HS in the armpit. Further research and continued efforts in understanding and managing this condition are needed to offer hope and relief to those affected.

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Transplantation miracle of 20 century medicine

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Abstract: About transplantation,Since ancient times, mythology has included tales of creatures made of an amalgamation of others, transferring body parts and skin. In the 1950s, with no other medical options for then incurable diseases, including nephritis, teams of scientists, surgeons, and generous patients started the field of organ transplant with the first successful kidney transplant in a human.

Keywords: history, surgery, transplantation.

Introduction: The idea of transferring body parts appears in ancient mythology of civilizations around the world.Roman, Greek, Indian, Chinese, and Egyptian legends include tales of organ transplants performed by gods and healers using organs from cadaveric and animal origins. Here we delve into the transformation of transplantation from lore to medical practice.

Research: My research is to know about from which human being's we can transplant organs…

Organ transplantation is one of the coolest things to happen in medicine, and incrediblincredibly important for patients. So, the road to the first successful transplantation was full of challenges, discoveries, and lot of work.

In late century surgeon performed skin grafting. He observed graft rejection. By doing research surgeon came to know graft rejection is due to recipient immune system attacked the newly transplanted tissue.and other surgeon did research on cornea transplantation. Is more successful due to there is no blood supply for cornea.

Surgeon have observed from alive human being, from death human being,how transplantation is successful.

And they observed transplantation in some specific organs like heart ,pancreas, liver, lung there research showed that transplantation is possible in both ascepts.if human being is alive are death. Important thing surgeon's observed that if organs are taken from death human being there will be time limit for every organ. before transplantation.

Overall, research is proved that transplantation will be possible when human being is alive, death, brain- death, circulatory death.

Result:

Surgeons first thought they can transplant organs only when human being is alive. But by doing research they came to know if a human being is brain death also transplantation can be possible. And if death is circulatory death then also transplantation will be possible.

Surgeon's by doing a lot of research they came to know that after death of human being we can transplant organs.

Regulation and organization has helped transplantation.Become widely accepted with the public.

The first significant Governmental involvement in transplant was the National Uniform Anatomical Gift Act, drafted.

This allowed Individuals to donate organs and/or tissue for Transplantation at the time of death and created the uniform Donor card. The medical community itself had to make decisions on aspects unique to the field of transplant.

Conclusion: Organ transplantation may be considered a miracle of twentieth century medicine. By increasing life expectancies and improving the quality of life, it remains the best therapy for terminal and irreversible organ failure.

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Small cell lung cancer

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Small cell lung cancer is a rare fast-growing lung cancer. It can affect anyone but it typically affects people who have a long history of smoking tobacco. Healthcare providers can cure some people if the disease is found early; for others, they can help them live longer. The only way to prevent small cell lung cancer is to stop smoking.

Overall, about 57 in 100,000 people in the U.S. develop lung cancer. Small cell lung cancer represents about 15% of those cancer diagnoses. It's less common than non-small cell lung cancer.

But Death ratio is much more than non-small cell lung Cancer.

Small cell lung cancer typically spreads to:

• Lymph nodes
• Bones
• Brain
• Liver
• Adrenal glands. These glands are located near your kidneys

Once the cells have spread, they may create new cancerous tumors in your lymph nodes and organs. Small cell lung cancer may also cause fluid to build up in your lungs or in the space around your lungs. It can make your lung collapse by pushing air out of your lung. This is called a pleural effusion.

There are two types of small cell lung cancer:

• Small cell carcinoma: This is the most common form of small cell lung cancer.

• Combined small cell carcinoma: Combined small cell carcinoma represents about 2% to 5% of all small cell carcinomas. This small cell type is a combination of non-small cell and small cell lung cancer cells.

Causes

While anyone can get lung cancer, people who smoke, used to smoke or who are exposed to tobacco smoke (second-hand smoke) have an increased risk of developing small cell lung cancer. Other risk factors include:

• Exposure to radiation from cancer treatments or imaging scans.

• Exposure to radon gas. Radon is a colorless radioactive gas that may seep into homes and other buildings.

• Exposure to workplace hazards like asbestos, arsenic, nickel, tar or toxic chemicals.

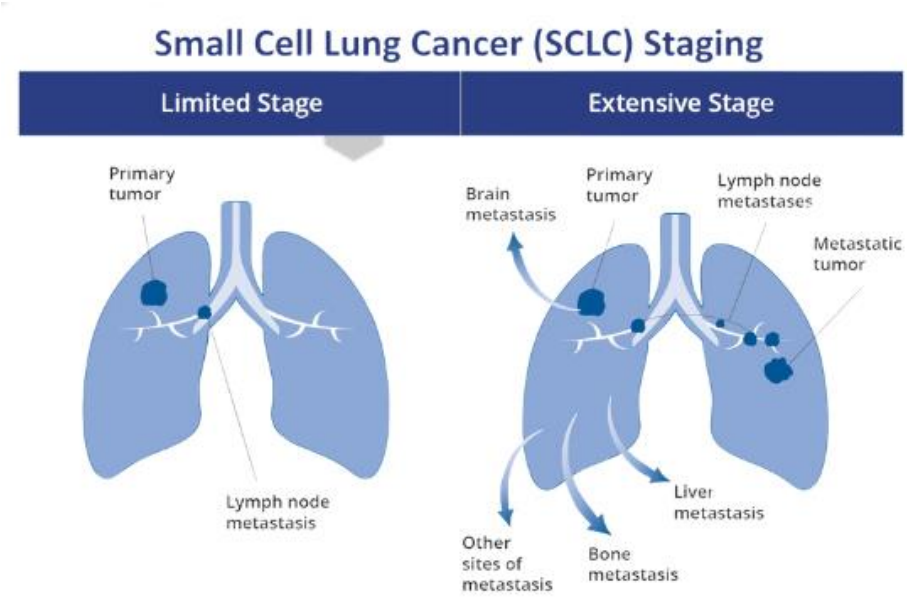
• Having a family history of lung cancer.

• Having human immunodeficiency virus (HIV).

What are the stages of small cell lung cancer?

• Limited stage: This means there’s cancer in one of your lungs that may have spread to an area between your lungs or to lymph nodes just above your collarbone. About 1 out of 3 people with small cell lung cancer have limited stage cancer at diagnosis.

• Extensive stage: In extensive stage, the cancer has spread to your other lung or beyond your lungs to lymph nodes. It also may have spread to your bones, brain and other organs.



Management and Treatment

Surgery

Chemotherapy

Immunotherapy

Emerging therapies for small cell lung cancer

Currently, chemotherapy remains the standard treatment for first- and second-line management of small cell lung cancer (SCLC). Immunotherapy has made progress in the treatment

of SCLC, and nivolumab, pembrolizumab, atezolizumab, and durvalumab have led to significant improvements in clinical outcomes of SCLC.

Extensive-stage small-cell lung cancer is a therapeutically challenging disease. After more than two decades without clinical progress, the addition of programmed cell death protein 1 axis blockade to platinum-based chemotherapy has demonstrated sustained overall survival benefit and represents the current standard of care in the first-line setting. Despite this benefit, resistance emerges relatively rapidly in virtually all patients.

The lack of significant progress can be attributed to our poor understanding of the biology of SCLC. Although immune checkpoint inhibitors were recently approved as front-line therapies for SCLC, we still need to better understand the mechanisms responsible for the selective vulnerability of some SCLCs to these inhibitors. Recent work utilizing sequencing data and single cell analyses identified four distinct subsets of SCLC, based on the expression levels of the transcription factors ASCL1, NEUROD1, POU2F3 and YAP1. Each subset was found to have its own distinct biology and therapeutic vulnerabilities. However, these subsets appear to be phenotypically unstable, representing snapshots in the gradual evolution of a tumor that exhibits significant plasticity.

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CRISPR-CAS9 and designer babies: unraveling gene editing, dr. He Jiankui's controversial experiment, applications, and future implications

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Abstract: This research constitutes a comprehensive investigation into the groundbreaking CRISPR-Cas9 technology, exploring its multifaceted applications across diverse domains such as medicine, agriculture, and scientific research. A central focus of this study is the controversial experiment conducted by Dr. He Jiankui, representing a pioneering attempt to create designer babies through gene editing and inciting widespread ethical debates. The abstract underscores the imperative for a nuanced and balanced approach, emphasizing responsible scientific innovation, the establishment of robust regulatory frameworks, and fostering international collaboration to adeptly navigate the intricate and evolving ethical landscape surrounding gene editing.

Keywords: CRISPR-Cas9, gene editing, designer babies, Dr. He Jiankui, ethical implications, medical applications, agricultural advancements, scientific innovation, global collaboration.

Methods of Research: The methodology employed in this research is characterized by a meticulous literature review, synthesizing information gleaned from an extensive array of scientific publications, ethical discussions, and regulatory frameworks pertinent to CRISPR-Cas9. This approach incorporates a qualitative analysis, delving into global perspectives on gene editing ethics. The goal is to provide a comprehensive and nuanced understanding of the implications and potential future trajectories of this revolutionary gene editing technology.

Introduction: The introduction sets the stage for this in-depth exploration, elucidating the transformative potential inherent in CRISPR-Cas9 and its diverse applications. A particular emphasis is placed on the catalytic role played by Dr. He Jiankui's controversial experiment, serving as a pivotal event that not only contributed to shaping ethical discussions but also delineating the trajectory of gene editing research on a global scale.

Literature Review: A comprehensive examination of scientific literature unfolds the intricate tapestry of CRISPR-Cas9's applications. The review navigates through its pivotal role in advancing medical treatments, revolutionizing agricultural practices, and contributing to profound scientific breakthroughs. Concurrently, the review critically analyzes the ethical debates surrounding gene editing, providing a robust foundation for understanding the broader context within which Dr. He Jiankui's experiment transpired.

Case Study: Dr. He Jiankui's Experiment: This dedicated section scrutinizes the specifics of Dr. He Jiankui's groundbreaking experiment, offering granular insights into the methodology employed, ethical considerations that permeated the endeavor, and the consequential global repercussions. The case study functions as a focal point, enabling a deeper comprehension of the complexities involved in conducting gene editing experiments on human embryos.

Applications of CRISPR-Cas9: Expanding on the positive facets of CRISPR-Cas9, this section meticulously explores its transformative potential. From reshaping medical treatments and bolstering agricultural productivity to contributing to profound scientific advancements, the research highlights the technology's versatility beyond the confines of the controversial experiment. By showcasing its broader positive impact, the study emphasizes the imperative of responsible and ethical use of this powerful gene editing tool.

Future Implications and Recommendations: The study concludes by delving into the future implications of CRISPR-Cas9, addressing the multifaceted dimensions of its impact on society. This includes ethical, social, and legal ramifications. The conclusion places a significant emphasis on the imperative for responsible scientific innovation, the development of comprehensive ethical guidelines, and the fostering of international collaboration to ensure the ethical progression of gene editing technologies.

