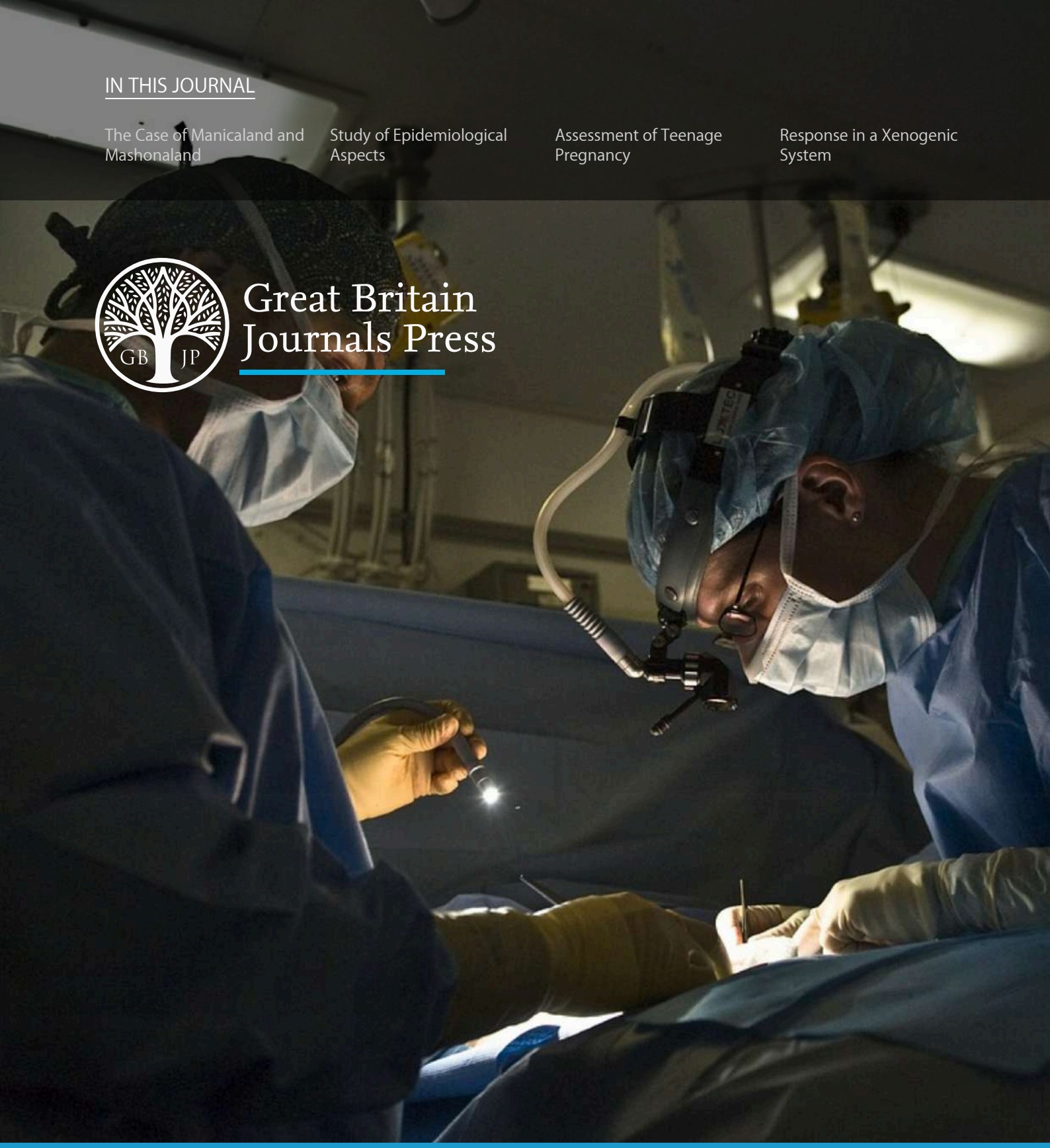
IN THIS JOURNAL

The Case of Manicaland and Mashonaland

Study of Epidemiological Aspects

Assessment of Teenage Pregnancy

Response in a Xenogenic System



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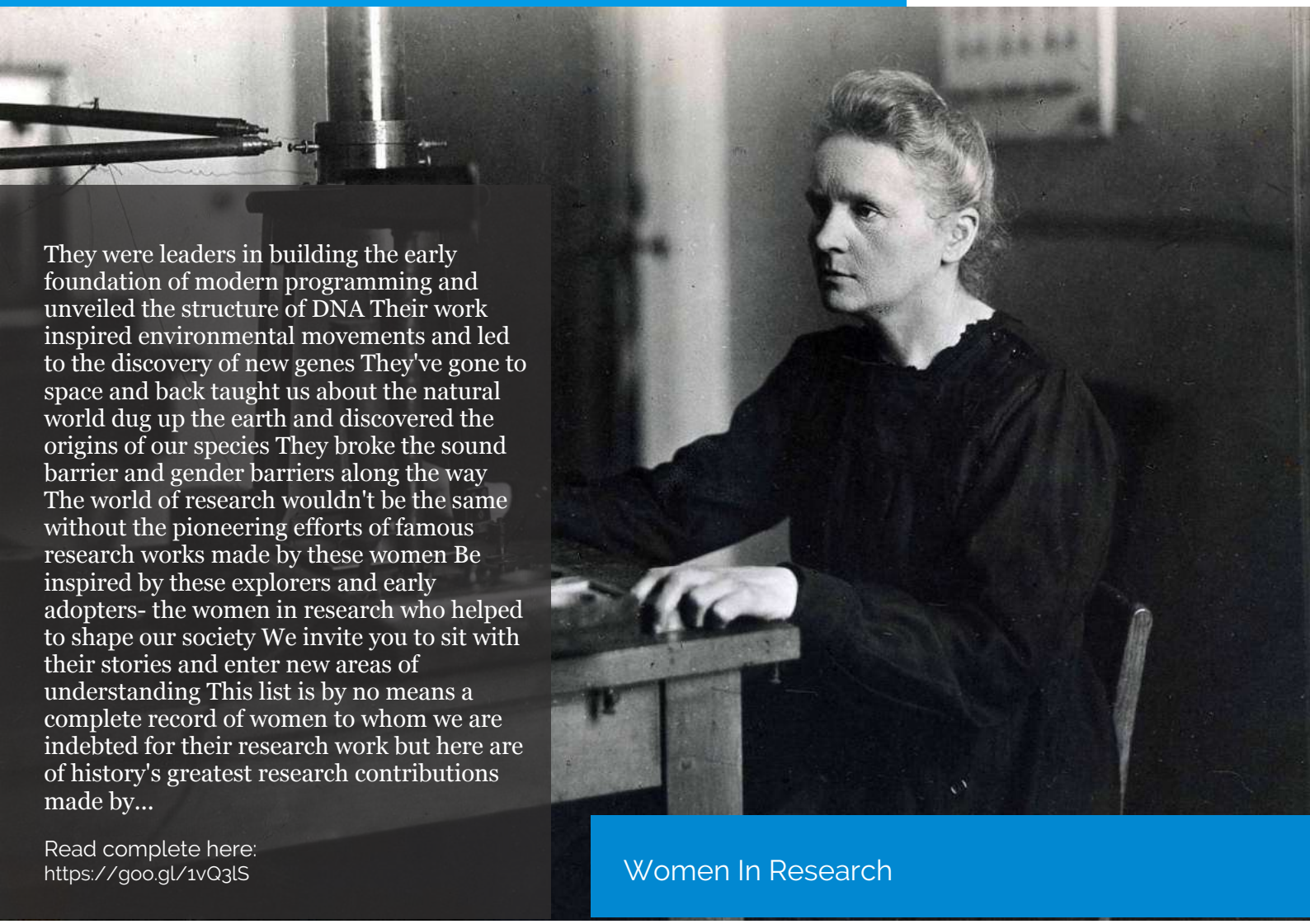

They were leaders in building the early foundation of modern programming and unveiled the structure of DNA Their work inspired environmental movements and led to the discovery of new genes They've gone to space and back taught us about the natural world dug up the earth and discovered the origins of our species They broke the sound barrier and gender barriers along the way The world of research wouldn't be the same without the pioneering efforts of famous research works made by these women Be inspired by these explorers and early adopters- the women in research who helped to shape our society We invite you to sit with their stories and enter new areas of understanding This list is by no means a complete record of women to whom we are indebted for their research work but here are of history's greatest research contributions made by...

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How to use Pathology among the Alternative and Natural Medicine Fields in the 21st Century

Dr. Rebecca L. Burkett

ABSTRACT

Oncology is the study of cancer cells. To understand oncology is to understand the biology of cells. To do this is to understand how the cells work. There are several ways to get to the right research: Next Generation Sequencing or (NGS) is a powerful tool used in genomics research. NGS can sequence millions of DNA fragments at once, providing detailed information about the structure of genomes, genetic variations, gene activity, and changes in gene behavior. Targeted therapies are a type of cancer treatment that targets proteins that control how cancer cells grow, divide, and spread. Personalized treatment is to provide help for the patient to deal with cancer issues.

Keywords: NA

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Dr. Rebecca L. Burkett

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Oncology is the study of cancer cells. To understand oncology is to understand the biology of cells. To do this is to understand how the cells work. There are several ways to get to the right research: Next Generation Sequencing or (NGS) is a powerful tool used in genomics research. NGS can sequence millions of DNA fragments at once, providing detailed information about the structure of genomes, genetic variations, gene activity, and changes in gene behavior. Targeted therapies are a type of cancer treatment that targets proteins that control how cancer cells grow, divide, and spread. Personalized treatment is to provide help for the patient to deal with cancer issues.

I. INTRODUCTION

Interpretation by pathologists is also essential for correct molecular research data resulting from the analysis of tissues and cells. For example, there is evidence of the BRCA1/2 mutations or microsatellite instability (Lynch syndrome) it should be noted in the report. In the pathology report with a recommendation so that clinical geneticists must be involved to perform genetic counseling of the patient with their family history.

II. HISTORY OF PATHOLOGY TIMELINE

There are different timelines in discovering pathology in the 19th Century the tumor diagnosis was less restricted because of low scientific knowledge and low treatment plans. The new study of cell biology and molecular structure was the most important and distinct elements of benign and cancerous tissues. By the mid-1800s, a solid foundation had been made for microscopy, and surgeons recognized that microscopic diagnosis by pathology. In this setting, oncological pathology was also extremely limited. Every study for oncology and information was non-existent for cancer diagnosis. However, Rudolf Virchow (1821-1902) in the second half of the 19th century made significant research that is light microscope research, and Virchow was considered the 'father of modern pathology'.

2.1 Cell Biology and Structure

To understand oncology (Cancer) is to understand how the cell works. It is a cell's biology and structure that determines what kind of treatment collaborates well with the client.

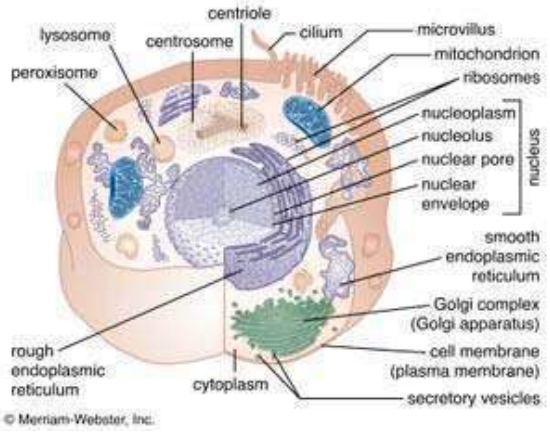

Fig 1.0: Cell Biology and Structure

There are three areas that will help in this study it is the plasma membrane, Nucleus, Cytoplasm, Organelles: In the Cells growth, the healthy cell uses the membranes to help them maintain homeostasis, internal and external movement, consume energy and reproduce through procreation or mitosis, otherwise known as cell division.

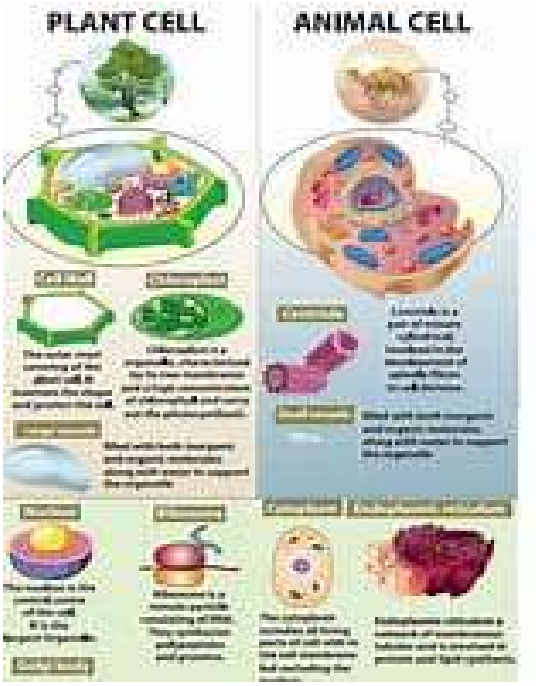

Fig. 1.1

2.2 Basic Structures of a Cell

Cells are the fundamental units of life from which all other living things are made of. Each different cell has a different subcellular structure, but all eukaryotes contain the same three parts: the nucleus, the cell membrane, and the cytoplasm.

III. NEW DEVELOPMENT AND TREATMENT FOR ONCOLOGY

The new development of radio-oncology begins in the first half and the rise of modern chemotherapy in the second half of the 20th century. The medical field noticed the distinct morphological tumor entities at the same location might respond completely differently to radiotherapy and/or chemotherapy. What are morphological tumor entities? This means morphological tumors refer to Histological factors and patterns of the biomarkers in various types of cancers, for example, breast and brain cancers. Next are the new advancements in 'precision medicine' which begin in the 1980s with the development of immunohistochemistry, individualized oncology was erased from the overexpressed HER2/neu also in patients with breast cancer. The modern-day pathologist needs to research the increasing importance to detailed knowledge in morphology and in molecular mechanisms of cancer. For example, are some of those detailed knowledge of morphology and molecular mechanisms of cancer: There is One.) The online Catalogue of Somatic Mutations in Cancer (COSMIC) is a valuable source for known activating and inactivating genes in cancer genes. Two.) The FFPE setting, fluorescence in situ hybridization (FISH) proved a powerful tool to detect gains or losses of genetic material such as HER-2/neu amplification in breast cancer. For FISH has great genetical testing to offer: This could detect chromosomal translocations of one irrespective of the fusion partner. It also probes the design in two different label probes to complete the breakpoint region of the gene.

This sparks new interest, and separate signals the proof of the translocation. The detection of anaplastic lymphoma kinase translocations in non-small cell lung cancer (NSCLC) tissue specimens is a typical example of FISH translocation testing. Pathologists are necessary to guarantee the quality of the results, for several reasons: (One) Identify the molecular alterations should be interpreted in the appropriate morphologic context, since most of them are context-specific; (Two) pre-analytical issues must be taken into consideration; (Three) it is crucial to

check the proportion of tumor cells in the sample subjected to analysis and presence of inflammatory infiltrate and necrosis should be monitored; and (Four) the role of pathologists is crucial to select the most appropriate methods and to control the turnaround time in which the molecular results are delivered in the context of an integrated diagnosis.

IV. GENETIC RESEARCH

Next Generation Sequencing or (NGS) is a powerful tool used in genomics research. NGS can sequence millions of DNA fragments at once, providing information about the structure of genomes, genetic variations, gene activity, and changes in gene behavior. Without the appropriate analysis and diagnosis of the sequencing of the DNA fragments there would not be any treatment care plan for cancer patients.

V. PERSONALIZED TREATMENT

This area is where the medical staff would recommend specific treatment from the Esoteric Sciences includes Reiki and Chakra healings, Self-awareness, Self-Completeness sessions, spiritual coaching are all considered non-medical treatments, Metaphysics would be Spiritual Coaching as well, self-realization and self-completeness. Life and Health Coach, Positive Psychology Coach, Spiritual Coaching, TCM, Herbal medicine. These methods will Improve the circulation of flow energy. Acupuncture and or acupressure also uses this type of technique for the body.

VI. ALTERNATIVE AND NATURAL MEDICINE

In the Natural Medicine field there is more information to use for a patient care plan. Natural Medicine has a variety of clinical procedures, they are: Diagnostic Summary which describes the symptoms and definitions of each one. Some of the topics have more information to introduce, for example, in Natural Medicine it has Affective diseases: Depression in its list of topics. Depression has different subtitles such as, Bipolar, Manic, and Seasonal Depression. All these depression terms can be found in the Diagnostic System Manual (DSM) to get all the information. Next section would be the general consideration. This section explains what the type of Depression would need treatment. Also listed in the DSM book and the Handbook of Natural Medicine the topic of cancer which has the same appropriate therapeutic techniques to use. This research comes from, "The Clinicians Handbook of Natural Medicine", Joseph E. Pizzorno, Michael T. Murray, and Herb Joiner-Bey, Third Edition, (Copy right 2016 Elsevier, Inc.). These doctors provided a plethora of information to help us determine what types of appropriate therapeutic techniques to use on a client. Also, this book is found on website; https://genesisschoolofnaturalhealth.org/wp-content/uploads/2020/03/Natural-Medicine-Pizzorno.pdffile.

Alternative medical systems may be based on traditional medicine practices. For Alternative medical systems can provide over one hundred different modalities. Alternative medicine is considered a non-traditional approach, which is related to: (One) The Healthcare and wellness systems, it is closely focuses on treating the whole person, including their physical, mental, emotional, and spiritual well-being. (Two) The modalities promote natural healing processes within the body and restore the balance. (Three) These can be used as Complementary Alternative Medicine (CAM) or therapies along with conventional treatments combined approaches for certain conditions. Don't forget that in alternative healing modalities it has often fewer side effects compared to medications commonly prescribed in. medicine. Also, do not forget when prescribing these modalities and the medication is to, "Do No Harm"

One such modality is the traditional Chinese medicine (TCM) and the Ayurveda in India, or practices of other cultures around the world. Traditional practices and beliefs from the Eastern medicine from China, together with modifications made by the Communist party make up TCM this is a positive move by the government. Common practices include herbal medicine, acupuncture (insertion of needles in the body at specified points), massage (Tui na), exercise (qigong), and

dietary therapy. Traditional Western medicine from India is the Ayurveda which believes in the existence of three elemental substances, the doshas (called Vata, Pitta and Kapha), and states that a balance of the doshas results in health, while imbalance results in disease. Such disease-inducing imbalances can be adjusted and balanced using traditional herbs and minerals. This is why pathology cancer research is so important and can improve a patient's life.

