IMAGE: A MAP OF THE STARS OF THE ORION CONSTELLATION

JournalPreview

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

Great Britain Journals Press

WWW.JOURNALSPRESS.COM

Journal Content
In this Issue

Great Britain Journals Press

How to use Alternative Medicine in the 21st Century Pt 1

Dr. Rebecca L. Burkett

ABSTRACT

The main goal is to provide a patient who needs help with the change of lifestyle interventions. It also provides a balance of the mind, body, and spirit. Esoteric Science or Energy medicine is the subtle change of a person's energy and increased spiritual development.

Keywords: NA

Classification: NLM Code: WB890

Language: English

Great Britain Journals Press

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

How to use Alternative Medicine in the 21st Century Pt 1

Dr. Rebecca L. Burkett

ABSTRACT

The main goal is to provide a patient who needs help with the change of lifestyle interventions. It also provides a balance of the mind, body, and spirit. Esoteric Science or Energy medicine is the subtle change of a person's energy and increased spiritual development.

Author: Doctorate of Natural Medicine Online, IBEM College, USA.

I. INTRODUCTION

Natural medicines that help relieve a patient's illness. The reasons to use CAM are the mind for mental health and the body and spirit for calm. This type of treatment can also be used in modern medicine.

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

The first type of therapy is the Complementary Alternative Medicine (CAM). It has been told that it is the modalities that help in the healing. They are known as natural medicines that help relieve a patient's illness. The reasons to use CAM are the mind for mental health and the body and spirit for calm. This type of treatment can also be used in modern medicine. Honestly, the way to use this treatment is to ask your healthcare providers which would be the right course of action to take. Naturopathy uses no medication and so the appropriate treatment of the mind, body, and spirit. Second, in allopathy here in this area of medicine, the doctors actually prescribe medications to deal with the patient's illness. Third is Acupuncture is the insertion of needles into the affected areas of the patient body. It is the main goal is to alleviate any pain or discomfort. In acupressure the practitioner uses their fingers to adjust the area of the patient's body to balance and levels of energy in the body. Also, to treat pain. Fourth is Aromatherapy uses essential oils that are highly concentrated extracts from the roots, leaves, seeds, or blossoms of plants, to promote healing. Its sole purpose is to manage pain. Alleviate stress levels, soothe, and relaxation. Ayurveda is a modality that originated in India. Practitioners use a variety of techniques, including herbs, massage, and specialized diets, with the intent of balancing the body, mind, and spirit to promote overall wellness. The main goal is to provide a patient who needs help with the change of lifestyle interventions. It also provides a balance of the mind, body, and spirit. Esoteric Science or Energy medicine is the subtle change of a person's energy and increased spiritual development.

Table 1: Types of CAM Therapies used in MS

Alternative Medicine Practice	Chinese Medicine, Ayrveda, Homeopathy
Bioelectromegnatics	Magnets, Electromagnetic field
Biofield Medicine	Therapeutic touch, Reiki
Biologically based	Diets, herbs, Vitamin, Bee Venom, hyperbaric oxygen, Homeopathic Supplements
Lifestyle and Disease Prevention	Exercise
Manipulative Systems	Chiropractic, Message, reflexology
Mind body Medicine	Relaxation, meditation, Biofeedback, Tai chi, Yoga, Prayer

Source: Bowling. Demos. 2001[3]