This expansive synopsis encapsulates a thorough and in-depth exploration of CRISPR-Cas9, elevating the discussion from its transformative applications to the ethical dimensions illuminated by Dr. He Jiankui's experiment. The research provides nuanced insights into the complex interplay between scientific progress, ethical considerations, and the imperative for global cooperation in navigating the ever-evolving landscape of gene editing.

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Infectious and virus disease: NIPAH virus

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The present study examined 1181 global publications in Nipah virus, as covered in multidisciplinary and bibliographic Scopus database during 1999-2018, with a view to understand their growth rate, global share, citation impact, international collaborative papers share, distribution of publications by broad subjects, productivity and citation profile of top organizations and authors, preferred media of communication and bibliographic characteristics of high cited papers. The global publications in Nipah virus registered an annual average growth rate of 16.23% and its citation impact averaged to 28.05 citations per paper. Among the 62 countries participating in global Nipah virus research, the top 10 more productive countries account together for more than 100% of its global research output and citation share. The individual global publication share of top 10 most productive countries varied widely 4.23% to 45.98% during 1999-2018, with USA accounting for the highest publication share (45.98%), followed by Australia (16.77%), Malaysia (11.09% share), and other 7 countries (from 4.23% to 7.96%) during 1999-2018. Four of top 10 countries scored relative citation index above the world average of 1.28: Malaysia (1.67), Australia (1.47), Bangladesh (1.41) and USA (1.37) during 1999-2018. The international collaborative papers share of top 10 most productive countries in Nipah virus research varied widely from 24.56% (India) to 88.46% (Bangladesh). Medicine, among various broad subjects, contributed the largest publications share of 59.97% to global Nipah virus research, followed by immunology and microbiology (42.51%), biochemistry, genetics and molecular biology (21.25%), agricultural and biological sciences (11.85%), and other 3 sub-felds contribution varying from 4.57% to 6.10% during 1999-2018. Among various organizations and authors contributing to global Nipah virus research, the 15 most productive global organizations and authors together contributed 65.11% and 48.69% global publication share and 99.15% and 89.29% global citation share respectively during 1999-2018. Amongst 1077 journal papers (in 410 journals) in global Nipah virus research, the top 20 most productive journals contributed 40.39% share of total journal publication output during 1999-2018. Seventy nine (79) publications were found to be high cited, as they registered citations from 101-793 during 1999-2018 and they together received 114880 citations, which averaged to 188.359 citations per paper.

Nipah virus can cause a range of mild to severe disease in domestic animals such as pigs. Nipah virus infection in humans causes a range of clinical presentations, from asymptomatic infection (subclinical) to acute respiratory infection and fatal encephalitis. Infected people initially develop influenza-like symptoms of fever, headaches, myalgia (muscle pain), vomiting and sore

throat. can be followed by dizziness, drowsiness, altered consciousness and neurological signs that indicate acute encephalitis. Some people can also experience atypical pneumonia and severe respiratory problems, including acute respiratory distress.

Encephalitis and seizures occur in severe cases, progressing to coma within 24 to 48 h. The case fatality rate is estimated at 40% to 75%; however, this rate can vary by outbreak depending on local capabilities for epidemiological surveillance and clinical management. Nipah is believed to be transmitted from what are called flying foxes or mega bats, so called because they are the largest bat species. they eat fruits and live in trees. these are a part of the old-world fruit bat family called pteropid bats. Bats often end up being reservoirs for a number of severe infectious diseases including Ebola, SARS coronavirus, Nipah and Hendra. The persistence and circulation of the virus within the bat population (Pteropus spp.) and the wide geographical range of the potential reservoirs from Madagascar to Australia, have great implications on human and animal public health, prophylaxis and health education measures The present study examines the performance of global Nipah virus research during 1999-2018, based on publications output indexed in Scopus database. The study looks at the distribution of global publication output of the world and of 10 most productive countries, by document type and source type, growth rate of its annual and ten year output, the share of international collaborative publications of leading countries, broad subject-wise publication scatter across sub-felds, identification of significant keywords depicting trends in research, publication output and citation impact of top 15 global organizations and authors, identification of 20 significant journals and characteristics of its 79 high cited Publications

The global research output of the world in field of Nipah virus cumulated to 1181 publications in 20 years during 1999-2018. The annual output of the world in Nipah virus research increased from 9 in the year 1999 to 57 in 2017, registering 16.23% growth per annum. The research output in fact first increased from 9 to 106 in 2013 and the decreased to 57 in 2017. The cumulative world output in Nipah virus research in 10 years 1999-2008 increased from 458 to 723 publications during succeeding ten-year period 2009-18, registering 57.86% growth. Of the total global publications output, 58.51% (691) appeared as articles, 22.86% (270) as reviews, 4.40% (52) as book chapters, 3.73% (44) as conference papers, 3.05% (36) as editorials, 2.79% (33) as notes, 1.95%(23) as short surveys, 1.69% (20) as letters, 0.42% (5 each) as books and erratum, 0.02%(1) and 0.17%(2) as conference reviews. The citation impact of global publications on Nipah virus research in 20 years averaged to 28.05 citations per publication (CPP) during 1999-2018; its ten-yearly impact averaged to 46.83 CPP for the period 1999-2008, which sharply declined to 16.15 CPP in the succeeding ten-years 2009-2018.

Medicine was the most sought a There subject area of Nipah virus research, accounting for (59.97%) the highest publications share, followed by immunology and microbiology (42.51%), biochemistry, genetics and molecular biology (21.25%), agricultural and biological sciences (11.85%), and other 3 sub-felds contribution varying from 4.57% to 6.10% during 1999-2018. Among broad subjects, the research activities registered increase immunology and microbiology, biochemistry, genetics and molecular biology, agricultural and biological sciences, pharmacology, toxicology and pharmaceutics and neurosciences, as against decline of research activity in medicine and veterinary science from 1999-2008 to 2009-18. Agricultural and biological sciences, among various subjects, registered the highest citations impact per paper of 31.16 CPP, followed by immunology and microbiology (29.99), medicine (27.46), neurosciences (26.0) biochemistry, genetics and molecular biology (22.26), veterinary science (21.47) and pharmacology, toxicology and pharmaceutics (13.59) during 1999-2018.

WHO in collaboration and consultation with leading national and international experts and organizations and other key stakeholders is developing a Nipah Research and Development (RandD) Roadmap. The main purpose of this roadmap is to provide a framework for identifying the vision, underpinning strategic goals, and prioritizing areas and activities (from basic research to advanced development, licensure, manufacture and deployment) for accelerating the collaborative development of medical countermeasures (MCMs)— diagnostics, therapeutics, and

vaccines—against Nipah virus infection. The RandD roadmap for NiV infection is a key component of the WHO RandD Blueprint initiative for accelerating research and product development of medical countermeasures to enable effective and timely emergency response to infectious disease epidemics. NiV is identified in the Blueprint’s list of “priority pathogens” (defend as pathogens that are likely to cause severe outbreaks in the near future and for which few or no MCMs exist). Other aspects of public health preparedness and response, in addition to RandD for MCMs, are critical to successful NiV infection prevention and control. Examples include enhanced surveillance systems, minimizing zoonotic NiV transmission, improved personal protective equipment (PPE), effective community engagement, adequate infection prevention and control practices, and workforce development and training in endemic and at-risk regions. Many of these issues are beyond the scope of the RandD roadmap, but need to be addressed as part of a broader public health control strategy

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Oral health matters: screen for life

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The Relevance Of Research: Oral cancer menacing and potentially life-threatening disease, has been on the rise in recent years, demanding greater attention and awareness. This insidious condition predominantly affects the mouth and surrounding areas, including the lips, tongue, cheeks, and throat. Despite advances in medical science and awareness campaigns, oral cancer continues to challenge healthcare systems worldwide. This essay explores the key aspects of oral cancer, including its causes, risk factors, symptoms, diagnosis, and prevention strategies.

I. Understanding Oral Cancer Oral cancer, often referred to as mouth cancer, is a type of cancer that develops in the tissues of the mouth and throat. It encompasses various subtypes, with the most common being squamous cell carcinoma. The disease can affect anyone but tends to be more prevalent among older individuals, particularly men. The main risk factors include tobacco and alcohol use, human papillomavirus (HPV) infections, and a family history of oral cancer.

Symptoms and Diagnosis Early detection is critical in the treatment of oral cancer. Common symptoms include persistent mouth sores, difficulty swallowing, hoarseness, persistent bad breath, and unexplained weight loss. Diagnosing oral cancer typically involves a thorough physical examination, followed by biopsies, imaging scans, and laboratory tests. Dentists and oral health professionals play a crucial role in early detection through routine oral examinations.

Treatment

Treatment options for oral cancer depend on the stage of the disease, the location of the tumor, and the patient's overall health. Common treatment approaches include surgery to remove the tumor, radiation therapy, chemotherapy, and targeted therapy. In some cases, a combination of these methods is used.

Methods Of Research

1. Epidemiological Studies: These studies involve the analysis of data related to the incidence, prevalence, and distribution of oral cancer in different populations. They can provide insights into risk factors, demographic trends, and potential causes.

2. Clinical Trials: Clinical trials are conducted to evaluate new treatments, drugs, and therapies for oral cancer. These trials follow a rigorous methodology to assess the safety and efficacy of interventions.

3. Laboratory Research: In vitro studies involve examining oral cancer cells and tissues in a controlled laboratory setting. This can include cell culture experiments to understand cancer biology and test potential therapies.

4. Animal Models: Researchers use animal models, such as mice, to study the development and progression of oral cancer. These models allow for the testing of potential treatments and the investigation of underlying mechanisms.

5. Genomic Studies: Genomic research involves studying the genetic and molecular factors associated with oral cancer. This can help identify specific genes or mutations that play a role in its development.

6. Imaging Techniques: Advanced imaging methods like magnetic resonance imaging (MRI), computed tomography (CT), and positron emission tomography (PET) are used to diagnose and monitor oral cancer. They also aid in treatment planning.

7. Biopsies and Tissue Analysis: The examination of biopsy samples and tumor tissues from oral cancer patients is critical for understanding the disease's characteristics, subtype, and potential targets for treatment.

Conclusion : In conclusion, oral cancer is a significant public health concern that demands attention, awareness, and continued research efforts. This insidious disease affects the mouth and surrounding areas, with risk factors including tobacco and alcohol use, HPV infections, and poor diet. Early detection is crucial for effective treatment, and preventing oral cancer involves lifestyle modifications, such as avoiding tobacco and alcohol, maintaining a healthy diet, and getting routine dental check-ups. Research in the field of oral cancer spans epidemiological studies, clinical trials, laboratory and genomic research, imaging techniques, and more. These methods help advance our understanding of the disease, leading to improved diagnostic tools, treatment options, and outcomes for patients. Ultimately, the battle against oral cancer is ongoing, and it requires a collective effort involving healthcare professionals, researchers, policymakers, and the public. Increased awareness, education, and preventive measures can help reduce the incidence and impact of oral cancer, offering hope for a healthier future. By addressing risk factors and promoting early detection, we can strive to lower the burden of this silent threat and improve the quality of life for those affected by oral cancer.