Bio-Energetic fields. It is a holistic therapy that enhancing these energies, individuals can achieve physical, emotional, and spiritual well-being.

deals with the mind, body, and spirit. This uses the body's energy to promote healing. This work is to balance and restore energy flow, addressing physical, emotional, and mental issues. This approach believes that by balancing and Core Techniques. Therapists often incorporate movement techniques.

Breathwork used to deepen the connection between the mind and body.

Touch. These bioenergetic healing sessions as therapists use touch to help clients become more aware of their bodies.

Dialogue. Dialogue is an essential component of bioenergetic therapy, where therapists engage clients in conversations to explore their emotions, thoughts, and experiences.

VII. ISSUES ADDRESSED BY BIOENERGETIC THERAPY

7.1 Psychological Issues

Bioenergetic therapy is effective in addressing a wide range of psychological issues such as anxiety, depression, and trauma.

7.2 Stress Management

One significant benefit of bioenergetic therapy is its effectiveness in managing stress. This will reduce stress levels and improve mental clarity.

7.3 Pain Relief and Emotional Distress

Bioenergetic therapy also helps in managing chronic pain and dealing with emotional distress. It provides healing by combining physical movements with emotional release techniques.

Targeted Therapy

Fig 1.1

Targeted therapy focuses on the genetic characteristics of cancer cells. It uses drugs to attack mutated genes to prevent the cancer from surviving or spreading into other cells. Cancer changes the genes in your cells, and those mutations cause your cells to multiply and grow. For these targeted therapies, it is a step by step for the doctor that collects the sample of cancer cell tissue by performing a biopsy or surgery. They then send the sample to the lab to be evaluated that determines the particular mutation that is

causing the change in the cell's genes, this is called a biomarker or molecular.

How does targeted therapy work? Many types of cancer treatment that target proteins that control how cancer cells grow, divide, and spread. For example, Kinase inhibitors Angiogenesis inhibitors, monoclonal antibodies are made in a lab and target a specific antigen (protein). Proteasome inhibitors. Once your doctor identifies the mutated gene, you take targeted drugs in pill or intravenous (IV) form that will kill or slow that specific mutation.

What types of targeted therapy will the doctors use? Monoclonal antibodies are lab-produced versions of your body's antibodies. They target antigens, the unwanted proteins on or near your cells that may develop from cancer. Small-molecule inhibitors which are small enough to easily enter Trusted Source your cancer cells and attach themselves to targets, killing them or preventing them from spreading. There are many areas for doctors to use.

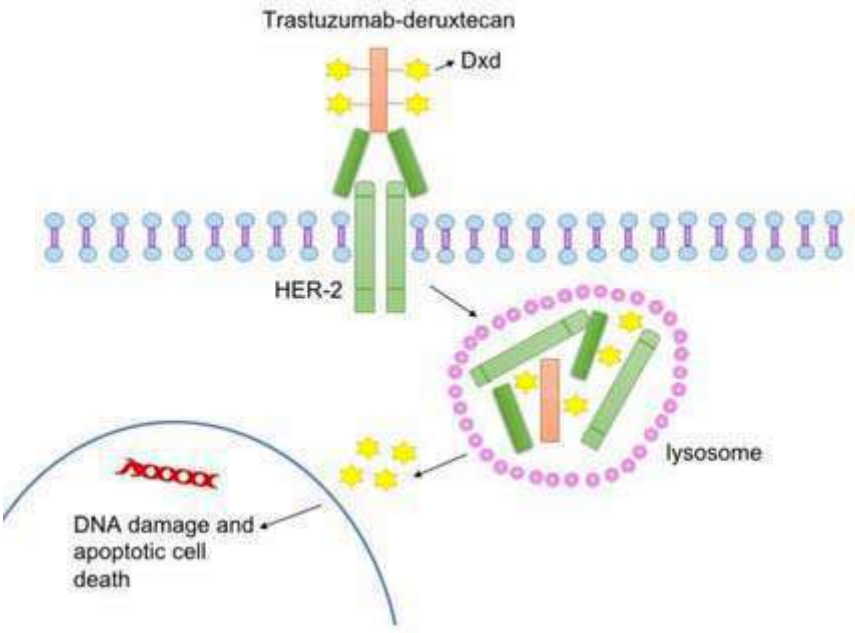

Fig. 1.2: In Targeted Therapy

VIII. SAFETY MEASURES

Sometimes, hospital administrators do not consider the above-mentioned conditions. Do not take unfortunate decisions allowing molecular testing and interpretation of cancer somatic alterations in facilities, outside pathology departments. Hospitals and other facilities should realize that other forms of treatment should be considered for patient treatment. A patient should know and understand about the Patient Bill of Rights that they have the right to other forms of treatment and HIPPA Act.

Pathology and Cancer Treatment Studies

During the last part of the 18th century cancer research and pathology were fully integrated disciplines in which pathology represented a natural bridge between biology and medicine. An important contributor to the field was the work of Giovanni Battista Morgagni, an Italian physician, who in the 18th century published a comprehensive study of more than six hundred cases in which the clinical findings were correlated with the alterations found at the anatomical level.

IX. CONCLUSION

Pathology to cancer research is so important for the well-being of the patient. The history of pathology has come a long way for the proper care of the patient. The three areas needed for patient care are NGS, Personalized treatment, Targeted

therapy are all steps in the right direction for patient quality care. Using Pathology The case study represents decades of research with multiple people who can use the modalities in each medical field. It was a positive study that six hundred people participated in and will continue to work with the researchers.

RESOURCES

1. PMC. NCBI. NLM.Nih. gov., https://pmc.ncbi.nlm.nih.gov/articles/PMC5133383/ources
2. PMC.NCBI.NLM.Nich.gov., https://pmc.ncbi.nlm.nih.gov/articles/PMC7156353/
3. PMC.NCBI.NLM.Nich.Gov., https://pmc.ncbi.nlm.nih.gov/articles/PMC6377259
4. Science Direct, https://www.sciencedirect.com/topics/medicine-and-dentistry/complementary-and-alternative-medicine
5. Britannica.com,https://www.britannica.com/science/personalized-medicine
6. https://www.britannica.com/science/cell-biology Cancer gov. https://www.cancer.gov/about-cancer/treatment/types/targeted-therapies Cancer Council https://www.cancercouncil.com.au/cancer-information/cancer-treatment/targeted-therapy/types-of-targeted-therapy/
7. ACS Journals, online library, (Copyright © American Cancer Society 1999-2024 John Wiley & Sons, Inc) https://acsjournals.onlinelibrary.wiley.com/doi/full/10.1002/cncr.26320 Science Direct.com, https://www.sciencedirect.com/science/article/piiEsoteric Science.com https://esotericscience.com/Health.aspx
8. Britannica, ttps://www.britannica.com/science/cell-biology

The Clinicians Handbook of Natural Medicine,

"The Clinicians Handbook of Natural Medicine", Joseph E. Pizzorno, Michael T. Murray, and Herb Joiner-Bey, Third Edition, (Copy right 2016, Elsevier, Inc.).

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Study of Epidemiological Aspects of Cholera in the Edea Health District, Littoral – Cameroon

Alex Stéphane Ndjip Ndjock, Steve Roland Souga, Michaela Josee Meli, Carlos Tiemeni, Rodrigue Yemene, Marie. Marquiny Tekou, Ingrid Cécile Djuikoue & Philippe Quenel

University of Dschang

ABSTRACT

Introduction: Cholera is an acute diarrhoeal disease caused by infection of the intestine with Vibrio cholerae type O1 or O139 bacteria, which can lead to rapid dehydration and death. Both children and adults can be infected. Cholera is closely associated with poverty, poor sanitation and the absence of safe drinking water. As a result, the burden of cholera is concentrated in Africa and South Asia, accounting for around 99% of cases worldwide. Against a backdrop of water shortages in the town of Edea, and following confirmation of the existence of an outbreak of cholera in the town, a number of investigations were carried out to describe the event in terms of time, place and people, and to put control measures in place. The aim of this article is to report on the cholera epidemic observed in the Edea health district with a view to strengthening disease surveillance.

Keywords: epidemic, cholera, edea, cameroon.

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Study of Epidemiological Aspects of Cholera in the Edea Health District, Littoral – Cameroon

Étude Des Aspects Épidémiologiques Du Choléra Dans Le District De Santé D'Edea, Littoral – Cameroun

Alex Stéphane Ndjip Ndjock[α], Steve Roland Souga[σ], Michaela Josee Meli[ρ], Carlos Tiemeni[ↀ] Rodrigue Yemene[¥], Marie. Marquiny Tekou[χ], Ingrid Cécile Djuikoue[ν] & Philippe Quenel[Θ]

RÉSUMÉ

Introduction: Le choléra est une maladie diarrhéique aiguë causée par l'infection de l'intestin par la bactérie Vibrio cholerae de type O1 ou O139 qui peut causer une déshydratation rapide et la mort. Les enfants et les adultes peuvent être infectés. Le choléra est étroitement associé à la pauvreté, un mauvais assainissement et l'absence d'eau potable saine. Ainsi, le fardeau du choléra est concentré en Afrique et en Asie du Sud, représentant environ 99 % des cas dans le monde entier. Dans un contexte de manque d'eau dans la ville d'Edea et suite à la confirmation de l'existence d'un foyer de choléra dans la ville, plusieurs investigations ont été menées afin de décrire l'événement en termes de temps, lieux et personnes et de mettre en place les mesures de contrôle. Le présent article a pour objectif de faire état de l'épidémie de choléra observée au district de santé d'Edea dans le but de renforcer la surveillance de la maladie.

Méthodes: Nous avons mené une étude descriptive transversale sur une période allant de la 1ere à la 52e semaine épidémiologique de l'année 2022, dans le district de santé d'Edea, dans la région du Littoral, Cameroun. Une liste linéaire a été établie, et une recherche active des cas dans les registres de consultation des formations sanitaires et dans la communauté a été effectuée. Étaient inclus dans cette étude, tous les cas suspects de cholera notifiés dans les aires de sante du district de sante d'Edea. Les variables démographiques, cliniques, la provenance et le devenir des cas ont été extraites de la liste linéaire du choléra du District de Santé d'Edea et analysées avec EasyMedStat (version 3.22) et Microsoft Excel 2016.

Résultats: Au total 34 cas suspects de choléra ont été identifiés dans le district dont 2 décès (5,88%). Parmi les cas suspects, 10 ont été positifs au TDR et 1 a été confirmé par culture (V. cholerae O1 ou O139); le tout sur une période de 52 semaines épidémiologiques en 2022. Le sexe sex-ratio F/M était de 1,61. Toutes les tranches d'âge étaient touchées. La tranche la plus représentée était celle des ≥15 ans avec 28 cas (82.3%). La plupart des cas venaient de l'aire de santé de Malimba: 9 cas (26,4%). Tous les cas présentaient de la diarrhée et des vomissements. Un niveau de déshydratation modéré a été le plus souvent observé: 14 cas (41%).

Conclusion: L'épidémie de choléra a été confirmée au District de santé d'Edéa. Afin d'endiguer de prochaines épidémies et tendre vers l'élimination de la maladie, il est primordial de renforcer la surveillance épidémiologique et l'application des mesures préventives contre le choléra dans le district, particulièrement pendant la saison pluvieuse, et de promouvoir la collaboration multisectorielle à travers l'implication de tous les acteurs des secteurs apparentés.

Mots-clés: epidémie, cholera, edea, cameroun.

ABSTRACT

Introduction: Cholera is an acute diarrhoeal disease caused by infection of the intestine with Vibrio cholerae type O1 or O139 bacteria, which can lead to rapid dehydration and death. Both children and adults can be infected. Cholera is closely associated with poverty, poor sanitation and the absence of safe drinking water. As a result, the burden of cholera is concentrated in

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Methods: We conducted a descriptive cross-sectional study from the 1st to the 52nd epidemiological week of 2022 in the Edea health district, Littoral region, Cameroon. A linear list was drawn up, and cases were actively sought in the consultation registers of the health facilities and in the community. All suspected cholera cases notified in the health areas of the Edea health district were included in this study. Demographic, clinical, origin and outcome variables were extracted from the linear cholera list of the Edea Health District and analysed using EasyMedStat (version 3.22) and Microsoft Excel 2016.

Results: A total of 34 suspected cholera cases were identified in the district, including 2 deaths (5.88%). Of the suspected cases, 10 were RDT positive and 1 was confirmed by culture (V. cholerae O1 or O139); all over a period of 52 epidemiological weeks in 2022. The sex ratio F/M was 1.61. All age groups were affected. The most common age group was ≥15 years, with 28 cases (82.3%). Most of the cases came from the Malimba health area: 9 cases (26.4%). All cases presented with diarrhoea and vomiting. Moderate dehydration was most frequently observed: 14 cases (41%).

Conclusion: A cholera epidemic has been confirmed in the Edea Health District. In order to contain future epidemics and move towards the elimination of the disease, it is essential to strengthen epidemiological surveillance and the application of preventive measures against cholera in the district, particularly during the rainy season, and to promote multi-sectoral collaboration through the involvement of all stakeholders in related sectors.

Keywords: epidemic, cholera, edea, cameroon.

Author α σ: Edea Health District, Cameroon.
α Θ: Association pour le développement de l'épidémiologie de terrain, Château de Vaccassy, 12, rue du Val d'Osne, 94415 Saint-Maurice Cedex, France.
σ ν: Faculty of Health Sciences, Université des Montagnes, Bangangte, Cameroon.
ρ: Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Dschang, Cameroon.
ↀↃ: Texila American University and Central University of Nicaragua.
¥ χ: Department of Public Health, University of Douala, Douala, Cameroon.
ν: Prevention and Control Foundation, Yaounde, Cameroon.
Θ: University of Rennes, EHESP, Inserm, IRSET UMR S 1085, Rennes, France.

I. INTRODUCTION

Le choléra est une maladie diarrhéique aiguë causée par l'ingestion de souches de *Vibrio cholerae* productrices de toxines présentes dans des aliments ou de l'eau contaminés. Elle est particulièrement répandue sur deux continents, l'Afrique et l'Asie et a été identifiée comme une cause importante de diarrhée. Elle reste une menace mondiale malgré les progrès récents en termes de thérapie de réhydratation orale et de gestion de la maladie [1,2].

Les mauvaises conditions d'hygiène et les pratiques telles que la manipulation non hygiénique des aliments, l'absence d'eau potable et la défécation à ciel ouvert sont responsables de la transmission de la maladie. On estime que des symptômes sévères comme des vomissements, des crampes aux jambes et une diarrhée aqueuse sont présents chez environ 10 % des personnes atteintes de la maladie. Par la suite, ceux-ci causent la perte rapide de fluides corporels qui à son tour conduit à la déshydratation. La mort survient chez l'adulte et l'enfant en quelques heures si un traitement approprié n'est pas reçu.

Chaque année, entre 1,3 et 4 millions de personnes dans le monde sont touchées par le

choléra et entre 21 000 et 143 000 personnes en meurent [1].

En 2017, l'Organisation Mondiale de la Santé (OMS) a signalé environ 1,2 million de cas de choléra et 5 654 décès dans le monde ; le Yémen représentant 84 % des cas et 41 % des décès attribués au choléra. Comme de nombreux pays n'avaient pas signalé de cas de choléra ni de décès à l'époque, ces statistiques ne fournissent qu'une évaluation partielle du fardeau mondial de la maladie. La sous-déclaration observée peut être liée dans certains pays aux risques perçus pour les industries du tourisme et d'exportation, ainsi qu'à la faiblesse, voire à l'absence, des systèmes de surveillance [3].

L'Afrique subsaharienne, qui présente un risque élevé d'infection par le choléra, a enregistré la majorité des épidémies de choléra et des décès au fil des années. Les bidonvilles périurbains dépourvus d'infrastructures primaires et les camps de personnes déplacées dans lesquels les besoins minimums en eau salubre et en assainissement ne sont pas satisfaits, comprennent des zones à risque de transmission du choléra. Par conséquent, une augmentation de la transmission de personne à personne dans les camps de réfugiés et les communautés surpeuplées a été observée [4]. Au total, 55 087 cas de choléra ont été signalés dans 16 pays africains en 2019, avec une baisse considérable du taux de létalité des cas (TL) de 2,0 % en 2018 à 1,6 %. En 2020, le nombre de cas de choléra est passé de 34 957 à 23 628 en Afrique centrale et de l'Ouest tandis que le TL dans les sous-régions est passé de 1,8 % en 2019 à 2,1 %. Au niveau national, de 2019 à 2020, le taux de létalité des cas de choléra a augmenté de 2,2 % au Bénin, de 0,4 % au Cameroun, de 1,2 % au Libéria et de 3,5 % au Nigéria. Ces chiffres démontrent la nécessité d'améliorer la lutte contre le choléra en Afrique subsaharienne afin d'atteindre l'objectif de réduction de 90% des décès dus au choléra d'ici 2030 [5].

Plusieurs pays d'Afrique de l'Ouest et d'Afrique centrale, dont le Cameroun, connaissent des épidémies récurrentes de choléra. En raison de la persistance des épidémies de choléra et des mouvements massifs de population avec les pays voisins comme le Tchad et le Nigeria, la circulation de *Vibrio cholerae* en particulier dans les régions du Nord, du Littoral, du Centre et du Sud-Ouest s'ajoutant à l'accès limité à l'eau, à l'assainissement et à l'hygiène dans le pays, le Cameroun reste un pays où les épidémies de choléra sont fréquentes. Selon les résultats de l'enquête en grappes à indicateurs multiples 5 (MICS5) menée en 2014, 65,1 % de la population n'avait pas accès à des latrines non partagées au Cameroun [6].