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Nano-based delivery of RNAI therapy in cancer

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Abstract. RNA interference (RNAi) is indeed a promising research area due to its high efficiency and targeted therapy potential. It has garnered significant attention in the field of medicine for its potential to treat prevalent diseases by specifically silencing genes or regulating gene expression, making it a valuable tool in the development of new therapies.

Addressing the major challenges associated with the delivery of oral RNAi is a priority for researchers. These problems, including negative pH and enzymatic degradation in the digestive system, have led to new solutions.

Some strategies to improve oral RNAi delivery include the use of nanoparticles and lipid carriers to protect the siRNA from degradation, thereby stabilizing it and allowing it to exceed the morbid toxicity limit. Additionally, reducing transportation costs by changing location and operation can improve specifications and delivery.

Further progress in this field is critical to the development of oral RNAi therapies. The result could be better and easier treatments for diseases such as cancer, which could improve patient outcomes.

Introduction. Cancer remains a global health problem: the number of patients is expected to double by 2020, highlighting the urgency of finding better treatments. 15 million new cases are reported every year, showing the extent of the problem. Conventional treatments such as antibiotics and radiation, although effective, are nonspecific and often have adverse effects on tissues and organs.

Gene therapy has become one of the best ways to fight cancer. Its unique targeting and ability to alter genes responsible for cancer growth can reduce damage to healthy cells, reduce patient burden and provide longer-lasting resolution.

Improving patients' quality of life and reducing stress during cancer treatment is an important part of cancer treatment. With its potential for precision and personalized treatment, gene therapy represents a major advance in the fight against this devastating disease and offers hope for those affected.

Two primary approaches for RNAi delivery have been viral and non-viral vectors, each with its advantages and limitations. However, in recent years, nanoparticles have gained attention as a delivery method for RNAi molecules due to their unique benefits. Nanoparticles offer advantages such as improved stability, controlled release, and the ability to protect the siRNA from degradation, making them a promising option for RNAi delivery in cancer therapy.

The use of nanoparticles in RNAi delivery represents a significant paradigm shift and is an area of active research. It has the potential to enhance the efficacy and precision of RNAi-based cancer therapy, offering new hope for improved treatments.

RNA interference (RNAi) holds significant promise for targeting disease-causing genes, particularly those considered "nondruggable" by conventional methods. While RNAi is perceived as a potent therapeutic approach, there are challenges associated with delivering small interfering RNAs (siRNAs) to the diseased sites for gene therapy [1-3].

Research. By targeting proto-oncogenes and cancer-related genes like MDR1, RNAi offers a precise and tailored approach to inhibit the genetic factors that drive cancer initiation and progression.

This personalized approach not only enhances the efficacy of treatment but also minimizes the potential side effects associated with traditional therapies. It represents a significant step towards more effective and patient-specific cancer care, offering hope for improved outcomes and a brighter future in the fight against cancer.

2.1. Methods

2.1.1. Nanoparticle method

Nanoparticles have a small size between 10 and 1000 nanometers and have many advantages in drug delivery, especially for RNA interference (RNAi) molecules. One of these benefits is the enhanced permeability and retention (EPR) effect, which allows nanocarriers to selectively absorb more substances in tumors compared to normal tissues, which is especially good for cancer treatment.

In addition, nanocarriers provide protection against RNAi molecules, protecting them from enzymatic degradation and diseases. Their superior efficiency in transporting molecules across cell membranes distinguishes them from other delivery systems.

Nanocarriers can be made from organic nanoparticles or inorganic materials, providing a high degree of flexibility in the design of delivery systems suitable for a variety of clinical applications, including RNAi as therapy. These unique properties make nanoparticles useful for delivery of RNAi molecules in cancer therapy and various other important biomedical applications [3].

2.1.2. Solid lipid nanoparticle method

Solid lipid nanoparticles (SLN) are an important contribution to the field of lipid nanoparticles and play an important role in drug delivery.

Subparticulate carriers are made of high-melting-point lipids that are solid at room temperature; this makes them stable and biodegradable, with particle sizes ranging from 50 to 1000 nm.

SLN has many advantages; these include high bioavailability, the ability to produce on a large scale, improved drug absorption in cancer cells, and the ability to overcome tumors. Additionally, SLNs may regulate drug release in specific tissues, making them useful in targeting specific areas.

Lipid nanoparticles show great promise in drug delivery and are being developed as new alternatives to integrated systems; It is based on liposomal nanoparticles. Their unique and versatile properties make them a good choice for improving treatment results [2,3].

2.1.3. Polyethylene method

Polyethylene (PEI) is a widely studied cationic polymer that is frequently used as a carrier for the delivery of siRNA. Its appeal stems not only from its strong affinity for siRNA but also from its significant proton sponge. This unique property allows PEI to readily protonate and degrade lysosomes in vivo, thus promoting intracellular siRNA release.

Importantly, many studies have demonstrated the potential of exosomes, or extracellular vesicles (ECVs), a group that includes exosomes, for siRNA delivery. A new experiment by Zhupanyn and colleagues highlights the importance of combining PEI-based nanoparticles with ECVs produced by various cell lines. Western blot results of this study showed that survivin protein expression was reduced by 50% in the group treated with ECV-modified PEI/siRNA complex. This exciting development highlights the promise of such strategies in advancing siRNA therapy[3].

2.1.4. Gold nanoparticle method

Gold nanoparticles (AuNPs) are versatile materials with a length of less than 100 nm in at least one direction and a variety of shapes and sizes, such as nanospheres, nanowires, nanorods, nanoshells, and nanocages. AuNPs are unique for their low cytotoxicity and are highly effective for enzymatic degradation in vivo.

Recent studies have shown that different shapes and sizes of AuNPs affect their distribution in the body. For example, experiments with siRNA-coated nanoparticles (such as 13 nm spheres,

50 nm spheres, and 40 nm stars) showed that larger particles (such as 50 nm spheres and 40 nm stars) were more effective in transferring siRNA high efficiency rate.

In another study by Morgan et al., three different gold nanoparticles with a diameter of 45 nm were compared. Surprisingly, although similar in size, nanoshells and nanocages outperformed nanorods in terms of siRNA loading and gene knockdown, leading to significant reduction of GFP. These findings demonstrate the interplay between nanoparticle size, shape, and their effectiveness in genetic applications [3]

2.1.5. Iron oxide nanoparticle method

Iron oxide nanoparticles (IONPs) are the most promising materials among nanomaterials, appreciated for their excellent properties, superparamagnetic properties, and small size. This product is approved by the FDA for use as a contrast agent to enable magnetic resonance imaging (MRI). IONP can also serve as a multiplatform combination with fluorescent dyes, tumor-targeting molecules, and therapeutics to enable synergistic targeting of tumors and treatments.

Recent work by Zhang and colleagues demonstrated a gene therapy approach for the use of IONPs in the treatment of post-operative glioblastoma. Their results show that IONP, a potent inducer of ferroptosis and apoptosis, can treat brain cancer.

In another notable study, Taratula et al. The tumor therapeutic potential of superparamagnetic iron oxide (SPIO) nanoparticles combined with poly(propyleneimine) fifth-generation dendrimers (PPI G5) for siRNA co-delivery was evaluated. This study demonstrated the best possible and anti-tumor effects of the combination in vitro. Here, SPIO acts as both a different agent and delivery vehicle, providing a new dimension in the development of versatile siRNA vectors, focusing on the potential of RNA interference to impact therapy. These advances hold great promise in cancer treatment and diagnosis [3].

Treatment. General administration in form of nasal sprays and eye drops siRNA have been used to be delivered into targeted tissue externally. As in different cancers target organs are not exposed so schematic delivery is expected.

Multifunctional vector helps in more effectively and safely delivery of siRNA to targeted tumorous tissue.

RNAi is expected to be one of the best treatments as it is not having severe side effects as well as it has targeted treatment which increases its efficiency really high. As cancer is one of the major diseases which needs treatment that too specified RNAi is considered to be best treatment to be introduced [1,3].

Conclusion. Current cancer treatment strategies have limitations, but RNAi-mediated gene silencing holds great promise. Nanoparticles with customizable functions and suitable sizes have revolutionized research in this field by providing protective carriers for systemic delivery of siRNA, which is a major challenge for the instability and rare target of naked siRNA in blood vessels. This is important. However, challenges such as siRNA degradation, low tumor incidence,

and poor outcomes still hinder the use of RNAi-based cancer therapy and keep cancer treatment in the preclinical stage. Delivery of oral RNAi therapy via drug carriers is a significant advance that improves localization and delivery of RNAi-based therapies while eliminating side effects.

Despite great success and more than 10,000 reports of oral RNAi delivery, there is still a gap between research and clinical use. There are great hopes in exploring the potential for oral delivery of RNAi from liposomes or lipid-based nanoparticles to treat various diseases and gastrointestinal disorders. In the future, RNAi-based therapy will become an important tool in the treatment of cancer and other medical conditions [1,2].

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Comparison of effectiveness of laproscopic ventrofixation with abdominal sacrohysteropexy in treatment of uterine prolapse –a prospective randomized study.

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Abstract.

Background. In developing nations, uterine prolapse is a prevalent yet often ignored maternal health issue that can result in maternal morbidity. Uterine or vaginal prolapse affects about 50% of women between the ages of 50 and 79. Uterine prolapse is a pathology in which uterus is displaced below the normal level as the uterus is not a fixed organ. The study compares the efficacy of laproscopic ventrofixation and abdominal sacrohysteropexy surgery in correcting uterine prolapse by perioperative, postoperative assessment and follow-up.

Methods. A prospective comparative study patients attending the National hospital of Maternal and Childhood care Bishkiek, diagnosed as uterine prolapse atleast stage 2 and 3 between Feb 2019 to December 2022. This study included 22 women divided into group A and group B. group A included 9 women who underwent laproscopic ventrofixation and group B included 13 women who underwent abdominal sacrohysteropexy for treating uttering prolapsed stage3/4.

Result there was no significant difference in between the two groups in mean weight, mean parity, mean BMI, mean uterine prolapsed grade, hence both groups are comparable. Though the ages in laproscopic ventrofixation (LV) were slightly older. The mean operating time was 32.778±5.32 min in group A and 89.23±7.55 min in group B ($p<0.005$). Mean blood loss was 18.89±3.14 ml and 356.92±17.02 ml in group A and group B respectively, ($p<0.005$). more hospital stays and more complications in group B (abdominal sacrohysteropexy)as compared to group A (laproscopic ventrofixation).

Conclusion. Both laproscopic ventrofixation (LV) and abdominal sacrohysteropexy are very effective in management of uterine prolapsed but lesser complaints after 12 month follow-up and recovery time is quicker in LV.

Keywords : uterine prolapse, laproscopic ventrofixation, abdominal sacrohysteropexy .

Introduction. Without understanding the structure of the pelvic floor and the uterine ligaments, it is challenging to determine the reason of the prolapsed uterus. since this happens as a result of the ligaments surrounding and supporting the uterus becoming weaker. Genital prolapse surgery is one of the most popular yet difficult procedures in gynecology because 25% of these procedures are performed for recurrence, indicating that the success rates for initial procedures are low (1). Traditionally, vaginal hysterectomy and Manchester repair were the surgical approaches to treating uterine prolapse; however, both are associated with a relatively high subsequent vaginal vault recurrence (2) and moreover every women want to keep their uterus due to many reasons like in order to avoid surgical menopause symptoms, uterus may also play a part in their gender

identity, in general to preserve the quality of life many women do not prefer hysterectomy. So the surgical options for uterine prolapse in women who try to spare uterus are uterine suspension, uterosacral suspension by abdominal approach , laproscopic approach or vaginally. Among those abdominal ventrofixation or hysteropexy is an old method however its efficacy is still not confirmed by medical specialists (3). But now we do laproscopic ventrofixation is preferred. Whereas abdominal sacrohysteropexy is more successful and of prime concern (4).

Method. This was a randomized prospective study undertaken to compare the effectiveness of abdominal ventrofixation and abdominal sacrohysteropexy over each other in correcting uterine prolapse. The study included women who visited National hospital for maternity and childhood , Bishkiek, Kyrgyzstan with symptomatic 3rd or 4th stage of uterine prolapse between Feb 2019 to December 2022. Women from age group 40 and above were included in the study. Ethical approval was taken before study.

The preoperative evaluation included a history , clinical examination. Patients were examined for pelvic organ prolapse quantification (POP-Q). According to the ICS stage 3 and 4 were selected. Participants of the study also gave written consent.

22 patients were randomly assigned to any of the two groups, i.e., group A, included 9 patients who had laproscopic ventrofixation and group B, included 13 patients who had abdominal sacrohysteropexy. Regarding age, parity, body mass index, and uterine prolapse staging, both groups were similar.

Between these groups (laproscopic ventrofixation and abdominal sacrohysteropexy) outcome measures were compared like operating time, intraoperative blood loss, intraoperative complications , pre and post operative gynecological symptoms. Postoperative events in the form of hospital stay duration and complications were also compared. And then follow-up was done at 6 months and 12 months by pelvic assessment and by asking about gynecological symptoms.

Stastical analysis numerical data were expressed as means ± standard deviations. Stastical differences of quantitative variables between the two groups were calculated using unpaired t-test and chi-square test for qualitative variables. A p value was considered significant when it is <0.05.

Results the clinical features of the patients of LV group and ASH are described in

Table **1**. There was no significant difference in mean weight, mean parity and mean BMI (p<0.05) but slight difference in age. Perioperative outcomes encountered in Table 2 LV and ASH is summarized in mean duration of operation during was significantly longer in ASH compared to LV (p<0.0005) Mean blood loss was significantly higher in ASH as in LV (p<0.0005). Blood transfusion was done in ASH and not in LV (0.0005).

Table 1 - clinical features of patients operated with LV and ASH

Different variables	**LV (n=9)**	**ASH (n=13)**	**P value**
Mean age (years)	53.889±5.567	43.4±1.74	0.0001
Mean weight (kg's)	67.7777±6.20	68.7692±6.722	0.7294
Mean BMI	24.205±1,658	24.430±1.696	0.7604
Mean parity	4.3334±1	4.5384±1.126	0.6654
Grade 3 or 4 Uterine prolapse	3.7778±0.440	3.769±0.438	0.9647
Sexual activity	0.6667±0.5	0.7692±0.438	0.6159

Table 2 - perioperative events of patients operated with LV and ASH

Events	**LV (n=9)**	**ASH (n=13)**	**P value**
Mean duration surgery (min)	32.778±5.32	89.23±7.55	0.0001
Mean blood loss	18.89±3.14	356.92±17.02	0.0001
Blood transfusion	0	5	0.0001

Table 3 Shows immediate postoperative complications were more seen in ASH then LV. Mean hospital stay was not that different but pyrexia was more in ASH then LV ($p<0.0005$), abdominal distensiom more seen in ASH as compared to LV ($p<0.0005$). Depicts difference long terms variables between the two groups after 12 months of follow-up. There was no significant stastical difference found in these variables.

Table 2 - immediate postoperative complications between LV and ASH

Different Variables	LV (n=9)	ASH (n=13)	P value
Mean hospital Stay (days)	3.33±0.67	4.30±0.82	0.0108
Pyrexia (>37.5)	2	7	0.0001
Abdominal distension	1	3	0.0001
Wound infection	1	3	0.4980

Table 3 - long term (after 12 months) variables at follow-up visit.

Variables	LV (n=9) (%)	ASH (n=13) (%)	P value
No complaints	4(44.45)	10(76.92)	0.1312
Sensation of prolapse	1(11.1)	1(7.692)	0.7960
Urinary Symptoms	1(11.1)	1(7.692)	0.7960
Dyspareunia	0	0	

Discussion. This study will evaluate the effectiveness of laproscopic ventrofixation versus abdominal sacro hysteropexy in treatment of 2,3 stage uterine prolapse by preserving the uterus. Uterine preserving surgeries have recently gained popularity for the treatment of uterine prolapse due expectation of maintenance of sexuality, reluctance for loss of reproductive organs and the desire to preserve (5). Both abdominal and vaginal surgical techniques have been used to correct this problem. An abdominal approach may however result in longer-lasting restoration of pelvic anatomy and sexual function (6) Abdominal sacrohysteropexy is effective and safe in the treatment of uterovaginal prolapse in women who wish to retain their uteri. It maintains a durable anatomic

restoration, normal vaginal axis (7). But our study shows how LV is better in many ways than ASH like duration of operation was less, hospital stay was less, blood loss was less, recovery time was faster and follow-up was more likely same in both. Although ventrofixation is technically straightforward, its practical applicability is undermined by the high prolapse recurrence rate. According to a study, three months after undergoing ventrofixation, eight out of nine women experienced a recurrence (8). But in our study we do not have a case of recurrence upto 12 months follow-up. For young women who want to keep their uterus, abdominal sacrohysteropexy is a safe and efficient treatment for uterine prolapse (9). For women who wish to keep their uterus but have experienced uteine prolapse, sacrohysteropexy is a safe and effective treatment (10). There are several surgical techniques that can be used to treat apical prolapse and keep the uterus intact, Before pursuing uterine preservation, surgeons must offer sufficient counseling and preoperative examination (11).

Conclusion. The ultimate aim of these surgeries is to treat uterine prolapse by preserving the uterus. As many women prefers to preserve their uterus due to many reasons like women can enter menopause earlier and have post menopausal syndrome, but it is also important that the surgeon discuss the pros and cons of the many surgical alternatives that are available in order to choose the best course of action that will allow her expectations to be met. Both LV and ASH procedures are very effective in uterine prolapse and also preserve the uterus. In our study LV is showing more effectiveness than ASH in operating time, hospital stay, recovery time and immediate postoperative complications but in follow-up visit they show almost similar charecteristics. Ventrofixation has considered to have recurrence than sacrohysteropexy this must be balanced against more operating time, hospital stay and other benefits.

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Role of Diet in Cancer Prevention

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The relevance of Research: despite great advances in treatment, cancer remains a leading cause of death worldwide. Diet can greatly impact health, while caloric restriction and fasting have putative benefits for disease prevention and longevity. Strong epidemiological associations exist between obesity and cancer, whereas healthy diets can reduce cancer risk. However, less is known about how diet might impact cancer once it has been diagnosed and particularly how diet can impact cancer treatment. In the present review, we discuss the links between obesity, diet, and cancer. We explore potential mechanisms by which diet can improve cancer outcomes, including through hormonal, metabolic, and immune/inflammatory effects, and present the limited clinical research that has been published in this arena. Though data are sparse, diet intervention may reduce toxicity, improve chemotherapy efficacy, and lower the risk of long-term complications in cancer patients. Thus, it is important that we understand and expand the science of this important but complex adjunctive cancer treatment strategy.

Risk Factors of Cancer

The list below includes the most-studied known or suspected risk factors for cancer. Although some of these risk factors can be avoided, others—such as growing older—cannot. Limiting your exposure to avoidable risk factors may lower your risk of developing certain cancers.

・Age Alcohol ・Cancer-Causing Substances ・Chronic Inflammation ・Diet ・Hormones ・Immunosuppression ・Infectious Agents ・Obesity ・Radiation ・Sunlight ・Tobacco

Prevention

1. Don't use Tobacco

2. Eat a Healthy Diet a) Eat plenty of fruits and vegetables. b) Drink alcohol only in moderation, if at all. c)Drink alcohol only in moderation, if at all.

3. Maintain a healthy weight and be physically active.

4. Protect yourself from the sun.

5. Get vaccinated against Hepatitis B and Human Papillomavirus

6. Get regular Screening Test

Role of Diet in Prevention

・ Antioxidants ・Cruciforms ・Alliums ・PUFA ・Phytoestrogens ・Green Tea ・Multivitamins

By including all these items listed above in our regular diet would be very beneficial for preventing cancer. Items listed above have detoxification effects on carcinogens, inhibits angiogenesis, induce apoptosis of old cells, potential of chemotherapeutic agents, can regulate

gene expression, and suppression of cell proliferation. All these are preventing actions of any type of cancer.

Conclusion

It is clear that our diet has a major impact on our cancer risk. The preclinical literature strongly supports the potential of diet intervention to improve cancer treatment outcomes. It is not possible to determine at this point which dietary strategy is the best, and it is likely that diet efficiencies will vary based on patient, cancer types, and treatment regimen. Clinicians who care for overweight and obese patients know that sometimes the best diet is the one that the patient is willing and able to adhere to, and so a degree of personalization may be needed when instituting these strategies into the clinic. Unfortunately, this requires flexibility, ancillary support staff, and an understanding that a lifestyle intervention may have efficacy on par with cytotoxic agents.

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Features of the course of pertussis-like disease caused by bordetella bronchiseptica (clinical case)

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Abstract: The article presents a clinical case of pertussis-like disease caused by Bordetella bronchiseptica in a child in 2023, observed in the Republican Clinical Infectious Diseases Hospital, Bishkek.

Key words: whooping cough, vaccination, children, Bordetella bronchiseptica, clinic, diagnosis, treatment

Whooping cough, despite a significant decrease in morbidity and mortality from the start of vaccination, remains an actual infection, especially among children in the first months of life who are not subject to vaccination due to age or who have not completed the full course of primary vaccination.

According to experts' estimates, 280,000–300,000 children die of pertussis every year in the world. The most severe cases of whooping cough and high mortality rates from it are registered among children of the first 6 months of life. For 70% of infants with whooping cough, hospitalization is required.