La région de l'Extrême-Nord du Cameroun, une région endémique à haut risque de choléra, a connu des épidémies graves et récurrentes de choléra au cours des dernières années ; les épidémies de choléra dans cette région étant notamment associées à des pratiques culturelles (croyances traditionnelles et religieuses). [7]. Dans le Sud-Ouest et le Littoral, régions signalées comme étant les plus affectées, le choléra est le plus souvent signalé pendant la saison des pluies (novembre-avril) ou lors de la transition entre la saison des pluies et la saison sèche. Tandis que dans la région du Centre, le choléra est plus fréquemment signalé pendant la saison des pluies qui se produit en mai-juin et octobre-novembre [8].

Début de 2021, une augmentation significative des cas de choléra a été observée au Cameroun où en l'espace de deux mois (d'octobre à décembre), trois régions ont rapporté un nombre cumulé de 309 cas présumés de choléra et de 4 cas confirmés en laboratoire, dont 19 décès, soit un TL de 6,1 %.

L'épidémie était concentrée dans le Centre et le Sud-Ouest, avec la majorité des cas dans la région du Sud-Ouest. Les points chauds prioritaires du choléra ont été identifiés à l'aide de la méthodologie du Groupe de travail mondial sur la lutte contre le choléra [9].

Cette épidémie s'est poursuivie en 2022, passant de 200 cas suspects hebdomadaires en moyenne en 2021 à plus de 1 262 au cours de la deuxième semaine de mars 2022, pour atteindre au 30 avril 2022, selon l'OMS, 6 652 cas touchant 6 régions: Centre, Littoral, Extrême-Nord, Nord, Sud et Sud-Ouest.

Dans un contexte de manque d'eau dans la ville d'Edea située dans la région Littoral, et suite à la confirmation de *l'existence d'un foyer de choléra,* plusieurs investigations ont été menées afin de décrire l'événement en termes de temps, lieux et personnes et guider la mise en place les mesures de contrôle. A notre connaissance, aucune analyse descriptive post épidémique des informations relatives au choléra dans le district sanitaire d'Edea n'avait été réalisée à ce jour; une telle analyse pouvant être utile pour renforcer le dispositif local de surveillance, élaborer des stratégies locales d'intervention intégrées et conduire des activités de riposte. Le présent article a pour objectif de faire état de l'épidémie de choléra survenue dans le district de santé d'Edea dans le but de renforcer la surveillance de la maladie.

II. MÉTHODES

2.1 Type d'étude

Nous avons mené une étude rétrospective sur une période allant de la 1ere à la 52e semaine épidémiologique de l'année 2022, dans le district de santé d'Edea, dans la région du Littoral, Cameroun. Une liste linéaire a été établie à partir de la recherche active de cas dans les registres de consultation des formations sanitaires et dans la communauté.

2.2 Sites D'étude, Échantillonnage Et Population

Toutes les aires de santé du district de santé d'Edea (Beon, Delangue Dizangue, Makondo, Elogbele, Mouanko, Logbadjeck, Ngonga, Malimba, Plateau et Dehane) ont été considérées.

2.3 Définition De Cas Suspect Pour La Recherche De Cas

Dans les zones où une épidémie de choléra est déclarée, un cas suspect est toute personne souffrant de diarrhée aqueuse aiguë ou en train de mourir de diarrhée aqueuse aiguë [10].

2.4 Cas Confirmés De Choléra

Un cas de choléra confirmé correspond à tout cas suspect pour lequel le *Vibrio cholerae* O1 ou O139 est confirmé par culture ou test de réaction en chaîne de polymérase. Après identification d'une épidémie de choléra, il convient de supposer que tous les cas de diarrhée aqueuse aiguë dans la région sont porteurs du choléra, avec seulement des tests de laboratoire périodiques pour confirmer que la transmission du choléra persiste et donc, que l'épidémie est en cours [10].

2.5 Déclaration Et Enquête Sur Les Épidémies

Les échantillons de selles prélevés sur les cas suspects de choléra sont évalués par les laboratoires nationaux de référence, à l'aide de cultures; les isolats de *V. cholerae* identifiés sont testés pour déterminer leur résistance aux antibiotiques. Le test universel des échantillons de selles est effectué au début d'une épidémie de choléra dans une région donnée; lorsque le pic de l'épidémie est atteint, la fréquence des tests diminue à 1 échantillon pour 10 patients. À la fin de l'épidémie, les tests universels sur des échantillons de cas suspects reprennent.

2.6 Analyse Des Données

Les variables démographiques, cliniques, la provenance et le devenir des cas ont été extraites de la liste linéaire du choléra du District de Santé d'Edea et analysées avec EasyMedStat et Microsoft Excel 2016.

III. RÉSULTATS

3.1 Distribution Temporelle Des Cas De Choléra

Dans le district de santé d'Edea, 34 cas suspects de choléra ont été signalés. Les tests effectués étaient le Test de Diagnostic Rapide (TDR) et la culture. Des 34 cas suspects, 11 étaient confirmés par TDR, 13 étaient négatifs au TDR et 10 cas non pas été testés. Parmi les cas positifs au TDR, 1 a été confirmé par culture (*V. cholerae* O1 ou O139.

Le nombre maximum de cas observés en une semaine était de 17% (6/34) à la 18e semaine épidémiologique représentant ainsi le pic de l'épidémie. Cependant le dernier cas avait été notifié à la 41e semaine au cours de l'année 2022.

Au cours des semaines épidémiologiques 33 et 34, 2 décès ont été enregistrés pour un taux de létalité de 5.88% (Figure 1).

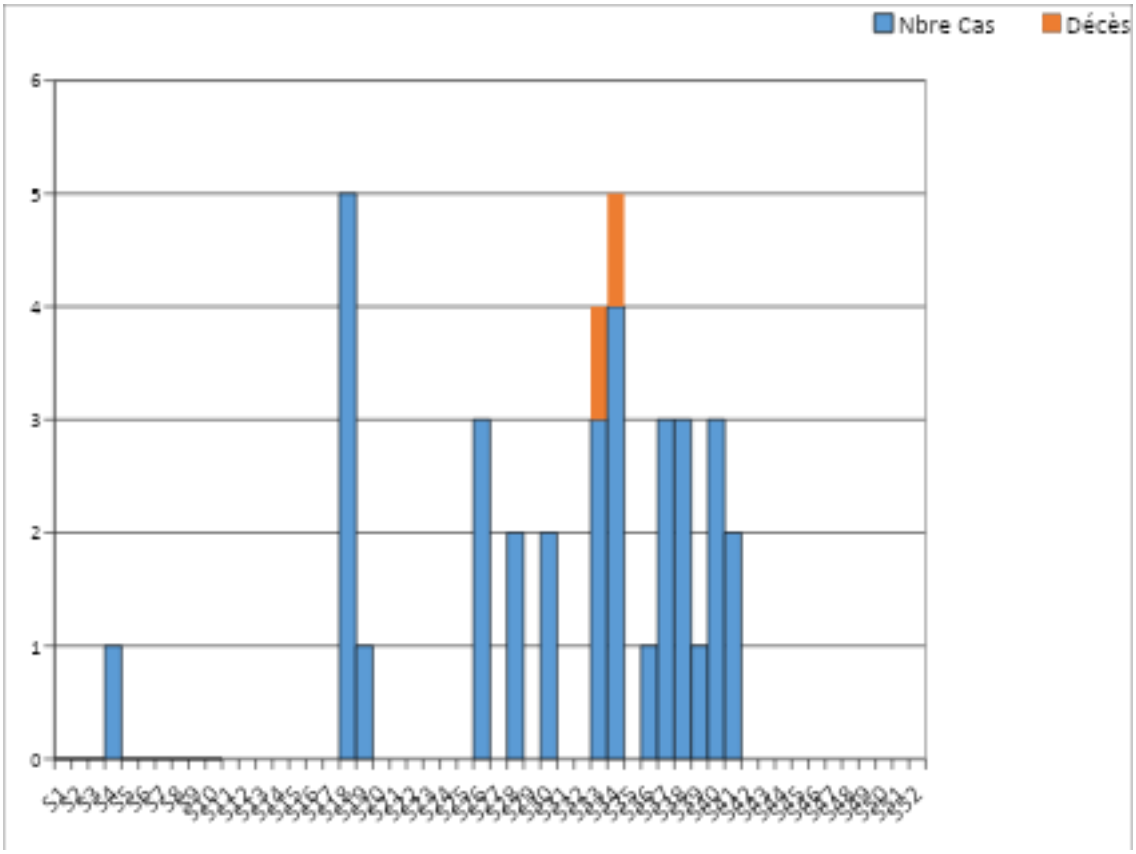

Figure 1: Distribution des cas en fonction des semaines épidémiologiques

3.2 Distribution Spatiale Des Cas De Cholera

Des cas de choléra provenaient de 7 aires de santé du district de santé d'Edea et 2 dans deux autres districts de santé dénommés Njombe-Penja et Bonassama. La plupart des cas venaient de l'aire de santé de Malimba, 26,4% (9/34). En outre, les aires de santé de Delangue et de Mouanko figuraient parmi les zones les plus touchées avec 11,7% (6/34). Aucun cas ne venait des aires de santé de Ngonga et Makondo, Dehane et logbadjeck (4/11). (Figure 2).

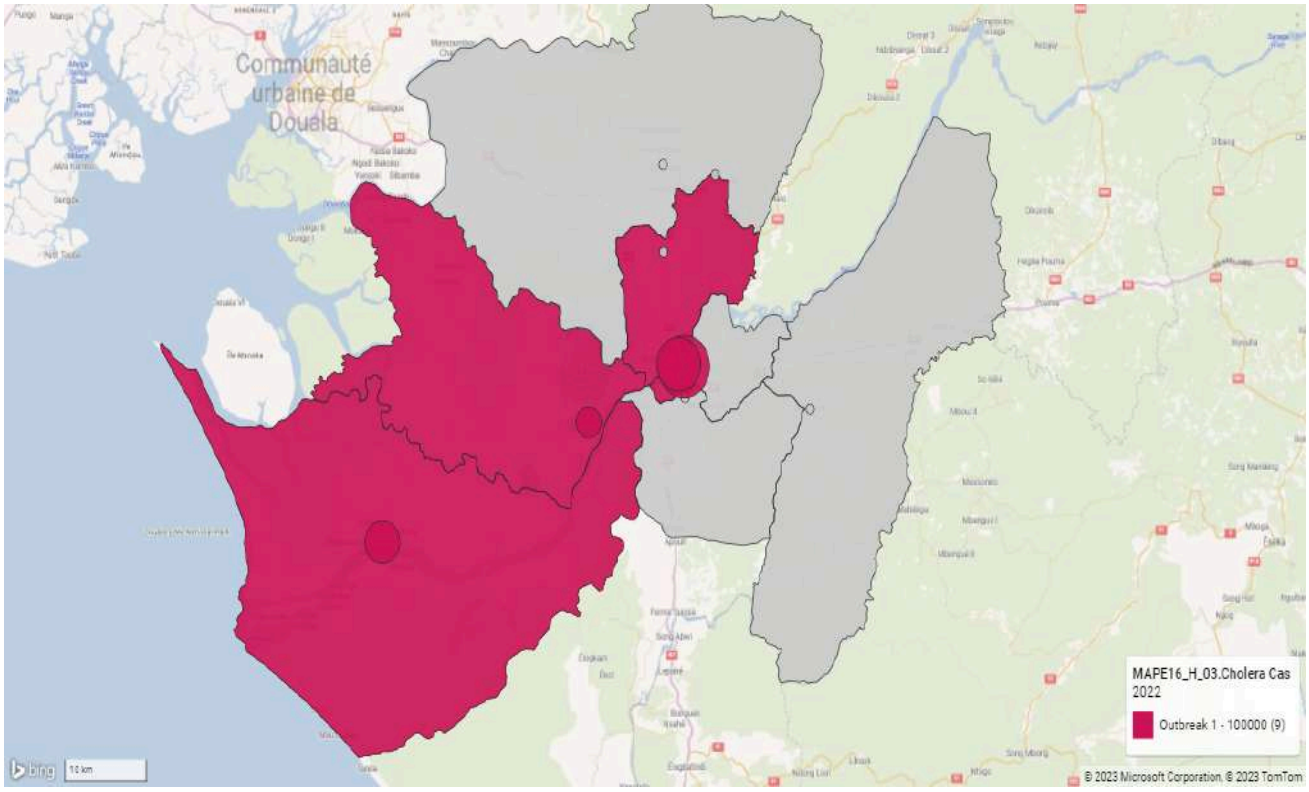

Figure 2: Distribution Spatiale Des Cas

3.3 Description Des Caractéristiques Sociodémographiques Et De La Répartition Géographique

Le sexe féminin était plus représenté (62%) que le sexe masculin (38%) avec un sex-ratio F/M de 1,61. Tous les cas étaient âgés de 0 à +50 ans. Toutes les tranches d'âge étaient touchées. La tranche la plus représentée était celle des plus des ≥ 15 ans avec 82.3% (28/34). Quant à la vaccination, aucun cas n'avait reçu de vaccin anticholérique (Tableau 1).

Tableau 1: Description Des Caractéristiques Sociodémographiques Et Distribution Des Cas

	Cholera
	n= 34 (%)
Tranche d'âge (Années)	
0 - 4 ans	3 (8.9)
5 – 14 ans	3 (8.9)
≥ 15 ans	28 (82.3)
Genre	
Féminin	21 (38)
Masculin	13 (62)
Vaccinés	
Oui	0 (0.0)
Non	34 (100)

Évaluation syndromique des cas de rougeole

Les états de déshydratation répertoriés étaient léger, modéré et sévère qui représentaient respectivement 32% (11/36); 41% (14/36) et 27% (9/36) (Figure 3).

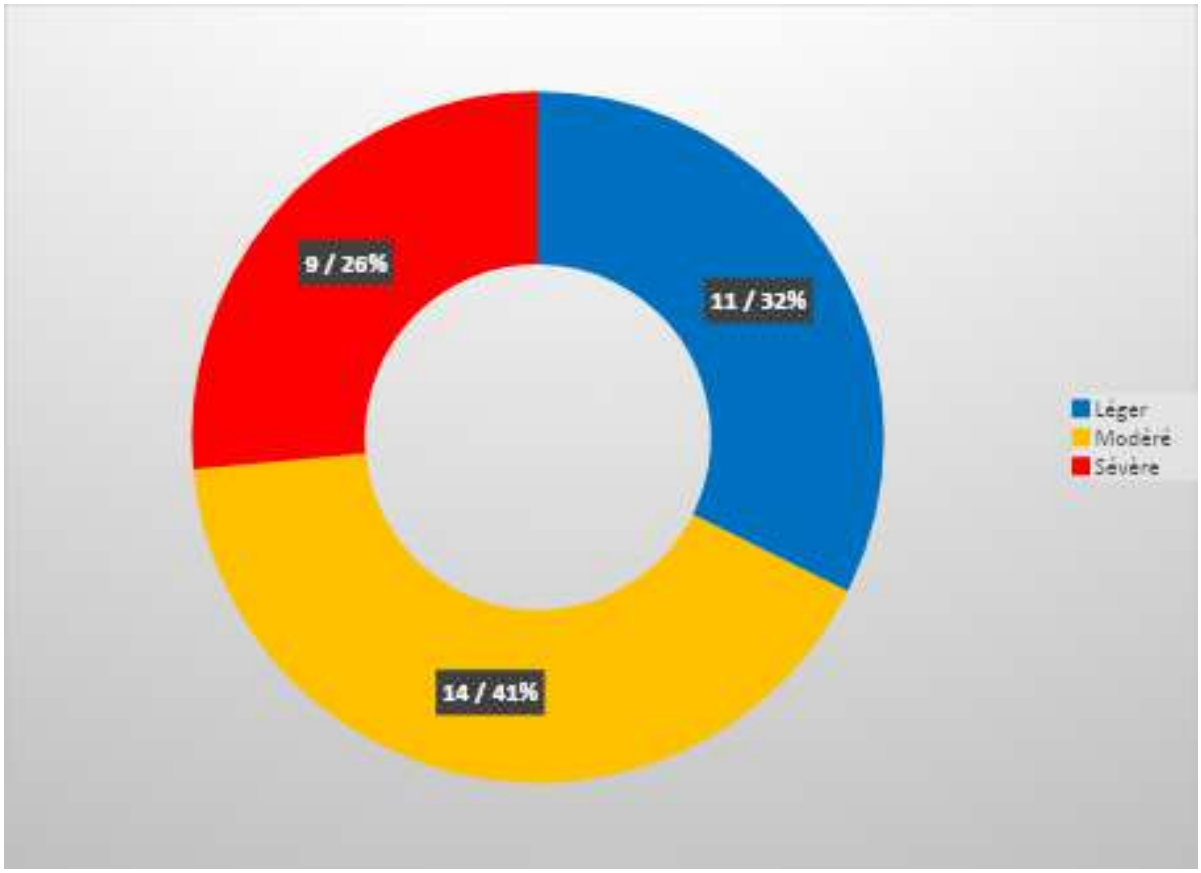

Figure 3: État de déshydratation

IV. DISCUSSION

Notre étude avait pour objectif de faire état de l'épidémie de choléra observée au district de santé d'Edea en décrivant les caractéristiques des cas en termes de temps, lieu et personne. Elle va dans le sens de plusieurs études menées en Asie, au Nord-Cameroun, en Inde, au Congo, [2, 11, 12, 13]. Tout ceci montre l'ampleur du choléra qui reste un problème de santé publique dans les pays en développement en raison de sa morbidité et de sa mortalité élevées, bien que les données de surveillance complètes permettant d'éclairer les politiques et les stratégies soient rares [11-14].

Nos résultats montrent que le sexe féminin était plus représenté (62%) que le sexe masculin (38%) avec un sex-ratio F/M de 1,61. Résultat contraire à celle d'une étude toujours menée au Cameroun dans laquelle les hommes étaient les plus touchés (56%) avec une sex-ratio de 1,27 (187H/147F). Cette prédominance féminine est due certainement au fait de la mobilité rapide des femmes en cas de problèmes de santé tant mineur que majeur et de leur hyperactivité dans les zones à risques et les foyers d'épidémies en jouant le rôle de garde malade [11].

La tranche la plus représentée était celle des plus des ≥ 15 ans avec 82.3% (28/34); similaire à la précédente étude où les jeunes âgés de 16 à 34 ans étaient la tranche d'âge la plus touchée; pareille que celle menée en Asie où les taux d'attaque étaient similaires chez les hommes et les femmes, et les taux les plus élevés ont été observés chez les personnes âgées [11-12].

Quant à la vaccination des personnes dans les zones à haut risque qui est une mesure de précaution et de réaction efficace pour limiter la transmission, et qui joue un rôle essentiel dans le soutien d'une stratégie globale d'endiguement de la maladie, axée sur l'accès à l'eau salubre [15], aucun cas n'avait reçu de vaccin anticholérique dans notre étude contrairement à l'étude menée à Haïti où 1 270 933 de personnes avaient été vaccinées contre le choléra [15]. Cela pourrait s'expliquer par le fait qu'aucune campagne de

vaccination contre le choléra n'a été organisée au district de santé d'Edea depuis plusieurs années dû au stock limité de doses en fonction des besoins en vaccins. Cependant, la vaccination offre une option à court terme pour les populations vivant dans les zones à haut risque et celle-ci ne devrait pas perturber d'autres interventions hautement prioritaires telles que la fourniture d'un accès à l'eau potable et l'amélioration de l'assainissement de base, de l'hygiène et de la mobilisation sociale [16].

Des cas de choléra provenaient de 7 aires de santé du district de santé d'Edea et 2 dans deux autres districts de santé dénommés Njombe-Penja et Bonassama où le ministère de la santé publique Camerounais avait organisé une campagne de vaccination réactive contre le choléra pour lutter contre le taux de mortalité élevé dans les districts sanitaires touchés de ces régions ; malheureusement le taux de couverture global dans la région du littoral avait été le plus faible (64%) malgré l'importance de la population ciblée [17]. Ce déport des cas vers d'autres districts s'explique par le fait que le choléra se propage au-delà des frontières. Il convient d'informer les voyageurs et les communautés des risques potentiels, des symptômes, des précautions à prendre pour éviter le choléra et des modalités de notification, c'est-à-dire quand et où signaler les cas [16].

Dans le district de santé d'Edea, 34 cas suspects de choléra ont été signalés suite à une recherche active des cas dans la communauté et dans les établissements de santé, de même que l'instruction des stratégies avancées dans la communauté par les chefs d'aires de santé. Les tests effectués étaient le TDR et la culture. Des 34 cas suspects, 11 étaient confirmés par TDR, 13 étaient négatifs au TDR et 10 cas n'ont pas été testés. Parmi les cas positifs au TDR, 1 a été confirmé par culture (*V. cholerae* O1 ou O139); le tout sur une période de 52 semaines épidémiologiques en 2022. Ces résultats sont largement inférieurs aux études menées au Sud de l'Inde [11] où 73 cas avaient été signalés au cours de l'épidémie, de même qu'en Haïti où le ministère de la santé avait signalé plus de 6 760 cas suspects de choléra [15]. De nombreuses études ont répertorié un nombre de cas assez important de choléra notamment en Afrique du Sud [18] et au Malawi [14]. Cette différence pourrait s'expliquer par le fait que ces études étaient menées sur plusieurs années et dans toute l'étendue du territoire. Cependant, afin de réduire la propagation du choléra dans le district, il était urgent de mettre en place des mesures de limitation et de contrôle de l'épidémie telles que le renforcement de la surveillance de routine ; l'approvisionnement des formations sanitaires en intrants et outils de gestion des cas de choléra ; la prise en charge médicale des cas suspects et confirmés de choléra ; la désinfection des formations sanitaires, ménages et des sites d'inhumation en appliquant les méthodes WASH (Eau, assainissement et hygiène) Il y a 3 à 5 millions de cas de choléra et plus de 100 000 personnes meurent de la maladie, la majorité (99 %) des cas et des décès se produisant en Afrique subsaharienne et en Asie du Sud [14].

Le Cameroun a connu des épidémies récurrentes de choléra avec des taux de mortalité élevés [19]. C'est ainsi qu'au cours des semaines épidémiologiques 33 et 34, 2 décès ont été enregistrés pour un taux de létalité de 5.88% largement supérieur à celui préconisé par l'OMS qui doit être en dessous de 1% [12]. Nos résultats corroborent avec ceux retrouvés à Haïti incluant 81 décès et au Cameroun avec un taux de létalité élevé (1,20%) [12]. Il en est de même pour l'étude réalisée au Malawi où durant l'épidémie de choléra, un taux de létalité de 2,1 % avait été signalé [14]. Aussi, le Cameroun est parvenu à réduire considérablement le taux de létalité lié au choléra, qui est un indicateur de la qualité de la gestion des cas de choléra, mais il reste supérieur à la limite supérieure de 1 % considérée par l'OMS comme une norme [20].

Plusieurs études ont ressorti un nombre important de décès notamment au Cameroun [21-23]; au Zimbabwe [23-24] ; au Kenya avec 178 décès liés au choléra (taux de létalité = 1,6 %) [25]; au Bangladesh, avec 3 500 à 7 000 décès par an [26]; en République démocratique du Congo avec 1 145 décès [27]; au Yémen où la pire crise humanitaire au monde a été déclarée [28-29]; au Nigeria [30] et au Ghana [31]. Cela pourrait

indiquer l'inefficacité des méthodes actuelles de prévention et de contrôle en Afrique. Nos résultats sont différents de ceux d'une étude menée au Sud de l'Inde où aucun décès dû au choléra n'avait été signalé [11].

Le nombre maximum de cas observés en une semaine était 6/34 à la 18e semaine épidémiologique représentant ainsi le pic de l'épidémie. Cependant le dernier cas avait été notifié à la 41e semaine au cours de l'année 2022. Ces résultats corroborent avec ceux d'une étude menée au Cameroun [12] où l'épidémie avait connu trois pics aux semaines épidémiologiques 35, 36 et 39. Ces pics correspondent aux périodes de pluviométrie élevée, périodes pendant lesquelles il y a une forte circulation du vibrion cholérique. Tout ceci s'explique car dans le Sud-Ouest et le Littoral, régions signalées comme étant les plus affectées, le choléra est le plus souvent signalé pendant la saison des pluies (novembre-avril) ou pendant la transition entre la saison des pluies et la saison sèche [8]. Des enquêtes sur les sources possibles de contamination et les voies probables de transmission (sources d'eau, marchés, rassemblements, funérailles et pratiques culturelles) ont été menées.

Le choléra, causé par *V. cholerae*, est une maladie caractérisée par une diarrhée très sévère et une déshydratation qui peut entraîner la mort en moins de 48 heures en l'absence de traitement [32]. Bien que la majorité des cas soient considérés comme asymptomatiques, l'infection par le choléra peut provoquer des diarrhées et des vomissements et, dans les cas les plus graves, une déshydratation extrême, une acidose métabolique et la mort. Le taux de létalité du choléra peut être maintenu en dessous de 1 % avec une gestion appropriée des cas; cependant, sans traitement approprié, le taux de létalité peut dépasser 20 % [33].

V. CONCLUSION

Le choléra est l'une des menaces mondiales pour la santé publique. L'épidémie de choléra a été confirmée au District de santé d'Edéa. Afin d'endiguer de prochaines épidémies et tendre vers l'élimination de la maladie, il est primordial de renforcer la surveillance épidémiologique et l'application des mesures préventives contre le choléra dans le district particulièrement pendant la saison pluvieuse et de promouvoir la collaboration multisectorielle à travers l'implication de tous les acteurs des secteurs apparentés.

L'approvisionnement en eau salubre et un assainissement adéquat semblent être essentiels pour contrôler la propagation du choléra dans le District de santé d'Edea. Malgré les nombreux défis inhérents à la prestation de soins au Cameroun, des mesures pratiques pourraient être prises pour réduire la mortalité due au choléra dans cette région, notamment la fourniture en temps utile de matériel de traitement, la formation du personnel de santé, la création de centres de réhydratation, la promotion du traitement de l'eau à domicile et l'amélioration du lavage des mains avec du savon.

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Approbation éthique

Cette étude est conforme à la Déclaration d'Helsinki. Aucune approbation n'a été requise.

Contributions Des Auteurs

(ASNN, SRS) conception et design de l'étude, ou acquisition des données, ou analyse et interprétation des données, (MM, CT, RY, MMT, ICD) rédaction de l'article ou révision critique du contenu intellectuel important, (PQ) approbation finale de la version à soumettre.

Déclaration De Liens D'intérêt

Les auteurs déclarent ne pas avoir de liens d'intérêt.

REFERENCES

1. Musa SS, Ezie KN, Scott GY, Shallangwa MM, Ibrahim AM, Olajide TN, et al. The challenges of addressing the cholera outbreak in Cameroon. Public Health Pract (Oxf). 2022 Dec;4:100295.
2. Mahapatra T, Mahapatra S, Babu GR, Tang W, Banerjee B, Mahapatra U, et al. Cholera outbreaks in South and Southeast Asia: descriptive analysis, 2003-2012. Jpn J Infect Dis. 2014;67(3):145–56.
3. Deen J, Mengel MA, Clemens JD. Epidemiology of cholera. Vaccine. 2020 Feb 29;38 Suppl 1:A31–40.
4. Nsagha DS, Atashili J, Fon PN, Tanue EA, Ayima CW, Kibu OD. Assessing the risk factors of cholera epidemic in the Buea Health District of Cameroon. BMC Public Health. 2015 Nov 14;15:1128.
5. Owoicho O, Abechi P, Olwal CO. Cholera in the Era of COVID-19 Pandemic: A Worrying Trend in Africa? Int J Public Health. 2021 Jun 15;66:1604030.
6. Ateudjieu J, Yakum MN, Goura AP, Nafack SS, Chebe AN, Azakoh JN, et al. Health facility preparedness for cholera outbreak response in four cholera-prone districts in Cameroon: a cross sectional study | BMC Health Services Research | Full Text [Internet]. https://bmchealth servres.biomedcentral.com/articl-es/10.1186/s12913-019-4315-7 (acccessed 12 July 2023).
7. Che E, Numfor E, Lenhart S, Yakubu AA. Mathematical modeling of the influence of cultural practices on cholera infections in Cameroon. Math Biosci Eng. 2021 Sep 27;18(6):8374–91.
8. Cholera – Cameroon [Internet]. https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON374 (acccessed 12 July 2023).
9. Cameroon Cholera Outbreak - Situation Report #1 (May 19, 2022) - Cameroon | ReliefWeb [Internet]. 2022 https://reliefweb.int/report/cameroon/cameroon-cholera-http://www.who.int/cholera/task_force/GTFCC-Guidance-cholera-surveillance.pdf?ua=1 (acccessed 12 July 2023).
10. Global Task Force on Cholera Control's Interim Guidance on Cholera Surveillance. http://www.who.int/cholera/task_force/GTFCC-Guidance-cholera-surveillance.pdf?ua=1 (acccessed 12 July 2023).
11. Deepthi R, Sandeep SR, Rajini M, Rajeshwari H, Shetty A. Cholera outbreak in a village in south India–Timely action saved lives. Journal of infection and public health. 2013; 6(1):35–40.
12. Justin Ndié, Isaac Bayoro, Isidore Takoukam, Paul Wina. Étude Des Aspects Épidémiologiques Du Choléra Dans Le District De Santé De Tcholliré (Nord-Cameroun). Doi:10.19044/esj.2016.v12 n1 5p278.
13. Ingelbeen B, Hendrickx D, Miwanda B, van der Sande MA, Mossoko M, Vochten H, et al. Recurrent cholera outbreaks, Democratic Republic of the Congo, 2008–2017. Emerging infectious diseases. 2019;25(5):856.
14. Msyamboza KP, Kagoli M, Chipeta S, Masuku HD. Cholera outbreaks in Malawi in 1998-2012: social and cultural challenges in prevention and control. The Journal of Infection in Developing Countries. 2014; 8(06):720–6.
15. Zarocostas J. Cholera outbreak in Haiti-from 2010 to today. The Lancet. 2017;389 (10086): 2274–5.
16. Organization WH. Cholera, 2012= Choléra, 2012. Weekly Epidemiological Record= Relevé épidémiologique hebdomadaire. 2013; 88(31): 321–34.
17. Amani A, Fouda AAB, Nangmo AJ, Bama SN, Tatang CA, Mbang MA, et al. Reactive mass vaccination campaign against cholera in the COVID-19 context in Cameroon: challenges, best practices and lessons learned. Pan Afr Med J. 2021;38:392
18. Ismail H, Smith AM, Tau NP, Sooka A, Keddy KH, Group for Enteric R, et al. Cholera outbreak in South Africa, 2008–2009: laboratory analysis of Vibrio cholerae O1 strains. The Journal of infectious diseases. 2013;208(suppl_1): S39–45.
19. Cartwright EJ, Patel MK, Mbopi-Keou FX, Ayers T, Haenke B, Wagenaar BH, et al. Recurrent epidemic cholera with high mortality in Cameroon: persistent challenges

40 years into the seventh pandemic. Epidemiol Infect. 2013 Oct;141 (10):2083–93.
20. Djomassi LD, Gessner BD, Andze GO, Mballa GE. National surveillance data on the epidemiology of cholera in Cameroon. The Journal of infectious diseases. 2013; 208 (suppl_1):S92–7.
21. Musa SS, Ezie KN, Scott GY, Shallangwa MM, Ibrahim AM, Olajide TN, et al. The challenges of addressing the cholera outbreak in Cameroon. Public Health Pract (Oxf). 2022 Dec;4:100295.
22. Kadia RSM, Kadia BM, Dimala CA, Collins AE. Usefulness of disease surveillance data in enhanced early warning of the cholera outbreak in Southwest Cameroon, 2018. Confl Health. 2023 Feb 7;17(1):6.
23. Mashe T, Domman D, Tarupiwa A, Manangazira P, Phiri I, Masunda K, et al. Highly resistant cholera outbreak strain in Zimbabwe. New England Journal of Medicine. 2020;383(7):687–9.
24. Gwenzi W, Sanganyado E. Recurrent cholera outbreaks in sub-Saharan Africa: moving beyond epidemiology to understand the environmental reservoirs and drivers. Challenges. 2019;10(1):1.
25. George G. Notes from the field: ongoing cholera outbreak—Kenya, 2014–2016. MMWR Morbidity and Mortality Weekly Report. 2016;65.
26. Koepke AA, Longini Jr IM, Halloran ME, Wakefield J, Minin VN. Predictive modeling of cholera outbreaks in Bangladesh. The annals of applied statistics. 2016;10(2):575.
27. Ingelbeen B, Hendrickx D, Miwanda B, van der Sande MA, Mossoko M, Vochten H, et al. Recurrent cholera outbreaks, Democratic Republic of the Congo, 2008–2017. Emerging infectious diseases. 2019;25(5):856.
28. Federspiel F, Ali M. The cholera outbreak in Yemen: lessons learned and way forward. BMC public health. 2018;18(1): 1–8.
29. Dureab FA, Shibib K, Al-Yousufi R, Jahn A. Yemen: cholera outbreak and the ongoing armed conflict. The Journal of Infection in Developing Countries. 2018; 12(05):397–403.
30. Ngwa MC, Wondimagegnehu A, Okudo I, Owili C, Ugochukwu U, Clement P, et al. The multi-sectorial emergency response to a cholera outbreak in internally displaced persons camps in Borno state, Nigeria, 2017. BMJ Global Health. 2020;5(1): e002 000.
31. Eibach D, Herrera-Leon S, Gil H, Hogan B, Ehlkes L, Adjabeng M, et al. Molecular epidemiology and antibiotic susceptibility of Vibrio cholerae associated with a large cholera outbreak in Ghana in 2014. Plos neglected tropical diseases. 2016;10(5): e0004751.
32. Orata FD, Keim PS, Boucher Y. The 2010 cholera outbreak in Haiti: how science solved a controversy. Plos pathogens. 2014; 10(4):e1 003967.
33. Azman AS, Rudolph KE, Cummings DA, Lessler J. The incubation period of cholera: a systematic review. Journal of Infection. 2013; 66(5):432–8.

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Dr. James Munamati

ABSTRACT

Young people are a window of hope and a demographic dividend in many developing countries, including Zimbabwe. As such, societies must be conducive to nurturing a new generation that will spearhead the fourth industrial revolution agenda in the country. However, young people are faced by a myriad of sexual and reproductive health (SRH) problems which include unintended pregnancies and the consequent unsafe abortions. This study aims to assess the prevalence of teenage pregnancies in Manicaland and Mashonaland Central Provinces, identify the factors contributing to teenage pregnancy in these regions, and examine their consequences. The study utilised a triangulation of qualitative and quantitative methods, including surveys, Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs). A survey quantified the magnitude of teenage pregnancies facing young people in Zimbabwe. The survey involved 600 female adolescents aged 10-19 years, with the number of participants from each province determined using a probability proportional to size approach. FGDs were undertaken so as to obtain data on community perceptions on teenage pregnancy as well as the socio-cultural and religious beliefs underlying teenage pregnancies in Zimbabwe.

Keywords: Assessment, teenage pregnancy, Zimbabwe, Manicaland, Mashonaland Central, young people.

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Keywords: Assessment, teenage pregnancy, Zimbabwe, Manicaland, Mashonaland Central, young people.

I. INTRODUCTION

Globally, teenage pregnancy continues to be a significant challenge, contributing to both maternal and child mortality, perpetuating a harmful cycle of poor health and poverty. Since the 1994 International Conference on Population and Development, which marked a significant milestone in the discourse on reproductive health by explicitly addressing reproductive health rights, family planning, sexually transmitted diseases, and HIV prevention, discussions on human sexuality and adolescents have evolved. In particular, the ICPD Programme for Action highlighted a significant oversight in addressing the reproductive health needs of adolescents within the existing reproductive health services. It further emphasized that information and services should be accessible to adolescents, aiding their understanding of sexuality and providing protection against unwanted pregnancies and sexually transmitted diseases. Despite great improvements for adolescents to access sexual

and reproductive health care, inequalities between and within countries remain and is considered an unfinished agenda for achieving universal access to sexual and reproductive health and rights included in the Sustainable Development Goals 2015–2030 (UNAIDS, 2020). Despite this progress, there is an incessant need to improve the sexual and reproductive health rights (SRHR) needs of people, if the SADC region is to continue to reduce morbidity and mortality, unlock its human development potential, meet the Sustainable Development Goals (SDGs) and the targets of the African Union's Maputo Plan of Action 2016–2030 (SADC Regional strategy, 2019).