Obviously, whooping cough is more common in adults than in children, but it is not detected, since it occurs without the characteristic convulsive coughing fits. According to modern data, the ratio of asymptomatic and symptomatic forms of infection varies from 3.5: 1 to 22: 1. At the same time, in the family, older children and adults with asymptomatic forms of whooping cough are the main source of infection for children in the first months of life in whom the disease occurs. especially difficult and requires a decision on protection. Bordetella bronchiseptica (Bordetella bronchiseptica) is a rod-shaped, gram-negative bacterium that causes respiratory

diseases quite often in various animal species. In humans, the diseases it causes are rare, usually varieties of Bordetella pertussis and Bordetella parapertussis, which are the causative agents of whooping cough and parapertussis.

Purpose: the paper describes the clinical features of the course of the disease caused by Bordetella Bronchiseptica.

Materials and methods of research: a clinical case of whooping cough-like disease caused by Bordetella bronchiseptica is described based on the medical history of a child admitted to the Republican Clinical Infectious Diseases Hospital (RCCH) in February 2023.

Results and discussion: In February 2023, a child aged 1 year and 11 months is admitted to the RCCH with a clinical diagnosis: “Whooping cough, typical form, severe course. Bilateral pneumonia DN II. Concomitant diagnosis: Congenital heart defects (open foramen ovale, atrial septal defect, open aortic duct).

Complaints at admission to expressed anxiety, paroxysmal cough with redness and blue face, shortness of breath. Shortness of breath of a mixed nature with the participation of the auxiliary muscles of the chest. On auscultation of the lungs, fine bubbling rales are heard in the lower sections, symmetrically. During auscultation of the heart, a systolic-diastolic murmur is heard at all points of auscultation. On the part of the digestive system during physical examination, no pathology was detected.

Data of laboratory instrumental research methods:

Complete blood count (CBC): severe leukocytosis 55.0x 109

Plain chest x-ray showed signs of bilateral pneumonia.

Ultrasound examination of the internal organs revealed hepatomegaly.

Bacteriological examination of mucus from the posterior pharyngeal wall gave a negative result.

Blood test by PCR: Bordetella bronchiseptica was found.

Due to the severity of the condition, the child was in the intensive care unit for 12 days, then was transferred to the specialized department of the Republic Infectious Hospital.

The following treatment was received: cephalosporin antibiotics; chlorpromazine 0.5%; infusion therapy with glucose-salt solutions, as well as symptomatic therapy.

The patient was in the hospital for 28 days and was discharged home with improvement.

Conclusion: the bacterium Bordetella bronchiseptica as the cause of whooping cough in children is extremely rare, but causes a severe, long course of the disease, which is accompanied by the development of complications and is characterized by a long recovery period. The risk group for the development of such severe forms are children who have not received the necessary vaccination, as well as children with a burdened premorbid background. Despite the fact that Bordetella bronchiseptica is often the cause of the disease in animals, this clinical case demonstrated the possibility of respiratory tract involvement in children.

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Chronic obstructive pulmonary disease

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Chronic obstructive pulmonary disease (COPD) is the name for a group Of lung conditions that cause breathing difficulties.

It includes:

Emphysema – damage to the air sacs in the lungs

Chronic bronchitis – long-term inflammation of the airways

COPD is a common condition that mainly affects middle-aged.

The breathing problems tend to get gradually worse over time and can Limit your normal activities.

Now a days it is third leading cause of death in the world after coronary Artery diseases and cancer.

Symptoms of COPD

The main symptoms of COPD are:

Shortness of breath, particularly when you're active a persistent chesty cough with phlegm – some people may dismiss this as just a "smoker's cough "Frequent chest infections persistent wheezing

Etiology. The main leading cause of COPD is Smoking. A person who smoke for a Long time he have high chances of COPD. But it also affect on passive smokers. The 2nd cause main cause of COPD is genetic mutation. Due to genetic mutation alpha 1 anti trypsin defeciency lead this disease In 3rd we have occupational exposure to dust, fumes, chemicals and air pollution many people do not realize they have it.

Pathophysiology. The current epidemic of chronic obstructive pulmonary disease (COPD) has produced a worldwide health care burden, approaching that imposed by transmittable infectious diseases. COPD is a multidimensional disease, with varied intermediate and clinical phenotypes. This Review discusses the pathogenesis of COPD, with particular focus on emphysema, based on the concept that pulmonary injury involves stages of initiation (by exposure to cigarette smoke, pollutants, and infectious agents), progression, and consolidation. Tissue damage entails complex interactions among oxidative stress, inflammation, extracellular matrix proteolysis, and apoptotic and autophagic cell death. Lung damage by cigarette smoke ultimately leads to self-propagating processes, resulting in macromolecular and structural alterations — features similar to those seen in aging.

Epidemiology. Tobacco-related diseases, including chronic obstructive pulmonary disease (COPD), account for 3.7% of the world burden of disability-adjusted life-years (DALYs), a measure of lost years of healthy life (1). Tobacco use, excessive alcohol consumption, and unhealthy diets and physical inactivity contribute to most preventable non-communicable diseases. These diseases are projected to impose a worldwide burden of $47 trillion health dollars by 2030. In contrast, it costs only $0.40 per individual per year to implement a program aimed at averting tobacco-related diseases that has the potential to save 25–30 million DALYs (1). Notwithstanding its preventable nature, the increasing prevalence, impact as the third leading cause death in the United States since 2008, and socioeconomic costs (1) call for vigorous research efforts to improve the understanding and, ultimately, management of COPD.

According to Pakistan chest society Pakistan has the highest prevalence of COPD (13.8%),

According to European respiratory journal The mean prevalence of COPD in Kazakhstan 21.8%.

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Drug resistant epilepsy

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Abstract

Epilepsy is an insidious, chronic neurological disorder that causes untold suffering for its 70 million sufferers worldwide. Despite the abundance of antiseizure drugs (ASDs) available for symptom relief (a heartbreaking one-third of those with epilepsy) experience seizures that are unresponsive to medical treatments. This drug-resistant epilepsy (DRE) carries even greater risks in terms of premature death, injuries, psychosocial distress, and relentlessly diminished quality of life. To try and make sense of this complex situation, researchers have embarked on a quest to understand the mechanisms behind DRE in all its forms. The adoption of experimental models of DRE has opened up new opportunities to reveal, characterize and challenge the sources of drug resistance. Advances in preclinical and clinical research have recently allowed us to take steps towards more effective therapies for this most difficult form of epilepsy, including 'precision medicine' for paediatric cases and novel multitargeted ASDs for acquired partial epilepsies and mainly surgical methods. This article includes, percentage of individuals suffering from this disease, comparing it to the percentage of individuals unaffected by the drugs, effect of unaffected epilepsy on patients, and the effectiveness of surgical treatment towards DRE and its usage worldwide and analysis of awareness made in order to control it. We can now look forward to a brighter future where breakthroughs in medicine may soon be achieved, offering much needed hope to those who suffer from unbearable drug-resistant seizures.

Introduction

Epilepsy is an insidious and devastating chronic neurologic disorder. People with epilepsy are plagued by unprovoked and uncontrollable seizures, which range from mild focal seizures to earth-shattering generalized convulsions. Despite the onslaught of antiseizure drugs, a third of patients find no relief as their seizures remain resistant to all medications. Drug-resistant epilepsy can take four distinct forms: de novo resistance, delayed resistance, waxing-and-waning patterns, or initial drug resistance that later abates, though this last pattern is rare. When two well-tolerated antiseizure medications fail to provide relief, the odds of finding success with further drug manipulation become increasingly slim. Thus, medically refractory epilepsy can often be identified early on in treatment, suggesting that drug resistance was present at the onset in many

sufferers. Thus, surgical option maybe considered. These surgical treatments are typically for individuals with a clear localization of seizure foci and after careful evaluation by a team of healthcare professionals, including neurologists, epileptologists, neurosurgeons, and other specialists. Resective surgery, Laser Ablation Surgery, Corpus Callosotomy, Vagus Nerve Stimulation, Deep Brain Stimulation are some of the options consider for surgery.

Research

Drug resistant epilepsy is a significant issue, affecting approximately 22-30% of individuals with epilepsy. Despite the wide availability of antiepileptic drugs, up to 30% of individuals with epilepsy do not respond to pharmacological treatment.

The severity of drug-resistant epilepsy is evident. This condition not only leads to ongoing seizures that are uncontrolled by medication, but also has serious consequences for patients' quality of life including cognitive and mood impairment, increased risk of injuries, and a higher likelihood of sudden death in epilepsy cases. Treatment options for drug-resistant epilepsy are limited. Many patients try multiple combinations of antiepileptic drugs, but still do not achieve seizure control. In some cases, surgery may be considered as an alternative treatment option for individuals with drug-resistant focal epilepsy. Epilepsy surgery is a viable option for patients who have not responded to antiepileptic medication, especially if a focal origin of the seizures can be identified. This procedure involves removing or disconnecting the brain tissue that is causing the seizures. However, epilepsy surgery is not without risks. Patients who undergo surgery for drug-resistant epilepsy may experience physical and cognitive impairments as side effects of the procedure.

Many patients with drug-resistant focal epilepsy who undergo epilepsy surgery are substantially more likely to be seizure-free following surgery than those who remain on antiseizure.

The failure to make use of available surgical procedures for drug-resistant epilepsy has been a long-running issue, despite evidence showing its potential benefits. This might be due to ignorance among both physicians and patients, apprehension over the risks associated with surgery, and inadequate access to specialized epilepsy centres. But while surgical treatment options are often overlooked, epileptic surgery can be a powerful tool, even life altering for those suffering from drug-resistant epilepsy. It is essential for healthcare workers and people living with this condition alike to be aware of not only the advantages but also the possible dangers of such a procedure, as well as working towards better accessibility of specialist centres so that this form of treatment is readily available.

Bibliometric analysis

A comprehensive bibliometric analysis was conducted to illustrate the current state and emerging trends of DRE research. A staggering 3,088 scholarly articles were published in this field over a span of 11 years, with the US spearheading the charge in publication count and citation quality. The National Institutes of Health and the University of Toronto provided the most significant funding and institutional support respectively.This impressive analysis shows that DRE is an incredibly dynamic area of study. Epilepsy mechanisms and treatments are at the core of this research, being complemented by surgical techniques which are quickly becoming popular areas for exploration.

Treatment

According to various studies, the success rate of surgical treatment for Drug Resistant Epilepsy ranges from approximately 30% to 70%. This success rate depends on several factors, including the identification of an epileptogenic lesion by MRI, the presence of a well-defined seizure onset zone suitable for resection, and appropriate patient selection.

However, it is important to note that not all patients with Drug Resistant Epilepsy are suitable candidates for surgical resection, and over 50% of patients undergoing pre-surgical evaluation are found to not be suitable for abscission treatment.

Most commonly performed was temporal lobe resection, but extratemporal resection, hemispherectomy, corpus callosotomy, and disconnection or resection of hypothalamic

hamartoma were also performed. Those with temporal lobectomy or hypothalamic hamartoma all became seizure-free. Patients with extratemporal resection and hemispherectomy had 92% and 87% seizure freedom, respectively. Adverse effects, such as include monoparesis, hemiparesis, and hypotonia, were seen in 33% of patients in the surgical arm, with most showing meaningful improvement over their 12-month follow-up. This study in addition to those performed in the adult population pronounced the efficacy of surgery as a formidable treatment modality for intractable epilepsy.

Conclusion. Epilepsy is a chronic neurologic disorder marked by uncontrollable seizures. Despite drugs, one-third of patients find no relief. Drug-resistant epilepsy comes in four forms: de novo resistance, delayed resistance, waxing-and-waning patterns, or initial drug resistance that later abates. When two antiseizure medications fail, it often indicates drug resistance was present early on. Drug Resistant Epilepsy affects 22-30% of those with epilepsy and is often unresponsive to medications. Surgery is successful in 30-70% cases, depending on lesion identification by MRI, a suitable seizure onset zone for resection, and appropriate patient selection.

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Arrhythmia

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Introduction. Holter monitoring is a diagnostic test that involves wearing a portable device called a Holter monitor to continuously record a person's heart's electrical activity (ECG or EKG) for an extended period, typically 24 to 48 hours. It helps doctors assess the heart's rhythm and detect irregularities that may not be captured during a brief in-office ECG. This monitoring can be useful in diagnosing conditions like arrhythmias and identifying the cause of symptoms such as palpitations or

Fainting. Holter monitors can detect wide range of cardiac

Arrhythmia, including atrial fibrillation, bradycardia, tachycardia and other irregular rhythm.

Arrhythmias

A heart arrhythmia (uh-RITH-me-uh) is an irregular heartbeat. A heart arrhythmia occurs when the electrical signals that tell the heart to beat don't work properly. The heart may beat too fast or too slow. Or the pattern of the heartbeat may be inconsistent.

A heart arrhythmia may feel like a fluttering, pounding or racing heartbeat. Some heart arrhythmias are harmless. Others may cause life-threatening symptoms.

Heart arrhythmia treatment may include medicines, devices such as pacemakers, or a procedure or surgery. The goals of treatment are to control or get rid of fast, slow or otherwise irregular heartbeats. A heart-healthy lifestyle can help prevent heart damage that can trigger Nowadays several diagnostic tools are available to investigate cardiovascular symptoms like palpitations, dizziness and syncope: ECG Holter (or ambulatory ECG, AECG), external and implantable event/loop recorders. Despite this technological burden, many diagnoses are still missed. In the meantime, we are facing an increasing use of implantable devices for cardiac pacing/defibrillation (CIED), which have rapidly evolved from simple pacing/shock boxes to devices including several diagnostic features. However, these functions are not adequately exploited in current clinical practice and several redundant diagnostic tests, like AECG, are still prescribed to CIED carriers, leading to an increase of costs and a delay in final diagnosis. This review is aimed at identifying the current role of AECG in CIED carriers in view of this technological improvement. First, we will briefly present the indications for AECG according to current guidelines. We will then provide a direct comparison of the different diagnostic features provided by AECG (and event/loop recorders) versus automatic diagnostic CIED to highlight the respective pros and cons. This will serve to carefully discuss these indications in view of the results of recent studies on CIED carriers, highlighting the need for proper implantation and follow-up. Eventually, we will provide useful hints to properly analyse AECG in CIED carriers, considering the different behaviors according to the implemented algorithms. We will conclude by suggesting updated indications for AECG.

Some heart arrhythmias.

Heart arrhythmia

Symptoms of an arrhythmia may include: • A fluttering, pounding or racing feeling in the chest. • A fast heartbeat. • A slow heartbeat. • Chest pain.

• Shortness of breath.

Types of Arrhythmia

1. Atrial Fibrillation (AFib): The most common arrhythmia, characterized by irregular and often rapid heartbeat.

2. Bradycardia: A slow heart rate, typically fewer than 60 beats per minute.

3. Tachycardia: A fast heart rate, often exceeding 100 beats per minute.

4. Ventricular Fibrillation: A life-threatening arrhythmia where the heart’s lower chambers quiver instead of pumping blood effectively.

5. Atrial Flutter: A rhythmic but rapid heartbeat in the atria

Holter Monitoring

The HOLTER monitoring is a type of portable electrocardiogram. It records the electrical activity of heart continuously over 24hrs or longer

Electrodes are placed at certain point on the chest and abdomen. The electrodes are connected to an ECG machine by wires, then the electrical activity of the heart can be measured,recorded and printed. No electricity is sent into the body

• Natural electrical impulses coordinate contractions of the different parts of the heart. This keeps blood flowing the way it should .An ECG records these impulses to show how fast the heart is beating. The rhythm of the heart beats and the strength and timing of the electrical impulses

Prognostic value of Holter monitoring in congestive heart failure

Congestive heart failure is an increasingly deadly disease named as epidemic of the 21 century. Despite advancement in the modern treatment, mortality rate in CHF patients remains high.it remains as the major challenge of the contemporary cardiology

Electrocardiographic parameters based on ambulatory Holter monitoring have been documented to be independent risk predictors of total mortality and progression of heart failure. In evaluation of the dynamic Holter-derived ECG markers reflecting changes in the heart rate and

ventricular repolarisation behavior. Holter monitoring provides complementary information on myocardial vulnerability and autonomic nervous system

Holter based ECG parameters with special emphasis to dynamics ECG risk markers-heart rate variability, heart rate turbulence, repolarisation dynamics and variability in predicting mortality

• Long term electrocardiography (Holter monitoring)

Holter monitoring is non invasive diagnostic tool in clinical electrophysiology. It allows ECG recording independent of stationary monitoring facilities during daily life contain much information. It is also used for detection of silent myocardial ischaemia, it is possible to measure every single heart beat very accurately, which was a prerequisite for heart rate variability and QT interval analysis, which provide info on autonomic modulation of the heart rate and the circadian dynamicity of thE QT interval. Beyond arrhythmias Holter monitoring was used to assess prognosis in different cardiac conditions.

Holter ECG for pacemaker/defibrillator carriers: what is the role in the era of remote monitoring?

Holter ECG monitoring for the evaluation of stoke in the internal medicine department

Holter ECG is commonly used to reveal an underline arhythmia in stroke patients and can influence treatment andprognosis. While many patients with stroke are admitted to the internal medicine department,evidence for the role of Holter.

ECG in this setting is scare

Objective: determine the diagnostic value of Holter ECcG monitoring for evaluation of stroke in internal medicine department.

Methods: We included consecutive patients admitted to one of nine internal medicine departments in a tertiary center between 2018 and 2021, who completed a 24-hour Holter ECG as part of the evaluation of stroke. The primary outcome was a diagnostic Holter monitoring with recording of a new atrial fibrillation or flutter, not evident in previous ECG.

Results: 271 patients completed a Holter monitoring for the evaluation of stroke. Four patients (1.5%) met the primary outcome, and anticoagulation treatment was initiated for all of them. Accordingly, the number needed to change decision was 67. Two additional patients (0.7%) hada non-diagnostic Holter finding which effected treatment plan. Mean time from hospital admission to Holter was 3.01 +3.44 days, and longer time to Holter initiation correlated with a longer hospital stay duration ($r(270) = 0.692$, $p < 0.001$).

Conclusion. There are many types of diagnostic tests but these tests don't quite get to the bottom of problem. This is where a Holter monitor comes into play.

A Holter monitor is a device that you wear for few days while it records your heart rhythm unlike an ECG which only show a snippet of your heart rhythm, the Holter monitor continuously record's activity for few days. The monitor is completely painless and involves several electrodes that are attached to your chest the monitor

Be hidden you can continue with normal activities it is a no invasive meaning there are no incision or breaks in your skin. Another benefit is that the monitor shows ever heartbeat for as long as it's worn on your body. Many of the device involves certain risk, where this device is extremely safe.

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The Effect of Obesity on Cardiovascular System

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Abstract: Obesity is a growing health problem worldwide. It is associated with an increased cardiovascular risk on the one hand of obesity itself and on the other hand of associated medical conditions (hypertension, diabetes, insulin resistance, and sleep apnoea syndrome). Obesity has an important role in atherosclerosis and coronary artery disease. Obesity leads to structural and functional changes of the heart, which causes heart failure. The altered myocardial structure increases the risk of atrial fibrillation and sudden cardiac death. However, obesity also has a protective effect on the clinical outcome of underlying cardiovascular disease, the phenomenon called obesity paradox. The improved cardiac imaging techniques allow the early detection of altered structure and function of the heart in obese patients.

Introduction: Obesity has been a health problem of growing significance all over the world; its prevalence is increasing in both developed and developing countries.[1] According to WHO data, 39% of the global population above 18 years of age are overweight and of these, 13% are obese. Numerous studies have demonstrated a relationship between obesity and cardiovascular diseases (stable coronary disease, acute myocardial infarction, heart failure, cardiac arrhythmias, and sudden cardiac death). The association between obesity and hypertension, diabetes mellitus, dyslipidaemias, and sleep apnoea syndrome has also been shown to Increase the incidence of cardiovascular disorders. Body mass index (BMI) is used for measuring the extent of obesity; however, it gives no information on fat distribution, which is of high significance in cardiovascular risk.[2]

The Relationship between Obesity and Atherosclerosis: In the past three decades, many details of the pathophysiological processes of obesity and atherosclerosis have been revealed. Previously, both diseases had been regarded as lipid storage disorders with triglyceride accumulation in the fat tissue and cholesterol esters in atherosclerotic plaques. Nowadays, both obesity and atherosclerosis are considered chronic inflammatory conditions, in which the activation of both nonspecific and adaptive immune processes is assigned a significant role.

The pathogenesis of obesity and atherosclerosis has several common factors. In both cases, lipids, oxidized LDL particles, and free fatty acids activate the inflammatory process and trigger the disease. Inflammation is responsible for all the steps towards atherosclerosis, from early endothelial dysfunction to the atherosclerotic plaques causing complications, and is related to obesity, insulin resistance, and type 2 diabetes.[3,4]

Obesity and Coronary Artery Disease: Obesity is closely related to coronary atherosclerosis. A study performed on young patients showed that atherosclerosis begins several decades before manifested coronary artery disease. Atherosclerotic vascular lesions of patients with higher BMI values are more frequent and advanced compared to subjects with normal body weight[5]. According to longitudinal studies, at least two decades of obesity is likely to be an independent risk factor of coronary artery disease[6,7]. A 10 kg rise in body weight increases the risk of coronary artery disease by 12% and at the same time, systolic blood pressure rises by 3 mmHg and diastolic by 2.3 mmHg as a consequence. Furthermore, in the case of non-ST segment elevation myocardial infarction (NSTEMI) affecting young people, excess weight can be considered the most important risk factor, ahead of smoking.