This article is the outcome of a study that sought to assess teenage pregnancy in Zimbabwe. This article gives the background to the study and highlights the research problem. Literature gaps will be identified on teenage pregnancy. It also gives an insight into the objectives which provides direction to the study. This article reviews previous literature on teenage pregnancy from global, regional and national levels. Theoretical framework underpinning the study and the methodology employed will be presented. The major findings and discussion will be presented on teenage pregnancy. The article will end by giving the conclusions and recommendations.

II. BACKGROUND TO THE STUDY

Adolescence, according to the World Health Organization, encompasses the age range of 10 to 19 years and is commonly divided into early adolescence (10–14 years) and late adolescence (15–19 years). (Ayanaw Habitu, Yalew, Azale Bisetegn, 2018). Research suggest that more than 16 million adolescent girls experience pregnancies worldwide annually, and 95% of these occurrences take place in low and middle-income countries. (Bellingham-Young and Odejimi, 2016). While the global adolescent birth rates have decreased from 65 births per 1000 women in 1990 to 47 births per 1000 women in 2015, the incidence of adolescent pregnancies has remained unacceptably high in sub-Saharan Africa (Ahinkorah *et al.*,2021, Ahinkorah *et al.*,2022)._A recent meta-analysis disclosed that the prevalence of adolescent pregnancy is 18.8% across the entire African continent (Kassa *et al.*, 2018). In Sub-Saharan Africa, the rate is slightly higher at 19.3%, with variations ranging from 21.5% in East Africa to 9.2% in North Africa (Kassa *et al.*, 2018). In certain countries, the incidence of teenage pregnancy reaches alarming levels, such as 44.3% in Congo, 39.4% in Angola, 38% in Gabon, and 38.9% in Liberia (Kassa *et al.*, 2018).

Zimbabwe boasts a youthful demographic, with approximately one-third falling within the 10-24 age bracket. As per the National Population Census of 2012, adolescents aged 10-19 make up 24% of the country's total population. This demographic faces various developmental challenges, encompassing issues like unemployment, restricted educational access, gender-based violence, inter-generational relationships, child marriage, pregnancy, HIV infection, and other adverse reproductive health outcomes. Currently, 22% of women age 15-19 have begun childbearing, with 17% already given birth andadditional 5% pregnant with their first child (Zimstat and ICF international, 2016).

Although teenage childbearing has remained unacceptably higher, it has declined slightly from 19% in 2010-11 to 17% in 2015 (Zimstat and ICF international, 2016). Research has revealed significant rural-urban differentials based on the percentage who had begun childbearing, showing that rural adolescent girls were almost three times as likely to become pregnant 27%, compared with 10% among their urban counterparts (Zimstat and ICF international, 2016). The proportion of adolescents who had started childbearing were highest in Mashonaland Central (31%), Matabeleland South (30%) and Manicaland (28%) and lowest in Harare (10%) (Zimstat and ICF international, 2016)

In Zimbabwe, the adolescent fertility rate for women aged 15-19 years was 108 births per 1,000 women in 2019 (ZIMSTAT and UNICEF, 2019). Previous research indicated a gradual increase in the adolescent fertility rate from 99 births per 1,000 women aged 15-19 in 2005-06 to 115 births per 1,000 women aged 15-19 in 2010-11. However, it subsequently decreased to 110 births per 1,000

women aged 15-19 in 2015 and further declined to 108 births per 1,000 women in 2019 (ZIMSTAT and UNICEF, 2019; ZIMSTAT and ICF International, 2016). Adolescents in rural areas were twice as likely to give birth compared to those in urban areas (144 vs 71 per 1000). This is a cause for concern given that women who begin fertility at younger ages suffer from several health risks.

Early marriage is a significant immediate factor contributing to teenage pregnancy. Early marriage affects 5% of girls globally and 12% in sub-Saharan Africa (UNAIDS, 2019a). Northern Africa, Western Asia and Southern Asia (particularly India) have witnessed the largest declines in child marriage since 1994. In Southern Asia, a girl's risk of early marriage declined by more than 40%, from 53.3% to 29.9%, in Latin America and the Caribbean, there is no evidence of progress, with a constant 25% of girls affected (UNAIDS, 2019a). The global burden of child marriage is shifting to sub-Saharan Africa where rates of progress need to be accelerated significantly (UNICEF, 2018).

Similar to other Sub-Saharan countries, Zimbabwe still has early marriage practices. Data from ZDHS shows that the proportion of youth who have been married has slightly increased from 19% in 1994 to 20% in 2015 for female youths aged 15-19 years. However, the corresponding percentages for males are lower. This reflects a persistent feature that in Sub Saharan Africa, adolescent women marry older men (Abdool Karim et al., 2017; Abdool Karim, Q., 1992; Barbieri & Hertrich, 2005; Dellar et al., 2015; Mavhu et al., 2017; Remez et al., 2014). This behaviour suggests wide age differences between spouses (often referred to as age mixing) which can lead to power imbalances in marriages and an increased risk of HIV infection for young married women, since older husbands have more years of sexual experience and thus, higher HIV prevalence (Clark, 2004).

Research have demonstrated a strong relationship between age mixing and gender based violence. The National Baseline Survey on Life Experiences of Adolescents revealed that approximately one third of females aged 18-24 years reported having experienced some form of sexual violence (sexual touching, attempted sex, forced sex, or pressured sex) before the age of 18 (ZIMSTAT & CCORE, 2013). Of these, 56% reported that the first incident occurred when they were 16-17 years old, compared to 27% and 17%, who indicated that they were aged 14-15 years old and less than 13 years, respectively (ZIMSTAT & CCORE, 2013). Of those aged 13-17, about 43% had unwanted first sexual intercourse, to mean that,they were either forced, pressured, tricked, or threatened to engage in sexual intercourse (ZIMSTAT & CCORE, 2013).

A study in South Africa has shown that having a partner who is five years older increases one's risk of having sex with an HIV positive man by three times (Maughan-Brown et al., 2014). A study in Zimbabwe also reported that, although young women perceived HIV risk to be higher in older men, they still had unprotected sex with them suggesting that economic incentives outweighed HIV risk (Mavhu et al., 2017). In addition, this undermines the negotiation powers of such young women as some young women reported having sexual relationships with men they knew had high HIV risk due to economic reasons (Mavhu et al., 2017). A study in Zimbabwe among HIV positive young women reported that they had acquired HIV from their husbands or romantic partners (Mavhu et al., 2017).

In Zimbabwe, adolescent marriage is closely related to adolescent motherhood, since embedded traditional values demand that newly married women should strengthen their marriage by giving birth (Chitereka J. and Nduna B., 2010). Since Zimbabwean traditional norms denounce childbirth to unmarried people, teenage pregnancies outside of marriage are generally unplanned (Remez et al., 2014). Unplanned pregnancies can result to furtive and consequently risky abortions. However, because abortion is illegal in Zimbabwe, the magnitude cannot be quantified (Remez et al., 2014).

Paradoxically, despite the high adolescent fertility rates presented in the preceding section, Zimbabwe has a high prevalence of contraceptive

use. Zimbabwe had one of the highest contraceptive prevalence rate (67%) in sub-Saharan Africa compared to countries in West Africa (9%), Central Africa (7%), Eastern Africa (22%) and North Africa (45%) (UNFPA, 2013). In the SADC region contraceptive prevalence rates (CPR) vary from a low of 13% in Angola, to a high of 54.6% in South Africa and 66.5% in Zimbabwe (UNAIDS, 2018). As reported by UNAIDS (2018), women facing economic challenges, young women, and those with lower levels of education are less likely to utilize family planning services.

Contraceptive use can prevent unintended pregnancy and early childbearing and their consequences. Modern contraceptive use is higher in high income countries (58%) than in low-income countries (33%) (Woog, Singh and Browne, 2015). In more than two-thirds of African countries, modern contraceptive use is below 20% (Woog, Singh and Browne, 2015). In sub-Saharan Africa more than 60% of adolescents who wish to avoid pregnancy have an unmet need for modern contraception and they account for more than 80% of unplanned pregnancies in this age group (UNFPA, 2013). In Zimbabwe, use of modern contraceptive methods among adolescent women is slowly increasing from 35% in 1999 to 45 % in 2015 (ZIMSTAT and ICF International, 2016). Reasons for low uptake of contraception among married adolescents include pressure exerted by tradition that young women should have children (Remez *et al.*, 2014).

Studies have also shown that, high levels of adolescent pregnancy and childbearing in Africa are largely because of lack of adequate information and barriers to accessing and using contraception (Bankole & Malarcher, 2010). In SSA, an estimated 35% of pregnancies among adolescents are unwanted (World Health Organization, 2018). For example, a study in Swaziland reported that due to lack of knowledge, adolescents practised unsafe sex and were not aware that they could be pregnant or are at risk of contracting HIV and AIDS (Remez *et al.*, 2014). According to the Zimbabwe adolescent fertility study of 2016, only 12% of adolescent girls were able to identify the correct period when a girl is most likely to become pregnant during her menstrual cycle (Ministry of Health and Child care (MoHCC, 2016).

Teenage pregnancy is associated with poor maternal and perinatal health outcomes, and also has a major social and economic impact. It is conceivable that factors beyond low contraception use and sexual violence contribute to the increasing fertility rates among adolescent girls in the country. Research indicates that the causes of adolescent pregnancies encompass poverty, peer pressure, alcohol and drug abuse, experimentation, cultural practices, and norms. However, the factors leading to the rise in adolescent pregnancy rates in an environment seemingly conducive to contraceptive use are not well understood. Hence, there is a need for further investigation into adolescent pregnancy, its contributing factors, and the consequences in Zimbabwe. To develop robust and effective interventions for preventing adolescent pregnancy, it is essential to comprehend the national, community, peer, family, and individual factors that contribute to this issue in Zimbabwe.

III. THEORETICAL FRAMEWORK

This study employed the Ecological Systems Theory (EST), as conceptualized by Bronfenbrenner in 1979. Bronfenbrenner (1979) acknowledged that human development unfolds within a complex network of interactions between the individual and the broader society. Consequently, he formulated a model delineating four layers of ecological structures, encompassing direct contacts that initiate with social agents and extend to comprehensive institutional systems. The ecological model intricately dissects the factors influencing teenage pregnancy while also providing a framework for investigating associated outcomes. Rather than solely focusing on individual teenage girls, the model delves into five potential levels of determinants: individual, interpersonal, organizational, community, and national/policy levels. These determinants operate concurrently at multiple levels. Factors at the individual level include the girl's socialization and how it shapes her beliefs about pregnancy. On the interpersonal level, family members may

compel a girl into marriage. Schools, incorporated at the organizational level, may or may not offer sexuality education, leading adolescents to rely on potentially incorrect information from peers about sexuality, pregnancy, and contraception. At the community level, socio-cultural norms, values, and attitudes may hinder adolescent girls' access to sexual and reproductive health (SRH) services. On the national level, the model accounts for factors such as policies governing adolescents' access to contraception or the lack of enforcement of laws prohibiting child marriage. The study expands the model to scrutinize the repercussions of adolescent pregnancy across these levels.

Adapted from Bronfenbrenner (1979)

Figure 1: The Ecological Systems theory

IV. MATERIALS AND METHODS

This study aims to assess the prevalence of teenage pregnancies in Manicaland and Mashonaland Central Provinces, identify the factors contributing to teenage pregnancy in these regions, and examine their consequences. This research employed a cross-sectional research design, involving triangulation of both quantitative and qualitative methods. The study utilised a triangulation of qualitative and quantitative methods, including surveys, focus group discussions (FGDs), and key informant interviews (KIIs). A survey quantified the magnitude of teenage pregnancies facing young people in Zimbabwe The survey involved 600 female adolescents aged 10-19 years, with the number of participants from each province determined using a probability proportional to size approach. Data was collected using mobile devices. Data collection was conducted by trained enumerators. During the training, enumerators were familiarized with the broad objectives of the study, the context in that the study came about and the importance of ethical conduct. A data entry template was developed for the questionnaire using the Census and Survey Processing System (CSPro) 7.0.1 for windows. Quality assurance mechanisms were developed, including skip patterns and logical checks as well as pre-coding allowable response values. Frequency tables, Cross-tabulations and logistic regression were used for data analysis. FGDs were undertaken so as to obtain data on community perceptions on teenage pregnancy as well as the socio-cultural and religious beliefs underlying teenage pregnancies in Zimbabwe. The FGDs were conducted with homogenous groups in the two provinces which ensured adequate coverage of different age groups and different sexes. The FGDs included parents, female adolescents, and male adolescents aged 10-19 years living in both urban and rural areas of Zimbabwe. The KII provided service provider level information on the challenges faced by young people and key statistics on incidence of teenage pregnancies.

They also provided factors underlying teenage pregnancies. Purposive sampling was employed for the selection of participants in the FGDs and KIIs. Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS), while qualitative data were analysed using thematic analysis and NVIVO version 11.No

personal identifying information was collected. All the interviewers were taught on ethical conduct. There was an assurance to adolescents that all the information discussed during the interviews will be kept confidential. Consent was asked to use voice recorders.

IV. RESULTS

The study sought to assess teenage pregnancy focusing on two provinces of Manicaland and Mashonaland Central in Zimbabwe. Findings from 600 youths were presented.

4.1 Socio-Demographic Characteristics of Respondents

The sample is dominated by younger adolescents aged 10-14 years, 52%, while older adolescents aged 15-19 years comprise 48% of the sample. The largest proportion of adolescents, 65%, reported that they were living in urban areas while 35% were living in rural areas. The majority of adolescents, 59%, reported to have completed primary school, while, 40% reported to have completed secondary education. A negligible proportion of adolescents, 1% reported to have completed tertiary education. The majority of adolescents, 82%, reported that they were never married, while 16% reported that they were married or cohabiting. A negligible proportion of adolescents reported that they were divorced and separated respectively, 2% and 1%. A considerable proportion of adolescents, 19%, reported to have some disability of some sort. Christianity was the dominant religion among adolescents, 62%, while 32% reported Apostolic sector as their religion. A negligible proportion of adolescents reported that they were members of Islam and African Traditional Religion respectively, 4% and 2%.

Percentage Distribution of Demographic Socio-Characteristics of the Respondents

Variable Name	% Respondents	P-value
Age		
10-14	52.6	0.505
15-19	47.4	
Place of residence		
Rural	64.9	0.512
Urban	35.1	
Highest Level of Education		
Primary	58.9	0.060
Secondary	40.3	
College	0.8	
Marital status		
Never married	81.9	0.041*
Married/Co-habit	15.0	
Divorced	2.0	
Separated	1.0	
Living With Disability		
Yes	18.8	<0.0001*
No	81.2	

Religion		
Islam	4.0	0.737
Christianity	61.7	
Apostolic Sect	31.6	
African Traditional	1.5	
None	1.0	
Non-Response	0.2	
Total	100	

*N=600, *P<0.05*

4.2 Pregnancies

The adolescents were asked about their experience of pregnancies. The proportion of adolescents who reported having experienced pregnancy is, 16%. As expected, older adolescents aged 15-19 years were more likely to report ever having been pregnant, 26%, compared to those aged 10-14 years, 5%. Having ever been pregnant is positively related to education. While 8% of youths who completed primary education reported ever having been pregnant, about 28% of the youths with secondary education reported having the same. As expected, the study revealed that having ever been pregnant is positively related to marital status. While 6% of the adolescents who indicated to have never been married reported having been pregnant, 63% and 100% of the ever having been married and divorced youths respectively reported the same.

It was maintained that more than often, culturally, pregnancy signals marriage. Adolescents maintained that if someone falls pregnant, she is expected to go to the home of the man who impregnated her. In one of our FGDs, a 19 year old young man reiterated this when he said:

> *Remember when we mentioned our fear of pregnancy during sexual activity? If your girlfriend becomes pregnant, you might find her unexpectedly waiting on the edge of your yard in the dark, accompanied by her aunt. The aunt will inform you that she has brought evidence of your activities in the dark and inquire if you recognize the girl and if you are responsible for the pregnancy. Subsequently, your parents will question whether you know the girl, and if so, they will casually inform you that they are ready to welcome her as their daughter-in-law. The next morning, the aunt departs, and from that moment onward, you find yourself thrust into an unplanned marriage, all stemming from an unplanned sexual encounter and pregnancy.*

Falling pregnant is therefore deeply tied to socio-cultural marital practices and beliefs. The issue, as our data shows, is also inextricably linked to religion. Youths who identified themselves as Muslim were the least to report having ever been pregnant, 13%; these were followed by those who identified themselves to be Christians, 15%. Additionally, 24% of those who identified themselves as Apostolic reported having ever been pregnant; this compares to 25% of those from the African Traditional Religions. Adolescent's girls in rural areas were more likely to report having ever been pregnant, 24%, compared to urban youths, 7%.

Percentage Distribution of Youths Who Reported Having Been Pregnant by Socio-Demographic Characteristics

Name of Variable	% Respondents	P-value
	Percent	
Age		
10-14	4.4	0.055
15-20	25.6	
Highest Level of Education		
Primary	7.9	0.001*
Secondary	27.6	
Marital status		
Never married	5.6	<0.0001*
Married/Co-habit	62.5	
Divorced	100	
Separated	66.7	
Religion		
Islam	13.0	0.896
Christianity	15.0	
Apostolic Sect	24.0	
African Traditional	25.0	
Place of residence		
Rural	24.4	0.055
Urban	7.2	

N=600

4.3 Having Ever had Sex

A sizeable proportion of this sample, 19%, reported ever had sex. As expected, there is a positive relationship between age and sexual experience. Older adolescents aged 25-19 years were more likely to report ever having had sex, 31%, compared to those aged 10-14 years, 6%. Sexual activity increases with the level of education. While 27% of adolescents with primary school education reported to have ever had sex, 33% of adolescents who completed secondary school reported the same. As projected, sexual experience is positively related to marital status; for instance, while 30% of the never having married youths reported to have ever had sex, 100% of the married, divorced and the separated reported the same. Consistently, youths in rural areas were more likely to report ever having had sex than their urban counterparts. While 48% youths from the rural areas reported to have ever had sex, about 43% of urban youths reported the same ($p<0.023$).