Cardiology Diagnostics in Obesity: Considering the enhanced cardiovascular risk and inclination to arrhythmia observed in obesity, cardiology diagnostics are important even in the case of symptom-free obese patients. The routine 12-lead surface ECG and echocardiography are available at almost any cardiology outpatient unit nowadays.

Electrocardiography:

In case of obesity, the QT interval corrected to the heart rate is prolonged and QT dispersion also increases[8,9]. These electrocardiographic differences show a correlation with an enhanced disposition to ventricular arrhythmia. In the past two decades, new markers of ventricular repolarization have been identified, which characterize cardiac muscle vulnerability in coronary artery disease, hypertrophic cardiomyopathy, and long QT syndrome very well: T peak-end interval, T peak-end dispersion, and Studies performed on obese patients showed, however, that statistically significant prolongation compared to the control values was observed only in the case of QT interval and there were no similar differences observed in the case of the other electrocardiographic parameters.[10]

Using the above testing procedures, the slight structural, electrical, and functional changes of the heart can be detected. Consequently, symptom-free patients with enhanced risk for ventricular arrhythmias can be identified at an early stage.

Summary: Excess weight and obesity are associated with an increased risk of cardiovascular diseases. This is a consequence on the one hand of obesity itself and on the other hand of associated medical conditions (hypertension, diabetes, insulin resistance, and sleep apnoea syndrome). In case of already established cardiovascular diseases, the mortality of overweight and obese patients is often lower than that of people with a normal body weight, which is known as "obesity paradox." The exact mechanism of the latter is not clear yet. Considering the increased cardiovascular risk, the regular cardiology screening, and control of still symptom-free obese patients is important for the early diagnosis and treatment of subclinical medical conditions.

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KOUMISS: a powerful ally in the fight against tuberculosis

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It is prepared by fermenting raw mare's milk with lactic acid bacteria and lactic yeast at a temperature of 26-28 °C. Milk fermented to 60 °C is kneaded for 60 m in cone-shaped oak or linden tubs and poured into narrow, hermetically sealed bottles, in which they are kept for 30-40 minutes. at 20-22 °C for natural carbonation, after which it is cooled at 4-6 °C for 12-14 hours. Koumiss is prepared from the milk of horses. Koumiss made from mare's milk is considered the most useful

Since ancient times, koumiss has been not only a food product, but also a medicinal produced. Used in modern scientific medicine. Kumis is produced on an industrial scale in the form of drinks and food additives. Chemical composition Contains 2-2.9% protein, 1-2% fat, 3.5-4.8% sugar, 100-200 mg of vitamin C per 1 kg, vitamins A, D, E, PP and group B: 400- 600 mg phosphorus and 800-1000 mg calcium. In weak koumiss there is 0.6-0.8% lactic acid, on average 0.1-1%, in strong 1 - 1.2%; alcohol, respectively: up to 1%, 1-1.9%, up to 3%. The content of vitamins in mare's milk and koumiss is high. In modern folk medicine of Uzbekistan, Tajikistan, Kyrgyzstan. In Yakutia, koumis are prescribed to weakened patients, for tuberculosis, and diseases of the gastrointestinal tract

TB is caused by a bacterium called Mycobacterium tuberculosis. TB that affects the lungs is the most contagious type, but it usually only spreads after prolonged exposure to someone with the illness. For example, it often spreads within a family who live in the same house. The general symptoms of TB disease include feelings of sickness or weakness, weight loss, fever, and night sweats. The symptoms of TB disease of the lungs also include coughing, chest pain, and the coughing up of blood. Symptoms of TB disease in other parts of the body depend on the area affected. There are two kinds of tests used to detect TB bacteria in the body: the TB skin test (TST) and TB blood tests.The study showed that taking Yakut koumys by athletes during the recovery period according to the scheme contributed to a decrease in the intensity of lipid peroxidation and activation of the non-enzymatic component of the antioxidant Electronic scientific journal "Biology and Integrative Medicine" 2017 No. 1 (January) 238 of the body, i.e. lying around is an effective method for accelerating the body's recovery. The hypolipidemic and antioxidant properties of koumiss have been determined In metabolic syndrome, when treated with kumis, a

decrease in weight, body mass index, sugar and cholesterol levels, as well as an increase in intestinal motor function are observed [6]. Good results have been obtained from local treatment of kumis vaginosis in combination with drug treatment. Koumis has been successfully used in the rehabilitation of patients after cholecystectomy, in the treatment of gastric and duodenal ulcers. Koumiss treatment is effective in the treatment of diabetes mellitus, hypertension and tuberculosis. Experimental studies have shown that local application of kumis has a therapeutic effect on skin wounds time before antibiotics, the lack of a sure cure for tuberculosis, combined with the bewilderingly wide range of symptoms, meant that treatment pin wheeled from one fad to the next, with both doctors and laypeople scrambling for remedies. In the nineteenth century, medical treatments ranged from bloodletting coupled with near-starvation to diets rich in meat or milk; from complete inactivity to vigorous horse riding; included baths hot or cold; had patients travel to hot and dry climates, or sent them on sea voyages—or settled for spreading seaweed around the bed, strapping the patient into a chair designed to artificially induce sea-sickness (Dubos and Dubos 1987; Bynum 2012). In rural Ireland, folk treatments included drinking a cup of linseed oil mixed with sugar and honey, or two raw eggs beaten with whiskey and sugar, or drinking the milk of goats or Kerry cows, or even sleeping with a buck goat for six weeks (Guest 2004, 66–67). Outside the medical community, charlatans marketed miracle cures containing strychnine, chloroform or morphine, all of which would alleviate symptoms, albeit without treating the underlying disease. After six weeks of drinking koumiss, he ‘had become so plump and fresh-coloured, that, at first sight, it was with difficulty that his friends could recognize him’ (184). During his cure, the patient had subsisted entirely on koumiss, drinking as much as a gallon and half of the day. The duration of koumiss therapy for tuberculosis varies depending on the individual patient and the severity of their illness. However, most patients typically receive koumiss therapy for at least 6 months. According to a 1962 report, 1000 patients were cured with koumiss in nearly 50 sanatoriums in the former USSR. However, there is no data available on the total number of people who have been cured of tuberculosis with koumis.

In the 1950 and 1960, koumis therapy was widely used in the Soviet Union to treat tuberculosis patients. During this time, nearly 50 sanatoriums offered koumis therapy, and over 1000 patients were cured of tuberculosis each year. While koumis therapy is no longer widely used today, it remains a popular traditional remedy for tuberculosis in Central Asia.

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Emergency medical care in India and in Kazakhstan: comparative analysis

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Emergency medical care is almost same in India and in Kazakhstan and follow the same guidelines and treatment process. But Emergency care in India and Kazakhstan can differ in terms of availability, quality, and accessibility:

The healthcare systems in India and Kazakhstan have several differences:

Availability: In India, emergency care services are available in major cities and towns. Private hospitals and government facilities often have dedicated emergency departments.

Kazakhstan generally has a more uniform distribution of emergency care services across the country. Most cities and towns have designated emergency medical services.

Structure: - India has a diverse healthcare system with both public and private providers. The public sector includes government-funded hospitals and clinics, while the private sector consists of privately owned healthcare facilities. In contrast, Kazakhstan has a predominantly publicly funded and operated healthcare system.

Access Challenges: Accessibility to emergency care can be challenging, particularly in rural areas. Response times and ambulance services may not be consistent throughout the country.

Access to emergency care is generally better in Kazakhstan, with organized ambulance services and faster response times, especially in urban areas.

. Quality of Care: - The quality of healthcare in India varies widely. While some private healthcare facilities offer world-class services, public healthcare often faces challenges like overcrowding and resource shortages. Kazakhstan's healthcare system tends to have a more consistent standard of care, but it may still vary in quality between urban and rural areas.

Services Offered: Both countries provide a range of healthcare services, but the availability and specialization of medical services may differ. India is known for medical tourism and has many highly specialized hospitals. Kazakhstan may have a more generalist approach in healthcare.

It's essential to consider that the quality of emergency care can vary within each country, and challenges persist, especially in less developed regions. Both countries are working on improving their emergency medical care systems, with a focus on addressing these issues.

The assessment of brain symptoms in patients with uremic syndrome in Kyrgyzstan

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Abstract. To investigate the prevalence of brain symptoms in patients with uremic syndrome due to chronic kidney failure, our study was focused on 60 patients from the

hemodialysis department of the National Hospital of the Ministry of Health in Kyrgyz Republic. The study included patients between the ages of 55 and 60 years old. We observed laboratory results, patients' symptoms and confirmed they have developed brain symptoms due to uremic syndrome.

Key words. Uremic syndrome, CKD, BUN, creatinine, uric acid.

Introduction. In Kyrgyzstan, as in other Central Asia countries, the leading place in the structure of complications of CKD is given to cardio- [2] and cerebrovascular disorders [1]. Most common causes of CKD (chronic kidney disease) are type 2 diabetes mellitus [3], hypertension, chronic glomerulonephritis, chronic pyelonephritis. Uremia – is a syndrome that occurs in renal failure [4], which is characterized by a variety of metabolic disorders, retention of various toxins in the body and dysfunction of the structure of many organs. In brain leading to Uremic encephalopathy [5]. The components of urine accumulate residual nitrogen, urea (carbon dioxide and ammonium carboxylic acid), uric acid, creatinine.

Brain symptoms: Headache - constant, persistent, sharp, continuing day and night. As a consequence, the influence of toxins, disruption of kinin metabolism and the occurrence of cerebral edema, drowsiness, rave, hallucinations, decreased hearing and vision, loss of consciousness, uremic coma. Headache associated with hypertension, increased cardiac output in conditions of overhydration, increased renin production in conditions of renal ischemia, Na^+ retention in vascular wall which leads to its swelling and increased sensitivity to catecholamines, the release of depressor humoral factors (PGs and kinins) decreases; dizziness ; asthenia - fatigue, decreased performance ; impaired Memory/cognitive impairment [6] - impaired excretory function of the kidneys, retention of nitrogen metabolic products has toxic effects on blood vessels/circulation of the brain.

Lab Investigations- elevated BUN [5], uric acid, serum creatinine [5], electrolytes, etc.

Aim: to confirm the prevalence of brain symptoms in patients with uremic syndrome due to chronic kidney failure.

Material and methods: Our study focused on 60 patients, who were diagnosed with uremic syndrome due to CKD. These patients were identified from the database of the hemodialysis department at the National Hospital of the Ministry of Health in Kyrgyz Republic for the years 2018-2019. In terms of age, patients in the study group were between the age of 55 to 60. The gender distribution among the patients was 60% and 40% males and females, respectively. We conducted a range of laboratory examinations, including the measurement of creatinine levels, BUN (blood urea nitrogen), uric acid. According to laboratory results, out of 60 patients, those with type 2 diabetes mellitus make up 41.60%, with glomerulonephritis – 35%, hypertension – 10%, pyelonephritis – 5%, other anomalies – 3.3%.

Data gathering.

Regarding the patients aged 55-60 years with uremic syndrome due to CKD.