Percentage Distribution of Ever Having Had Sex by Demographic and Socio-Economic Characteristics

Name of Variable	% Respondents	P-Value
Age		
10-14	6.5	<0.0001*
15-19	30.5	
Highest Level of Education		
Primary	21.7	<0.0001*
Secondary	33.3	
College	57.2	
Marital status		
Never married	30.4	<0.0001*
Married/Co-habit	100	
Divorced	100	
Separated	100	
Religion		
Islam	25.0	0.315
Christianity	48.0	
Apostolic Sect	41.3	
African Traditional	33.3	
None	25.0	
Place of residence		
Rural	47.9	0.301
Urban	42.5	

*N=600, *P<0.05*

4.4 Source of Information on Contraceptives

The adolescents participating in the study were asked about their sources of information. Based on their responses we observed that the largest proportion of youths, 80%, reported the radio as the most common source of information about.

NGOs were the second most commonly reported source of information reported by 85% of the adolescents It is also worth noting that health facilities were least reported as sources of information on contraceptives. Less than 1% of adolescents reported healthcare facilities as their source of information. A significant proportion of youths, 38%, reported the church as a source of information. Adolescents maintained that healthcare providers are generally interested in married women, especially those who are mothers. These young people involved in the study bemoaned the stigma often associated with seeking information on contraception in health care facilities. They maintained that health care providers often condemn youths who seek information or access to contraceptives. They argued that health care providers behave in the same manner as their parents. The following remark is noteworthy:

> *A health provider in our local clinic reported me to my mum that I had been to the clinic seeking condoms. Believe you me, my mother whipped me with a broom. And I learnt that you never visit local clinics for contraceptives or anything to do with sex.*

The male youths echoed similar sentiments on the abuse that they face at the hands of health care providers. Another adolescent retorted:

> *A nurse in our local clinic had the audacity to tell me that she would beat me up first before she reported me to my parents. While she did not give me a beating, she indeed told my father and I got in trouble with my dad. I was not given pocket money for a month as punishment. These old women called "nurses"*

do not even know that youth have rights. They do not belong in these facilities, I am telling you.

It is also interesting to note, however, that adolescents share the conviction that as young people they must not show the adults that they are sexually active. They maintained that seeking information about contraceptives is a good indicator of them being sexually active. While they supported the report by their two colleagues, they however, maintained that it is not proper for young people to parade before the adults asking for condoms or information on sex and sexuality. One participant in a FGD supported this sentiment by saying:

How on earth can you approach the health providers to ask them about contraception? We would rather buy contraceptives from back- door dealers than approach health facilities. (17-year-old boy, supported in both male and female FGDs).

In essence, young people do not really feel that they have sexual rights which they can ever try to claim. However, they know that they need the information on contraceptives and they need protection because they are sexually active thus, they find themselves in a catch twenty-two situation in the face of healthcare workers' reluctance to give them the necessary information and contraceptives. A health professional who was asked about young people's right to information on sexual and reproductive health responded by saying:

I tell you the truth, I do not trust anyone to teach young people about these issues because it can be dangerous especially because we do not have standard IEC material. I accept our failure. This will be rectified.

The interviewer followed up by asking what the health worker thinks should happen to the youths in as far as this issue is concerned and she responded by saying:

We have faith that one way or another the young people have access to information from varied sources.

The interviewer further asked if the health workers were aware of the information being disseminated and why they find it easy to trust these unknown sources to disseminate the correct information. Her response acknowledge that this is a major weakness on their part and it requires urgent rectification.

Percentage Distribution of Sources of Information and Contraception Ever used

Variable name	% respondents	P-value
Radio	79.9	0.182
Newspaper	14.9	0.313
Church	38.4	0.088
NGOs	63.7	<0.0001*
Health care facility	0.8	0.814

N=388

4.5 Attitudes Towards Contraceptives

Results from the FGDs revealed that youths generally harbour negative sentiments towards the use of contraceptives. However, they emphasised the importance of using the condom and morning-after pill. They indicated that the condom is commonly used only for two reasons: to avoid infecting each other with STIs, and to avoid pregnancies. Yet, they youth were quick to share that they were more afraid of getting pregnant than being infected by HIV. With the general support from the other participants' sentiments, one of the participants, an 18 year old female adolescent had this to say:

As young people, we are mostly afraid of getting pregnant because pregnancy is quick to show while HIV is an infection you have to personally struggle with.

This sentiment was also confirmed by a Key Informant pharmacist who deals with High school students on a daily basis. The Key Informant articulated:

> *Indeed, students are more afraid of getting pregnant than getting sexually transmitted infections. When the schools opens, we stock the pharmacy with morning-after-pills and we have failed to meet the demand for the past two years, especially at the beginning of each term. This means that they predominantly have unprotected sex.*

Adolescents were more concerned with pregnancy issues and so their knowledge of the use of condoms was only in relation to protection against unwanted pregnancies. However, they were against the use of hormonal contraceptives. They maintained that as young people they do not encourage one another to use pills or other hormonal contraceptives because they believed that they would make them sterile. Nonetheless, they maintained that the morning-after pill was. More helpful in that it covered the effects of irresponsible unplanned sex, a practice which is common and inevitable to youth sexual behaviour.

When asked about their knowledge of other contraceptives, the youth maintained that they read about these methods but they do not care much about them because they consider them as contraceptives for married people. We were told:

> *The two methods for young people which are condoms and morning-after pills serve our interest as young people. Married people do not need short term methods like a morning-after pill because they can plan their pregnancies and use the long-acting methods. Young people like us do not always plan to have sex, thus, one cannot be on a long-acting contraceptive method. We know about the pills but we also understand that they have a lot of side effects.*

4.5 Sexual Violence

It was evident from one in-depth interview with an adolescent girl that failure of the guardians to take proper action when they are presented with some sexual abuse cases is exposing them to series of exploitations and infections. She remarked:

I was sexually abused by my uncle in 2021, and I remember telling my mother about it. However, she did nothing about it since my uncle was the one responsible for school fees which she could not pay herself. After noticing that no action was taken he did the exact same thing in August 2022. Such culprits are supposed to spend the rest of their lives behind bars but cases are swept under the carpet by the very people who should be reporting them.

4.6 Internet

It is important to note that technology is good, but looking at the issue of teenage pregnancy, it has appeared to provide more harm than good because teenagers are now spending most of their time on the Internet searching for sexual videos like pornography. We were told:

We can continue to be in denial, but youngsters are engaging in sexual activity behind our backs and have access to a variety of information thanks to their smartphones, claimed one participant. As parents, it is our responsibility to inform children of the repercussions. Of course, discussing sex is frowned upon due to cultural norms, but we must adapt." It's past time to discuss contraception openly and to involve the government, parents, and local leaders in the process of coming to a consensus."

V. DISCUSSION

The proportion of adolescents who reported having been pregnant was, 16%. Globally, an estimated 21 million girls aged 15–19 years in developing regions become pregnant and approximately 12 million of them gave birth in 2019 (Sully et al., 2020). The levels of adolescent pregnancy reported in this study is consistent with other studies done locally which reported that 17% of girls aged between 15 and 19 have ever been pregnant (Zimstat and ICF international, 2016). In fact, the levels reported in this study are lower than the levels reported among 15-19 year

olds reported in the ZDHS of around 30% (Zimstat and ICF international, 2016). The study is contrary to another study carried out in Cote d'Ivoire among adolescents, which reported that only 6% reported that they had experienced teenage pregnancy (Arikawa et al., 2016). As expected, the study revealed that having ever been pregnant is positively related to marital, these high proportions of pregnancy among adolescents who had never been married is anchored in the cultural practice which forces adolescents who become pregnant to join the family of the man who impregnates them. A pregnant girl is not given a choice of whether to get married to the potential father of the child or not, hence, the many divorces among those who report having ever been married. The youths proffered that this is one of the reasons why they fear a pregnancy more than infection. Thus, contextually, the consequences of a pregnancy are more immediate than those of STI infection. The levels of teenage pregnancy in this study indicate the possibility of significant underreporting of pregnancies. This not only hampers efforts to document and understand adolescent pregnancy but also undermines policy interventions aimed at addressing the issue. Nevertheless, focus group discussions (FGDs) involving male and female adolescents, as well as community and key informants, also emphasized that adolescent pregnancy is a national problem.

VI. CONCLUSION

Young people, particularly adolescents must be educated about pregnancy, its prevention and termination. Similarly, they need to be educated about sexually transmitted infections, including HIV, and how to make sex safe. Harmful traditional practices which mitigate upon safe sex should be covered. Consistently, young people must be able to assess their own personal risks and how to avert them. Again, researchers and the communities must co-interrogate these practices and design interventions which can make them safer, or which can eradicate such practices in Zimbabwe.

It is expected that young people who have skills for health and well-being, who understand the different kinds of relationships and how to deal with them for the maximisation of their health, who understand their values, rights, and culture; pregnancy, and how to prevent and terminate it, will no doubt make better decisions which will enhance their sexual and general wellbeing. Furthermore, young people who are economically empowered are more likely to do better than their economically disempowered counterparts. Given that in Zimbabwe, economic empowerment usually falls under a different portfolio, from that of health, it is important that the relevant ministries collaborate to ensure the empowerment of young people for economic development.

Collaborative co-creation of the policy and interventions must come from the grassroots, the people and communities involved, up to the government. Thus, each province should come up with a list of pillars to address the SRH of young people. This list of pillars and the interventions would be drawn from each province in a collaborative manner. The ten separate lists from the ten provinces and interventions would then be merged at national level, refined and shared again at the different levels for validation. Interventions would be implemented at ward levels after careful fine-tuning which would be done again, in a collaborative manner.

It is expected that the family's socialisation would be altered as it is to reflect the new norms and values as articulated in the agreed consolidated interventions. The socialisation would be expected to produce the level four variables. It is the family that socialises and educates children to produce the positive norms that will guide young people to marry at the right ages, pursue education while adopting respective positive religious beliefs and practices. This teaching and socialisation by the family would give rise to the proximate determinants which will minimize young people's experience of the negative SRH issues which include adolescent pregnancy.

Given that young people are socialised first in the family, then in the community where there are secondary socialisation entities such as schools, religious groups and other social groups, the

model must aim at reaching all young people and all the different entities in communities. Thus, the target populations must include parents. This is because parents also lack adequate knowledge on the negative effects of some sexual practices. They need to be taught about how to prevent diseases that might be caused, bearing in mind that they might be pushed by economic and religious pressures among other cultural norms and values that perceive early child marriages as a solution.

Another important group are religious and community leaders who are generally respected in their communities and are important in addressing issues of norms and values regarding SRH in this case. Changes in norms and values from this group are more acceptable granted that these groups are perceived as custodians of tradition.

The study recommends multi-pronged approach to address teenage pregnancy aiming to increase community mobilization and support, access to peer groups and clubs, opportunities for gender information and awareness and access to parenting programs for teenagers, pregnant teenagers, and teenage parents.

REFERENCES

1. Abdool Karim, Q., Baxter, C., & Birx, D. (2017). Prevention of HIV in Adolescent Girls and Young Women: Key to an AIDS-Free Generation. Journal of Acquired Immune Deficiency Syndromes (1999), 75 Suppl 1, S17–S26. https://doi.org/10.1097/QAI. 0000 00000001316
2. Abdool Karim, Q., E. M. P.-W. and S. S. A. karim. (1992). Teenagers seeking condoms at family planning service. South African Medical Journal, 82, 356–359.
3. Ahinkorah, B. O., Kang, M., Perry, L., Brooks, F., & Hayen, A. (2021). Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: A multi-country analysis. PLoS One, 16(2), e0246308.
4. Ahinkorah, B. O., Kang, M., Perry, L., & Brooks, F. (2022). Prevention of adolescent pregnancy in Anglophone sub-Saharan Africa: a scoping review of national policies. International journal of health policy and management, 11(6), 726.
5. Arikawa, S., Eboua, T., Kouakou, K., N'Gbeche, M. S., Amorissani-Folquet, M., Moh, C., Amoussou-Bouah, U. B., Coffie, P. A., Becquet, R., & Leroy, V. (2016a). Pregnancy incidence and associated factors among HIV-infected female adolescents in HIV care in urban Côte d'Ivoire, 2009–2013. Global Health Action, 9(1), 2009–2013. https://doi .org/10.3402/gha.v9.31622
6. Ayanaw Habitu, Y., Yalew, A., & Azale Bisetegn, T. (2018). Prevalence and factors associated with teenage pregnancy, Northeast Ethiopia, 2017: a cross-sectional study. Journal of pregnancy, 2018.
7. Barbieri, M., & Hertrich, V. (2005). Écarts d'âge entre conjoints et pratique contraceptive en Afrique sub-saharienne. Population, 60(5), 725. https://doi.org/10.3917/popu.505.0725
8. Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard university press.
9. Clark, S. (2004). Early marriage and HIV risks in sub-Saharan Africa. Studies in Family Planning, 35(3), 149–160. https://doi.org/ 10.1111/j.1728-4465.2004.00019.x
10. Chitereka J. and Nduna B. (2010). Determinants for unmet need for family planning in Harare Zimbabwe. Zimbabwe National Family Planning Council and Liverpool School of Tropical Medicine.
11. Dellar, R. C., Dlamini, S., & Karim, Q. A. (2015). Adolescent girls and young women: key populations for HIV epidemic control. Journal of the International AIDS Society, 18(2 Suppl 1), 19408. https://doi.org/10.74 48/ IAS.18.2.19408
12. Odejimi O, Bellingham-Young D. Teenage pregnancy in Africa: trends and determinants in the 21st century. 2016, 1(1):12–20.
13. Kassa, G. M., Arowojolu, A. O., Odukogbe, A. A., & Yalew, A. W. (2018). Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and meta-analysis. Reproductive health, 15(1), 1-17.
14. Mavhu, W., Willis, N., Mufuka, J., Mangenah, C., Mvududu, K., Bernays, S., Mangezi, W.,

Apollo, T., Araya, R., Weiss, H. A., & Cowan, F. M. (2017). Evaluating a multi-component, community-based program to improve adherence and retention in care among adolescents living with HIV in Zimbabwe: Study protocol for a cluster randomized controlled trial. Trials, 18(1), 1–11. https://doi.org/10.1186/s13063-017-2198-7
15. Maughan-Brown, B., Kenyon, C., & Lurie, M. N. (2014). Partner age differences and concurrency in South Africa: Implications for HIV-infection risk among young women. AIDS and Behavior, 18(12), 2469–2476. https://doi.org/10.1007/s10461-014-0828-6
16. Remez, L., Woog, V., & Mhloyi, M. (2014). Sexual and Reproductive Health Needs of Adolescents in Zimbabwe. Issues in Brief (Alan Guttmacher Institute), 3, 1–8.
17. Sully, E. A., Biddlecom, A., Darroch, J. E., Riley, T., Ashford, L. S., Lince-Deroche, N., ... & Murro, R. (2020). Adding it up: investing in sexual and reproductive health 2019.
18. Unaids. (2019b). Unaids Data 2019. In Unaids 2019 estimates. https://doi.org/10.1126/science.7716530
19. Unicef. (2018). Child Marriage Latest Trends And Future Prospects Brief (Vol. 48). Https://Doi.Org/10.4324/9781315445809-19
20. UNFPA (2015). Study on the Determinants of Teenage Pregnancies in Hurungwe District. UNFPA and Ministry of Health and Child Care.
21. Woog, V., Singh, S. and Browne, A. (2015). Healthy Schools Guide for the education community and its partners for the educational success, Health and well-being of young people. Journal of Adolescent Health, 52(August), 517–522.
22. ZIMSTAT, U. and, & CCORE. (2013). National Baseline Survey on Life Experiences of Adolescents Report.
23. Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International. (2016). Zimbabwe Demographic and Health Survey 2015. In The DHS Program. Calverton, Maryland: ZIMSTAT and ICF International Inc.
24. Zimbabwe National Statistics Agency (ZIMSTAT) and UNICEF (2019). Zimbabwe Multiple Indicator Cluster Survey 2019, Survey Findings Report. Harare, Zimbabwe: Zimstat And Unicef.

Research Interests

- Sexual and Reproductive Health
- Communicable and Non-communicable diseases
- Gender
- Morbidity and mortality
- Migration
- Disability Inclusion

Adoptive Transfer of Immune Response in a Xenogenic System

Svetlana Pleskanovskaya

Turkmen State Medical University

SUMMARY

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Author: myrat garryev state medical university of turkmenistan, research center, ashgabat, turkmenistan.

I. INTRODUCTION

Rupert Billingham, Leslie Brent and Peter Medawar showed in 1953 that the state of sensitization to an antigen could be passively transferred to a recipient with a transplant of specifically sensitized donor lymphoid cells, which continued to function successfully in their new body [1]. This transfer of immunity was designated by R. Billigham and co-authors [2] as adoptive transfer, and the immunity itself was called adoptive or perceived immunity.

Adoptive transfer of lymphocytes is currently used to assess the functional activity of individual cell forms or to develop cell therapy techniques, for example in experimental oncology, using T-lymphocytes specifically sensitized to tumor antigens [3, 4, 5, 6, 7]. However, the problem of adoptive transfer of immune response remains far from being resolved. It is believed that adoptive transfer of sensitization to a specific antigen is possible only through the introduction of lymphoid cells of an immunized donor to the recipient [8, 9, 10, 11].

We have previously shown that adoptive transfer in a syngeneic system (BALB/c mice) can also be accomplished via platelets [12]. In the available literature, we have not found information on the possibility of adoptive transfer of sensitization via platelets in a xenogenic system. In this regard, the goal of the present study was chosen.

The aim of the study was to determine whether adoptive transfer of the immune response to SRBC from immunized rabbits to intact recipients (BALB/c mice) is possible using platelets.

II. MATERIALS AND METHODS

In this work, 30 male BALB/c mice weighing at least 20.0 grams were used. Mice of this strain are known to be highly susceptible to SRBC immunization and are widely used in adoptive transfer studies [13,14].

In addition to mice, 10 chinchilla rabbits weighing no more than 2000.0 g were used in the experiments. The experimental animals were kindly provided by the nursery of the Technological Center of the Academy of Sciences of Turkmenistan. The rabbits and mice were on a standard diet adopted in vivariums.