Headache	95 % (57 patients)
Dizziness	41.6% (25 patients)
Asthenia	80% (48 patients)
Memory impairment	73.3% (44 patients)

Laboratory findings:

BUN (Blood Urea Nitrogen)

BUN	%
40-50 mg/dl	11.7% (7 patients)
50-60 mg/dl	21.7% (13 patients)
60-70 mg/dl	26.6% (16 patients)
>70 mg/dl	40% (24 patients)

Serum creatinine levels

Serum creatinine levels	%
7.5-9.5 mg/dl	13.3% (8 patients)
9.6-10.5 mg/dl	25.1% (15 patients)
10.6-11.5 mg/dl	53.3% (32 patients)
>11.6 mg/dl	8.3% (5 patients)

Uric Acid levels

Uric acid (males)	%
>9 mg/dl	32.5% (13 males)
>11 mg/dl	67.5% (27 males)
Uric acid (females)	%
>8 mg/dl	35% (7 females)
>10 mg/dl	65% (13 females)

Data analysis. (Processing program with EXCEL)

We screened 60 patients. They were diagnosed with uremic syndrome due to CKD. The data was collected during patients visit at hemodialysis department in National Hospital during 2018-19y.

Our questionnaire included the questions, which were quite easy for the patients to respond and no special knowledge needed. Responses from the patients depended on the time when they've started getting hemodialysis.

Do you have any symptoms (like headache, confusion, difficulty in concentration or focusing, forgetfulness, altered consciousness, nausea, vomiting, fatigue)? (*Most common responses:* headache, confusion, forgetfulness, altered consciousness.)

Do these symptoms affect your daily activities and work? (*Most common response:* yes)

When have you been diagnosed with chronic kidney failure? (*Most common responses:* 1-5 years ago)

When did these symptoms start? (*Most common responses:* after being diagnosed with chronic kidney failure)

Have you undergone kidney function tests (like serum creatinine, uric acid levels, BUN and electrolytes)? (*Most common responses:* yes)

How long have you been on dialysis? (*Most common responses:* >3 years)

Conclusion. Based on the aim of this study and according to laboratory results and responses from the patients, we confirmed the prevalence of brain symptoms in patients with uremic syndrome due to chronic kidney failure. Furthermore, we found positive correlation between high laboratory results and advanced stage of kidney failure with higher manifestation of brain symptoms. Patients should monitor their dietary habits (for example, eat less phosphates, less salt), decrease physical activities, regularly visit hemodialysis, if possible, get kidney transplant.

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Prognostically Significant Factors in the Development of Pulmonary Fibrosis in Patients with COVID-19 after ALV

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Introduction. The novel corona virus disease 2019 (COVID 19) pandemic, caused by severe acute respiratory syndrome corona virus 2 (SARS CoV 2), has generated huge concern for the high mortality rate and the lack of specific and effective treatment. Millions of people have been infected globally by SARS CoV 2, which is a novel corona virus, and the seventh member known to cause respiratory tract infections in humans. Four of them result in minor symptoms associated with the upper respira¬tory tract, while three corona viruses, including SARS CoV 2, are the causative agents of lower respiratory tract infections and major lung complications. The most critically ill patients in the context of SARS CoV 2 infection develop acute respi¬ratory distress syndrome (ARDS).

Pulmonary fibrosis can be idiopathic and considered as a genetically predisposed, age related fibro proliferative disease, but chronic inflammation may also be involved in the pathogenesis of lung fibrosis. Importantly, pulmonary fibrosis is recognised sequelae of ARDS. Lung fibrosis refers to scarring of the lung, usually after infection or inflammation. Lung tissue usually acts like a sponge – it opens and closes to exchange oxygen and carbon dioxide. In lung fibrosis, that process is limited. The scar tissue makes the lung stiffer and less flexible than it needs to be. As a result, oxygen levels are lower than they should be.

Pulmonary fibrosis development

Disruptions in normal wound healing contribute to the development of pulmonary fibrosis. Wound healing has four distinct stages:

1. a clotting/coagulation phase ,
2. an inflammatory cell migration phase ,
3. a fibroblast migration/proliferation/activation phase,
4. And a tissue remodelling and resolution phase.

After lung injury, epithelial cells release inflammatory mediators that initiate an antifibrinolytic coagulation cascade, which triggers platelet activation and blood clot formation. This is followed by entry of leukocytes (e.g., neutrophils, macrophages, and T cells). The recruited leukocytes secrete profibrotic cytokines such as IL-1β, TNF, IL-13, and TGF-β. The activated

macrophages and neutrophils also remove dead cells and eliminate any invading organisms. In the subsequent phase, fibrocytes from the bone marrow and resident fibroblasts proliferate and differentiate into myofibroblasts, which release ECM components. Fibroblasts and myofibroblasts may also be derived from epithelial cells undergoing EMT. In the final remodelling and resolution phase, activated myofibroblasts can promote wound repair, leading to wound contraction and restoration of blood vessels. However, fibrosis often develops if any stage in the tissue repair program is deregulated or when the lung-damaging stimulus persists.

Post-COVID Fibrosis

Long COVID-19 (also called post-COVID) is defined as new or current symptoms that persist 30 days after initial COVID-19 infection. One of the potential consequences of long COVID is post-COVID fibrosis which can be seen on lung imaging by CT scan. However, some Long COVID patients have clear symptoms, like shortness of breath, yet their scans appear normal. Shortness of breath from Long COVID is very subtle on the CT scan, and sometimes abnormalities are not seen at all. Sometimes we can only detect abnormalities by doing a lung function test. "This can be very frustrating for patients. There could be disease deep in the lungs that the standard lung CT doesn't show.

How does COVID-19 cause pulmonary fibrosis?

Pulmonary fibrosis is a very broad term. People fall into different categories after COVID-19 infection.

Very severe COVID-19 causes tissue damage

People who need intensive care or have had acute respiratory distress syndrome or ARDS, often experience severe lung dysfunction. ARDS can lead to inflammation or fibrosis in the lungs. These COVID-19 survivors tend to have persistent abnormalities on lung imaging six months to a year after their infection. Some have persistent lung dysfunction, which shows up on pulmonary function testing. And others still need oxygen up to a year or more after their infection. This form of pulmonary fibrosis isn't progressive.

Less severe COVID-19 causes airway damage

Other patients had COVID-19, but not a severe case. Their lung fibrosis may be located in their small airways and blood vessels and is harder to detect. They have a persistent cough and shortness of breath. Often, they had pre-existing conditions, like asthma, that was made worse by COVID-19.

Risk factors for pulmonary fibrosis in COVID-19

Potential risk factors for PC19-PF survivors can be divided into two categories: patient-related and disease-related.

Patient-related risk factors for PF include advanced age, male gender, active smoking, and a history of chronic alcoholism, increased disease severity which includes co morbidities such as hypertension, diabetes, and coronary artery disease.

Prolonged ICU stay and mechanical ventilation duration, the use of HFNC (high flow nasal cannula), the presence of ARDS, and the degree of systemic inflammation have also been linked to an increased risk of PF. While disease severity is closely related to the length of ICU stay, mechanical ventilation poses an additional risk of ventilator-induced lung injury (VILI). Abnormalities of pressure or volume settings underlie this injury leading to a release of proinflammatory modulators, worsening acute lung injury, and increased mortality or pulmonary fibrosis in survivors. Furthermore, high CRP (C-reactive protein), IL (interleukin)-6 and LDH (lactate dehydrogenase) levels in the acute phase may activate fibroblast proliferation in the lung injury repair process

Diagnosis of pulmonary fibrosis

PC19-PF is characterized by persistent fibrotic tomographic sequelae associated with functional impairment throughout follow-up. Thus, clinical examination such as shortness of breath, dry cough, and reduced lung function are indicators of fibrosis, radiology, pulmonary function tests, and pathological findings should be done to diagnose PC19-PF patients.

PFT demonstrated chronic limitations in diffusion capacity and restrictive physiology by the lack of baseline testing and no uniformity in timing, from acute illness or follow-up assessment. The most common findings were pulmonary interstitial changes, which were reported as ground-glass opacities and irregular lines. Few studies have established a connection between pulmonary fibrosis and damage to alveolar epithelial cells, fibro proliferation, and matrix remodelling biomarkers. Serum alveolar epithelial cell damage biomarkers like Krebs von den Lungen-6 (KL-6) show promise in predicting a higher risk of PC19-PF. KL-6 is a high molecular weight (200 kDa) glycoprotein classified as a human transmembrane mucin 1 (MUC1) with surface expression on type II pneumocytes; the destruction and regeneration of the air-blood barrier results in elevated serum concentrations of this clinically important biomarker.

Treatment of post COVID 19 pulmonary fibrosis

- Medications: Anti-fibrotic drugs (e.g., pirfenidone, nintedanib) can slow down fibrosis progression.
- Oxygen therapy: Supplemental oxygen helps alleviate breathing difficulties.
- Pulmonary rehabilitation: Exercise and breathing techniques improve lung function and quality of life.

Methodology

Analyzed previous research articles and review articles on Development of Pulmonary Fibrosis in Patients with COVID-19. The articles, which were published between 2014 and 2022, were identified using searches of the Google Scholar and PubMed databases.

Study Findings

According to the study by Peter M George, Initial reports from China, suggested that the demographic most severely affected by COVID-19 was elderly men, and other poor prognostic factors included a history of smoking and the presence of co morbidities.

Of the 1099 patients with confirmed COVID-19 in the Chinese study by Guan and colleagues, 2 173 had severe disease. In this group, the median age was 52 years, 100 (57.8%) were male, 41 (23.7%) had a history of hypertension, 28 (16.2%) had diabetes mellitus, and ten (5.8%) had coronary artery disease. Of 67 patients who were admitted to intensive care, required mechanical ventilation, or died, the median age was 63 years, 45 (67%) were male, and 39 (58%) had a co morbidity, of which the most common was hypertension affecting 24 (36%) individuals. This description of the group in whom SARS-CoV-2 infection is most lethal is also highly representative of patients suffering with idiopathic pulmonary fibrosis (IPF). IPF characteristically affects men in their seventh or eighth decade of life, commonly with co morbidities such as hypertension, diabetes, and ischemic heart disease, and with a history of cigarette smoke exposure.

Conclusion. In conclusion, a significant portion of recovered COVID-19 patients (44.9%) appear to have developed pulmonary fibrosis, which may mostly persist over time. In addition, advanced age with limited lung function and pre existing co morbidities, such as diabetes, cardiovascular disease, hypertension, and obesity, increase the risk of developing fibrotic lung alterations in survivors with reduced exercise tolerance. Factors related to COVID-19 severity and the requirement for steroid, immunoglobulin, and antibiotic administration were significantly associated with the development of PCPF. Hence, close follow-up of severe or critically ill COVID-19 patients is recommended currently, no fully proven options are available for the treatment of post inflammatory COVID 19 pulmonary fibrosis.

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