At the first stage of the experiment, mice and rabbits were immunized with sheep red blood cells (SRBC). Using a tuberculin syringe, 0.1 ml of a 20% SRBC suspension in physiological solution was injected into the mice intraperitoneally. Rabbits were immunized by injecting 1.0 ml of a 20% SRBC suspension into the marginal vein of the ear. The study design is presented in the diagram (Fig. 1).

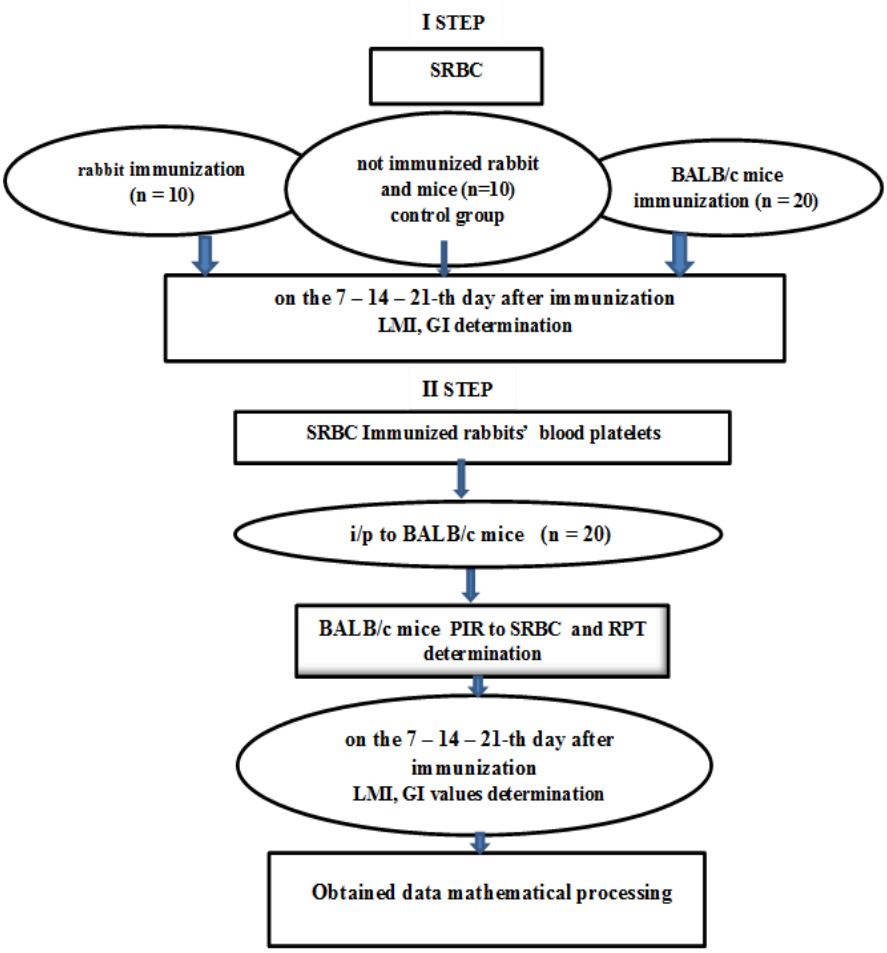


Fig. 1: Design of Investigation

Platelets were isolated by two-stage centrifugation. [15]. Before and on days 3, 7, 14 and 21 after immunization, the mice were determined to have the leukocyte migration index (LMI) in the modified leukocyte migration inhibition reaction (LMIR) [and the granulocyte index (GI) – the ratio of poly- and mononuclear cells in the blood [16, 17]. We have previously established that these indicators are very informative in assessing the severity of the immune response of mice to immunization with SRBC [18].

At the second stage of the study, on the 7th day after immunization with SRBC, 2.0 ml of blood were taken from the marginal ear vein of immunized rabbits to isolate platelets (PLT). The obtained platelets were washed three times with sterile physiological sodium chloride solution and a suspension containing $2x10^6$/ml cells was prepared. 0.1 of the suspension was administered intraperitoneally to intact BALB/c mice. Before the administration and on the 3rd, 7th, 14th, 21st day after the administration of platelets from immune rabbits, the MMI and GI values were determined in mice. Cryolysates of SRBC (ERL) and platelets (PLT) were used as migration inducers.

The obtained data were mathematically processed using the SPSS program (USA statistics).

III. RESULTS OF THE STUDY AND THEIR DISCUSSION

The study showed that BALB/c mice immunized with SRBC adequately respond *in vitro* to ERL (Fig. 1). Diagram A shows that the LMI value steadily increases and reaches its maximum values on the 14th day after immunization – 133.7±9.8.

By day 21 (observation period), the LMI value decreases to 112.3±10.3 but remains significantly

higher than the initial level ($p<0.05$). This indicates the development of an adequate immune response in mice to SRBC immunization.

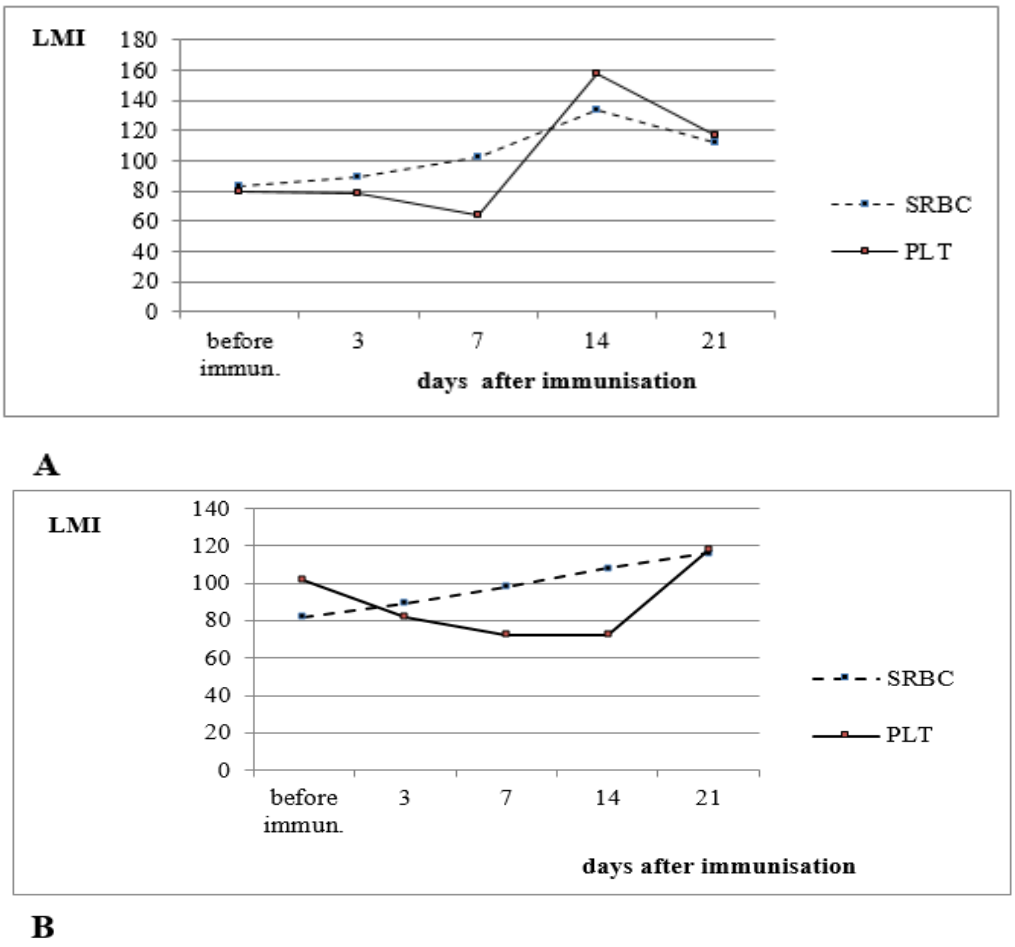


Fig. 2: The value of IML in the dynamics of the response of mice to i/p administration of EB and TR suspension in vitro (A) The value of LMI in the dynamics of the response of mice that received i/p administration of platelet suspension from immune rabbits to EB and LTR in vitro (B)

Intraperitoneal administration the intact rabbit' PLT suspension to mice also resulted in the immune response formation (Fig. 1 A). The diagram shows that the initial value of LMI in the presence of ERL and PLTL is almost the same and is 80.2±7.3 and 83.8±9.1, respectively, the difference is not significant ($p>0.05$). But then the value of IML in the presence of PLTL rapidly decreases and on the 7th day is 64.4±8.8, while in mice immunized with SRBC, by this time it increases to 102.7±9.7 ($p<0.05$). By the 14th day, LMI in the presence of PLTL rapidly increases and reaches 157.5±11.3. This is significantly higher than the maximum value of LMI in mice in response to ERL *in vitro* ($p<0.01$).

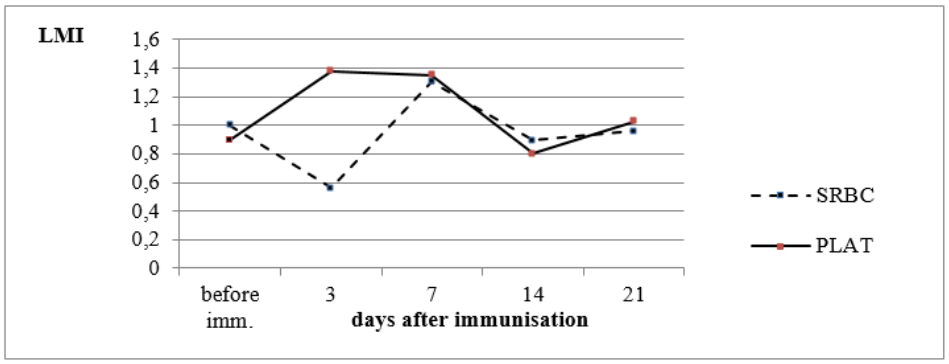
Thus, when immunizing BALB/c mice with intact rabbit platelets, a pronounced immune response develops, the dynamics of which differ significantly from the academic response of mice to immunization with SRBC by a drop in the LMI value in the first 7 days.

The study showed that the dynamics and magnitude of LMI in the presence of ERL and PLT *in vitro* depend on the inducer of leucocytes migration (Fig. 1B). The value of LMI progressively increases and reaches maximum values (122.7±10.7) on day 21 (observation period). However, the dynamics of the response to PLT in mice of the same group differs from the response to ERL (Fig. 1 B). In the first 7 days, LMI in the presence of PLT progressively decreases, then rapidly increases and by day 21 is 135.7±11.2. This is slightly higher compared to LMI in the

presence of ERL, but the difference is not mathematically reliable (p>0.05).

Thus, despite the not very high values of LMI in the presence of ERL, we can speak of the completed transfer of the immune response to SRBC in BALB/c mice that received an intraperitoneal injection of a platelet suspension from rabbits immunized with SRBC.

Another confirmation of the conclusion made is the results of determining the GI value in the dynamics of the immune response of animals to ERL and PLT (Fig. 2, A. B).



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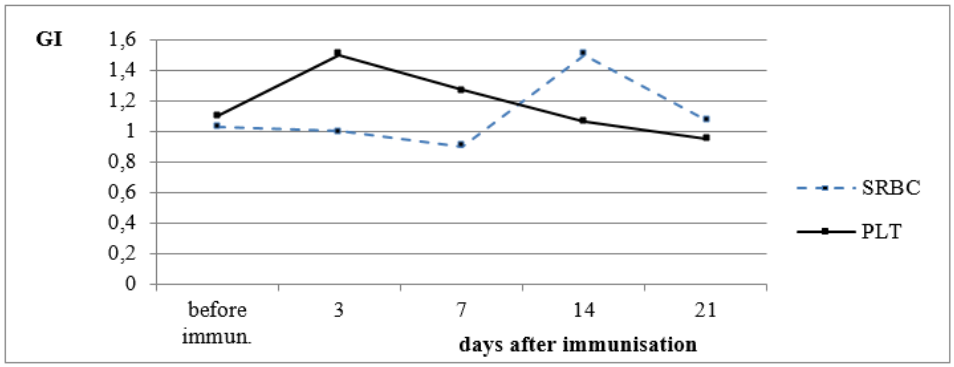

B

Fig. 3: The GI value in the dynamics of the response of mice to i/p administration of EB and TR suspension in vitro (A), The GI value in the dynamics of the received i/p administration of platelet suspension mice response that from immune rabbits to SRBC and PLTL *in vitro* (B)

The study showed that after immunization of mice with PLT suspension, the GI value by day 3 sharply increases and is 1.46±0.07 versus 1.09±0.04 before immunization, and remains at this level until day 14 (p<0.01). From day 14 it decreases and by day 21 it practically corresponds to the control level (p>0.05). That is, in the first 3 days, the mice's organism responds to PLT suspension immunization with a pronounced inflammatory reaction and the release of granulocytes into the peripheral blood, resulting in a GI increasing. In these same mice group the response to ERL *in vitro* differs significantly from the response to PLTL (Fig. 2, A). In the first 3 days, the GI value decreases to 0.56±0.06 (p<0.01), on the 7th day it increases, reaching the maximum value (1.5±0.05), then gradually decreases and by the 21st day it corresponds to the initial value. Thus, the response to immunization from the blood depends significantly on the type of antigen.

Despite the fact that both antigens, SRBC and PLT, are xenogenic in relation to mice, the response to PLTL has its own peculiarities. The reason is most likely that SRBC is a corpuscular antigen, an inert object of attack by the immune system of mice [34]. A suspension of platelets introduced into the mice peritoneum apparently initiates a "graft versus host" reaction [19, 20, 21], which leads to the release of lymphocytes into the

bloodstream and a drop in the GI value. However, the low dose of platelets introduced ($2x10^5$ cells in 0.1 ml) does not allow platelets to fully carry out this reaction and the immune system of mice "copes" with them. As a result, an immune response to PLT antigens are formed, which is manifested by an increase in the response to platelet lysate *in vitro*.

When mice were injected with a suspension of platelets from SRBC -immunized rabbits, the response to ERL *in vitro* was practically identical to the mice immune response on the intraperitoneal administration of SRBC (Fig. 2, B). The same, albeit less significant, decrease in the GI value was observed in the first days after immunization (09.2±0.03) with a subsequent peak on days 7-14 (1.5±0.1). In the diagram, the response curve of mice to PLT *in vitro* corresponds to that of the primary response to the injection of platelet suspension. That is, the GI value in the first 3 days after immunization increases to 1.5±0.03 and gradually decreases in the following days; on day 21, the GI value corresponds to the initial value ($p>0.05$). The release of granulocytes in response to immunization with PLT indicates an attempt by platelets to initiate the "graft versus host" reaction [1, 20, 24, 22, 23].

IV. CONCLUSION

Until recently, platelets were traditionally associated exclusively with hemostasis. However, primary hemostasis, according to R. Zinkernagel, may be a phylogenetic relic of primitive leukocytes, since they have a wide range of potent inflammatory factors that can induce or enhance temperature inflammatory reactions [2, 3].

However, the role of platelets in the adaptive immune response is just emerging and has not yet been clearly elucidated [4, 9]. Increasing evidence suggests that platelets and their derivative products influence adaptive immunity and play a significant role in shaping the immune response. For example, platelets have been shown to express functional CD154 (CD40L) [25, 5], a molecule critical for modulating the adaptive immune response [4]. It is known that during adoptive transfer there is a different direction of immunological reactions between the immunocompetent cells of the donor and recipient.

Platelets are able to recognize foreignness thanks to a huge set of receptors. The role of platelets in innate immune responses is becoming increasingly clear, but is still not clearly understood [9,11]. The question of how we acquire immunity has been studied for more than a century. In this regard, the concept of R. Zinkernagel is interesting, who believes that the ability to tolerate an immune response is not related to their “immunological memory.” According to the author, “immunological memory”, of course, exists, but is not a key mechanism of recognition and protection [26,27,28,29].

Protection depends on the pre-existing neutralizing antibodies in the body or pre-activated T cells, the levels of which are determined by antigens [27, 30]. This finding has serious implications for our understanding of vaccines and maintaining human protection against old and new infectious diseases [31, 32, 33]. However, the ability of lymphocytes and platelets to tolerate an immune response to an intact recipient still indicates the presence in them the “memory” on antigen. Besides, more recently, evidence has emerged that platelets have the ability to recruit lymphocytes and activate the functions of innate effector cells, modulate antigen presentation, and enhance the adaptive immune response. This allows us to consider platelets as the organizer of the functional activity of the immune system. Consequently, studying the role of platelets in the adoptive transfer of the immune response is becoming an increasingly relevant area of research.

Vaccines are one of the best preventive measures public health has to offer to protect against infections. WHO emphasizes that the vaccine is a significant advance in immunology and microbiology, but that context-specific and multifactorial studies are needed in this direction [34, 35, 36]. Although some aspects of the vaccine challenge are well understood, new paradigms,

such as the importance of innate cells and inducible immune structures in providing protection, offer opportunities to rethink our approach to vaccine development [37, 38]. In this regard, it seems promising to us to conduct research on the development of fundamentally new vaccines – platelet-based ones. The evolutionary advantages of immunological memory possessed by platelets may play a critical role in resolving this issue.

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Conflict of Interest

None to declare.

Informed Consent

Informed consent was obtained.

Author Contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Data Availability

The authors declare that data supporting findings of this study are available within the article.

Abbreviations

SRBC: sheep red blood cells,

LMI: leukocyte migration index,

GI: granulocyte index,

PIR: primary immune response,

LMIR: leukocyte migration inhibition reaction, PLT: platelet,

ERL: erythrocytes (SRBC) lysate,

PLTL: platelets lysate, i/p: intraperitoneal,

WHO: world health organization.

REFERENCES

1. Billingham Re, Brent L, Medawar Pb Actively acquired tolerance of foreign cells. Nature. 1953 Oct 3; 172(4379): 603-6. doi: 10.1038/172603a0. PMID: 13099277
2. Billingham RE, Brent L, Medawar PB. 'Actively acquired tolerance' of foreign cells. 1953. J Immunol. 2010 Jan 1;184(1):5-8. doi: 10.4049/jimmunol.0990109. PMID: 20028658.
3. Thomas M. Vallance, Marie-Theres Zeuner, Harry F. Williams, Darius Widera, and Sakthivel Vaiyapuri Hindawi Toll-Like Receptor 4 Signalling and Its Impact on Platele Function, Thrombosis, and Haemostasis// Mediators of Inflammation Review Article Volume 2017, Article ID 9605894, 13 pages. https://doi.org/10.1155/2017/960589
4. Marc Scherlinger, Christophe Richez, George C. Tsokos, Eric Boilard & Patrick Blanco The role of platelets in immune-mediated inflammatory diseases// Nature Reviews Immunology volume 23, pages495–510 (2023) Cite this article
5. Cheng Yan, Cheng Yan, Haojie W, Haojie Wu, Xianchun Fang, Xianchun Fang, Junji He He, Feng Zhu Adaptive Immunity in Local Tissues. Platelet, a key regulator of innate and adaptive immunity //Front. Med., 10 March 2023 Sec. Translational Medicine Volume 10 - 2023 | https://doi.org/10.3389/fmed. 2023.1074878
6. Хаитов Р.М., Ильина Н.И. Аллергология и иммунология (национальное руководство), 2009, Формат: PDF https://www. books med.com/allergologiya-immunologiya/1805-allergologiya-i-immunologiya-xaitov-nacionalnoe-ru.
7. Фильчаков Ф.В., Коровин С.И. Современные подходы к адоптивной иммунотерапии больных генерализованной меланомой кожи (обзор литературы)// Экспери-ментальные исследования, онкоморфология, онкоиммунология. 2012. №6 (2).
8. Víctor Albarrán, María San, Román1Javier, Pozas2Jesús, Chamorro1Diana, Isabel Rosero1Patricia Guerrero1Juan Carlos Calvo1Carlos González1Coral García de Quevedo1Patricia Pérez de Aguado1Jaime Moreno1Alfonso Cortés1Ainara Soria1 Adoptive T cell therapy for solid tumors:

current landscape and future challenges// Sec. Cancer Immunity and Immunotherapy Volume 15 – 2024 https://doi.org/10.3389/fimmu.2024.1352805
9. André-René Blaudszun Woo Jun Kim Wooram Um Hong Yeol Yoon Man Kyu Shim and Kwangmeyung Kim Adoptive Transfer of Photosensitizer-Loaded Cytotoxic T Cells for Combinational Photodynamic Therapy and Cancer Immuno-Therapy//Pharmaceutics 2023, 15(4), 1295; https://doi.org/10.3390/pharmaceutics15041295
10. Parsa R1, Andresen P, Gillett A, Mia S, et al. Adoptive transfer of immunomodulatory M2 macrophages prevents type 1 diabetes in NOD mice.//Diabetes. 2012 Nov. vol. 61(11). P. 2881-92. doi: 10.2337/db11-1635. Epub 2012 Jun 28.
11. T-cell Transfer Therapy An official website of the United States government https://www.cancer.gov/about-cancer/treatment/types/biomarker-testing-cancer-treatment
12. Pleskanovskaya S.A. Adaptive transfer of the immune response – new approaches European journal of natural history , № 6, 2020, v.2, p.11-17
13. Bleul T, Zhuang X, Hildebrand A, Lange C, Böhringer D, Schlunck G, Reinhard T, Lapp T. Different Innate Immune Responses in BALB/c and C57BL/6 Strains following Corneal Transplantation. J Innate Immun. 2021;13(1):49-59. doi: 10.1159/000509716. Epub 2020 Sep 9. PMID: 32906119; PMCID: PMC7879253.
14. Мясная, Н.В. Особенности реакций иммунной системы мышей разных линий / Н.В. Мясная, А.А. Чурин, О.С. Борсук и др. //Бюллетень экспериментальной биологии и медицины. 2002. vol. 133, №10. - P. 437-439.
15. Perez AG, Lana JF, Rodrigues AA, Luzo AC, Belangero WD, Santana MH. Relevant aspects of centrifugation step in the preparation of platelet-rich plasma. ISRN Hematol. 2014 Mar 25;2014:176060. doi: 10.1155/2014/176060. PMID: 25006472; PMCID: PMC 4005024)
16. Плескановская С. А. Клеточный и гуморальный иммунный ответ при кожном лейшманиозе (экспериментальные исследования и наблюдения на боль-ных), Автореферат диссертации к.м.н., Москва , 1982., 25 с.
17. Плескановская С.А. Гранулоциты и гранулоцитарный индекс // Здравоохранение Туркменистана.,1997, №3, с.23-26
18. Плескановская С.А., Тачмухаммедова А.Х. Иммуногематологические критерии оценки иммунного ответа мышей на эритроциты барана.//Молодой ученый 2015г. № 22 (102). ноябрь-2. С. 55-58.
19. Плескановская С.А., Тачмухаммедова А.Х. Способ контроля формирования иммунного ответа экспериментальных животных на тимусзависимый антиген - эритроциты барана. Патент на изобретение № 804, от 06.09.2016 г. 19(TM) (11)804 G 098 23/28 (2006)
20. переливание тромбоцитарной массы вызывает первичную HLA - иммунизацию реципиента, не имевшего до трансфузии лейкоцитарных антител. file://localhost/C:/Documents%20and%20Settings/User.HOME-BC84CA8C75/Мои%20документы/Thrombocytes.mht
21. Robert E. Marx Platelet-reach plasma (PRP): what is PRP and what is not PRP? //Implant dentistry Vol.10 No.4 2001http://www.dental-azbuka.ru/articles/2-2/1-article
22. Weyrich AS, Lindemann S, Tolley ND et al. Change in protein phenotype without a nucleus: translational control in platelets. // Semin Thromb Hemost. 2004 Aug. vol.30(4). P.491-498. DOI: 10.1055/s-2004-833484.
23. Kral JB, Schromaier WC, Salzmann M, Assinger A. Platelet Interaction with Innate Immune system //Cells. Transfus Med Hemother. 2016. Mar. vol. 43(2). P.78-88. DOI: 10.1159/000444807.
24. Тромбоцитный концентрат// Вестник службы крови России 2009. N 3. С.20-22.
25. David Furman 1, Mark M Davis 2 New approaches to understanding the immune response to vaccination and infection //Vaccine. 2015 Sep 29;33(40):5271-81. doi: 10.1016/j.vaccine.2015.06.117. Epub 2015 Jul 29.

26. Rolf M Zinkernagel On differences between immunity and immunological memory // Current Opinion in Immunology Volume 14, Issue 4, 1 August 2002, Pages 523-536 https://doi.org/10.1016/S0952-7915(02)00367-9Get rights and content
27. Zinkernagel RM. Immunological memory ≠ protective immunity. Cell Mol Life Sci. 2012 May;69(10):1635-40. doi: 10.1007/s00018-012-0972-y. Epub 2012 Apr 6. PMID: 22481438; PMCID: PMC11114992.
28. Zinkernagel, R.M. What is missing in immunology to understand immunity? Nat. Immunol. 1, 181-185 October 2000Nature Immunology 1(3):181-5 DOI:10.1038/79712
29. Rolf M. Zinkernagel, Hans Hengartner Protective 'immunity' by pre-existent neutralizing antibody titers and preactivated T cells but not by so-called 'immunological memory'// Immunological Reviews Volume 211, Issue 1 p. 310-319 First published: 13 June 2006 https://doi.org/10.1 111/j.0105-2896.2006.00402.x
30. Rasković S, Perić-Popadić A, Jovisić Z, Bogić M The role of thrombocytes in allergic inflammation //Arh Celok Lek. 1998 Jan-Feb;126(1-2):54-60BC84CA8C75
31. Weyrich AS, Zimmerman GA. Platelets: signaling cells in the immune continuum. //Trends Immunol. 2004. Sep. vol. 25(9). P. 489-95. DOI: 10.1016/j.it.2004.07.003
32. Visai Muruganandah, Andreas Kupz, Immune responses to bacterial lung infections and their implications for vaccination // International Immunology, Volume 34, Issue 5, May 2022, Pages 231–248, https://doi.org/10.1093/ intimm/dxab109
33. Тромбоцитный концентрат// Вестник службы крови России 2009. N 3. С.20-22.
34. Пантелеев М., Артеменко Е., Демина И. и др. Субпопуляции тромбоцитов крови и механизмы их взаимодействия с белками системы свертывания// Гематология и трансфузиология, Creative Cardiology. 2018; 12(3) DOI:10.24022/1997-3187-2018-12-3-260-274.
35. Galagali PM, Kinikar AA, Kumar VS. Vaccine Hesitancy: Obstacles and Challenges. Curr Pediatr Rep. 2022;10(4):241-248. doi: 10.1007/s40124-022-00278-9. Epub 2022 Oct 8. PMID: 36245801; PMCID: PMC9546747.
36. The who sage Working Group on Vaccine Hesitancy describes hesitancy on a continuum between full acceptance and outright refusal and recognizes that VH can be to single or multiple vaccines.Appendices to the report of the sage working group. Retrieved October 5, 2022, from https://cdn.who.int/media/docs/default-source/immunization/sage/2014/october/2-sage-appendicies-background-final.pdf?sfvrsn=2259f1bf_4
37. Who Position Paper Process . Supplement to Who Vaccine Position Papers15 December 2020.
38. Онищенко Г.Г. Концептуальные основы биологической безопасности. Часть I (Г.Г. Онищенко, В.Ю. Смоленский , Е.Б. Ежлова, Ю.В. Демина, В.П. Топорков, А.В. Топорков, М.Н. Ляпин, В.В. Кутырев) October 2013 Annals of the Russian academy of medical sciences 68(10): 4 DOI:10.15690/vramn.v68i10.781

How to use Alternative and Natural Medicine in the 21st Century Part IV

Dr. Rebecca L. Burkett

ABSTRACT

Part IV of the article includes many sections of Palliative and Integrative care. It provides many sources on how to use this type of care. For example, the information is about guidelines and case studies on how to implement and assess the treatments, and goals for the patients' care.

Also mentioned are, the five stages of palliative care, The Pillars and Principles of Palliative care and Palliative Care Guidelines Practice Guidelines for Quality Palliative Care.

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ABSTRACT

Part IV of the article includes many sections of Palliative and Integrative care. It provides many sources on how to use this type of care. For example, the information is about guidelines and case studies on how to implement and assess the treatments, and goals for the patients' care.

Also mentioned are, the five stages of palliative care, The Pillars and Principles of Palliative care and Palliative Care Guidelines Practice Guidelines for Quality Palliative Care.

I. INTRODUCTION

This article will explain the difference between palliative care and integrative hospice medicine. In palliative care (IPC) uses conventional and complementary approaches. Together it provides care for a person facing serious illnesses and at the end of life.

II. THE ORIGINS OF PALLIATIVE CARE

Palliative care was founded by two origins, one from the UK in 1969 by Dr. Saunder's. Dame Cecily Saunders, she is the sole founder of introducing the term "Total Pain." She states there are four areas to work with, which are: physical, emotional, social, and spiritual dimensions. She also, opened the St. Christopher's Hospice in London in 1967.

The US in 1974 by two couples are Dr. Florence Wald in 1974. She founded the first hospice in the US at Branford, Connecticut. Just a short note that most of the hospice care was home-based and volunteer led. Dr Balfour Mount, who was a surgical oncologist from the McGill University, he coined the term "Palliative Care" to distinguish it from hospice care. The way palliative care could be provided is to diagnose a serious illness and curative of life with prolonged treatment.

III. INTEGRATIVE PALLIATIVE CARE (IPC)

This is a new concept within the healthcare community. This new area of therapies is merging into palliative care settings. These fields are connected as both are rooted in a holistic model of care that focuses on caring for the person, multidimensional beings (mind-body-spirit-environment-relationships). IPC focuses on the integration of non- pharmacological approaches in the delivery of palliative care.

IV. INTEGRATIVE THERAPIES DEFINED

Integrative therapies are a combined use of conventional treatments (such as drugs and surgery) The therapies offer's a new approach to patient care that addresses the whole person. Integrative care primarily involves the use of non-pharmacological interventions including:

Whole medical systems such as naturopathy, these modalities are Traditional Chinese Medicine and Ayurveda acupuncture, acupressure, and tai chi.

Mind-body and interventions such as meditation, guided imagery, and hypnosis.

Expressive arts such as music, painting, sculpture, writing, etc.

Manipulative and body-based methods such as massage and reflexology.

Biofield or "energy therapies" such as reiki, therapeutic touch, and healing touch.

Biologically based treatments such as aromatherapy. This is widely used in Mind-body and contemplative interventions such as meditation, guided imagery, and hypnosis.

4.1 Integrative Hospice Palliative Medicine (IPC):

This field is ever emerging into the Palliative Medicine that treats the patient as a whole person. The multi-dimensional are the mind, body, and soul. This new field offers shared principes in its therapies along with the Palliative treatments for the patient with serious illnesses.

4.2 The Five Stages of Palliative Care are as Follows

Stable: Developing and implementing a personalized care plan.

Unstable: Adjusting the care plan and preparing emotionally.

Deteriorating: Shifting focus to end-of-life care.

Terminal: Providing intense care focusing on comfort and dignity.

Bereavement: Offering support for family members, loved ones, and carers

V. THE PILLARS AND PRINCIPLES OF PALLIATIVE CARE

There are three main pillars, they are:

1. The main goal of this type of treatment is during the patient's illness, it will promote the relief of pain. This is the first step between the healthcare staff to communicate the various modalities and therapies to be combined to treat the illnesses.
2. Education is the key when offering integrative palliative care and the different modalities used. Implementation of the treatment into realistic goals. This is where the general principle of symptoms of diagnosis and assessment. Also, is the pain management of the diagnosis, assessment.
3. Lastly, the important treatment used is integrative psychology and the spiritual modality for the patient care.

5.1 Where to Take the Courses in Integrative Palliative Care

1. *Coursea https://www.coursera.org*
2. Boardvitals to take exams. https://www.boardvitals.com/hospice-palliative. The Hospice & Palliative Medicine uses the question bank that follows the exam content outline for two exams they are the one.) American Board of Internal Medicine (ABIM), 2.) American Osteopathic Association (AOA) Hospice & Palliative Medicine Certification Exam.
3. Study.com https://study.com/buy/academy /lesson/ the-modern-hospice-

5.2 The Consensus Project for Quality Palliative Care Clinical Practice Guidelines for Quality Palliative Care 3rd Edition 2013

In 2004, the National Consensus Project for Quality Palliative Care first published the guidelines. During 2013 The National Consensus Project found the eight domains of care and they are:

- Structure and Processes of Care
- Physical Aspects of Care
- Psychological and Psychiatric Aspects
- Social Aspects of Care
- Spiritual, Religious and Existential Aspects of Care
- Cultural Aspects of Care
- Care of the Patient at the End of Life
- Ethical and Legal Aspects of Care

5.3 Palliative Care Guidelines Practice Guidelines for Quality Palliative Care 4th Edition 2020

This is a foundational document that defines the components of quality care for people with serious illness, regardless of setting and applicable to clinicians in all specialties. According to the guidelines of quality palliative care these changes have occurred, from the Institute of Healthcare Improvements. They have a whole new perspective on age-friendly care. The definition of age-friendly care is the age-Friendly Health System is a set of four evidence-based elements of high-quality care, known as the "4Ms," to all older adults in the system are explained on the website:

What Matters, Medication, Mentation, and Mobility.)

VI. CASE STUDY FOR INTEGRATIVE PALLIATIVE CARE AND QUALITY PALLIATIVE CARE

The first study is from the PMC.NCBI group that approved the information from the facilities in France. They assessed the implementation and effectiveness of early integrative palliative long-term care. The way the French tackled this case study they used a multicenter interventional study utilizes a pragmatic research design: Which allows a parallel mixed-methods approach. 1.) Qualitative study (is a word research method) will use a case study design. 2.) Quantitative study (is a number research method) will use a stepped wedge cluster randomized trial.

Also, the case study will be the primary outcome which relates to the accurate identification of palliative care needs.

The secondary outcome will be the quality of care, for the residents and their families. The measurements will show how the quality of care will be performed by the staff, before and after the interventions are implemented. This will give a baseline reading to see if any treatments need to be adjusted.

6.1 Case Study two

Enhancing integrated palliative care: what models are appropriate? A cross-case analysis the methods used are the Longitudinal organizational case study methods that were applied that used the qualitative serial interviews (interval 3 months) with patients and family.

A previous model suggests that integration involves a cumulative process of engagement with other organizations which labelled as 'support, supplant or supplement,' but the extent to which this model currently applies in the United Kingdom is unknown. Most of these case studies for hospice and palliative care need more research and research methods to be completed. This will address what interventions that need to be for the patients.

According to all the case studies there are for alternative and natural medicine, complementary medicine, there is not enough information to provide which treatment will be the best one. It is considered a trial and error for the patient. Meaning with modality and treatment they will respond to.

6.2 In Home Hospice Care

This is another technique where the patient gets their care at home. The patient has this option, especially being close to family, which would be their best way to accept their illness and to get better. The staff are well-qualified personnel members that can talk to the doctor and the hospital to get information about any changes that have occurred. Listed in the resource area are the organizations that give certification information.

VII. CONCLUSION

The content of this article was very interesting to put together. It includes the origins of palliative care and integrative hospice care (IPC). The integrative hospice or IPC, in holistic model of care that focuses on caring for the person, multidimensional being (mind-body-spirit-environment-relationships). Also mentioned are, the five stages of palliative care, The Pillars and Principles of Palliative care and Palliative Care Guidelines Practice Guidelines for Quality Palliative Care 4th edition 2020.

RESOURCES

1. National Coalition HPC https://www. national coalitionhpc.org/clinical-practice-guidelines/
2. AHA.ORG, https://www.aha.org/standardsguidelin es /2013-04-12)
3. Nia.nih.govhttps://www.nia.nih.gov/health/hospice-and-palliative-care/what-are-palliative-care-and-hospice-care
4. Capc Org. (https://www.capc.org/defining-and-measuring-quality/)
5. IHI Org (https://www.ihi.org/networks/initiatives/age-friendly-health-systems)
6. Pmc.Ncbi, https://pmc.ncbi.nlm.nih.gov/articles/PMC10077649

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