London Journal of Medical & Health Research

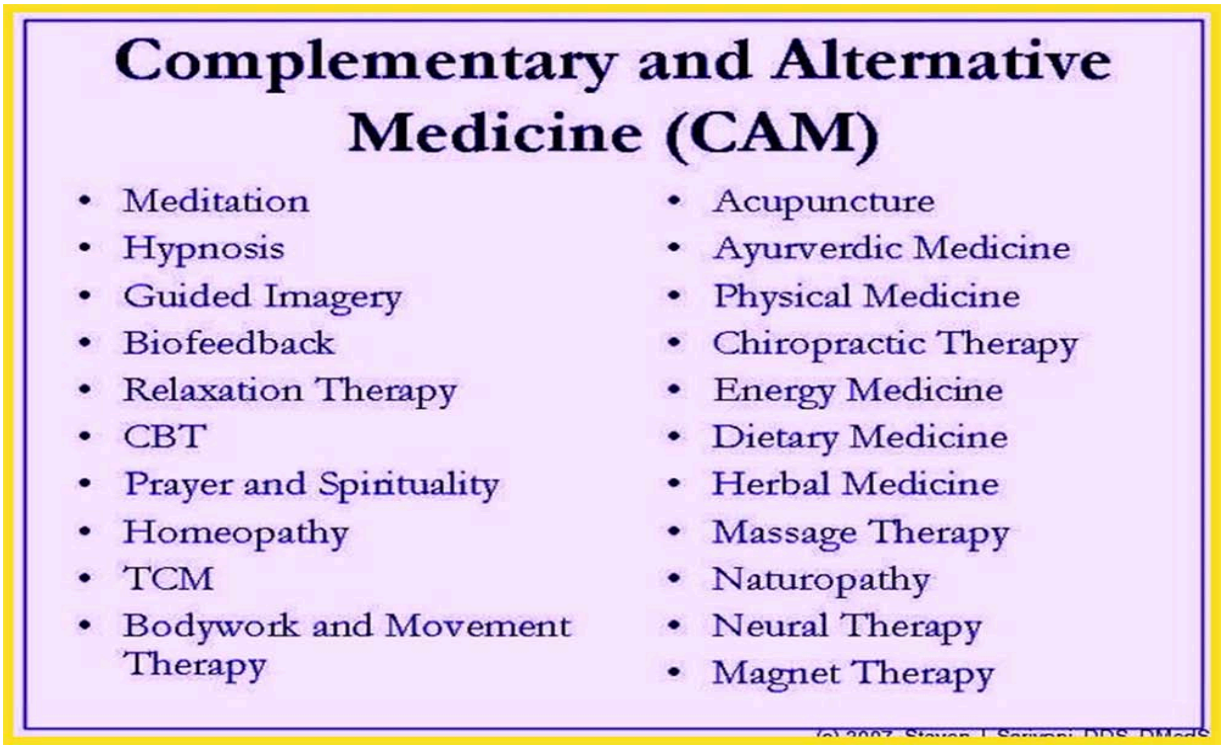

Fig. 3: CAM Treatments

1.2 Using the Mind, body, and Spirit to Change the Person's Energy

Reiki Therapy

For example, Reiki is such a form of energy healing based on the idea that a "life force" energy flows through everyone's body. The Reiki technique is a non-contactless healing. The Practitioner will use their hands up and down the body to determine what is ailing the patient.

Fig. 4

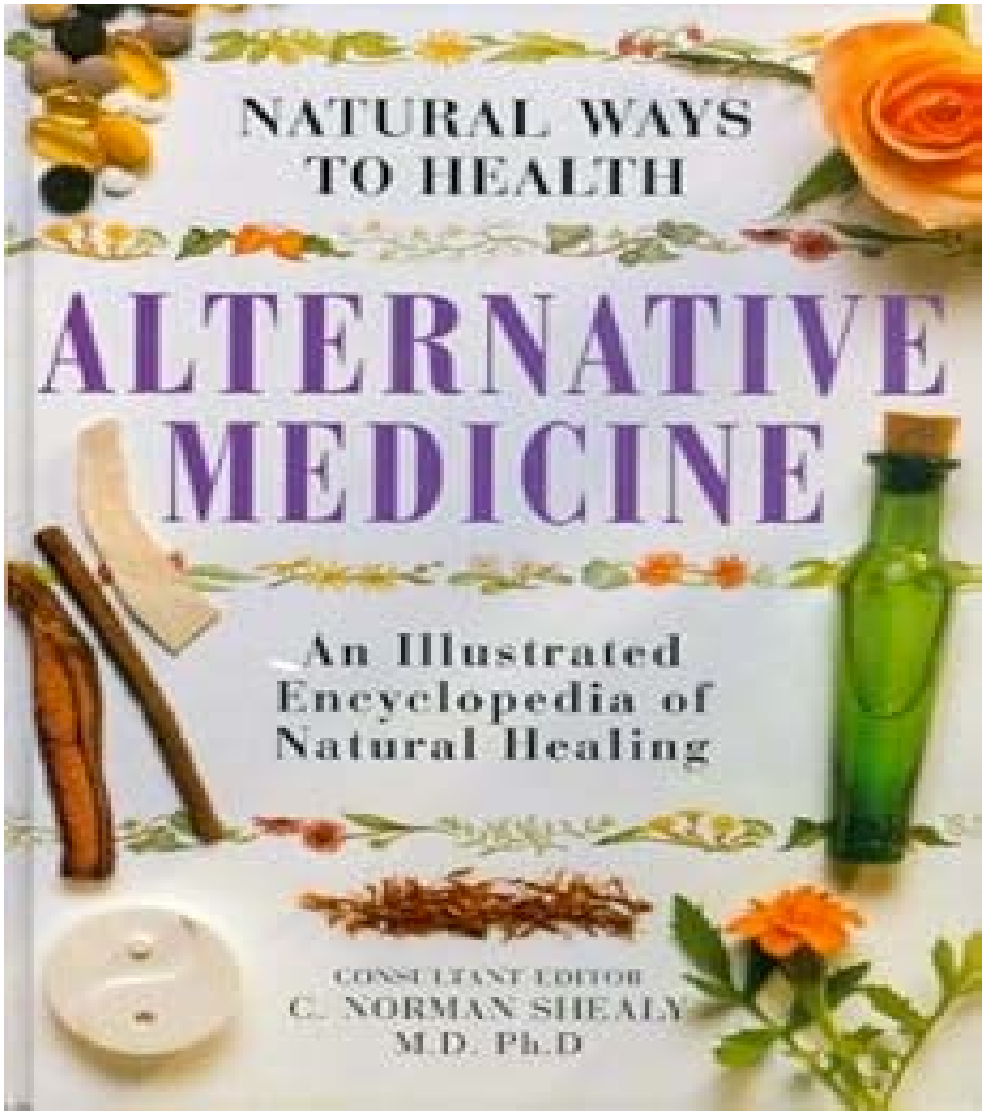

Fig. 5

Evidence-based CAM (EBCAM) therapies have shown remarkable success in treating diseases. It necessitates the integration of modern CAM (https://pmc.ncbi.nlm.nih.gov) Information sharing. Although a synergistic effect of interaction between the two systems works, large gaps in EBCAM still exist and are worth further studies to develop evidence for best CAM practices for the common goal of improving the health of people. However ongoing research has made some expansion in the field: 1.) Since there is no single definition of CAM that is accepted by all, multiple definitions of CAM are reported in different pieces of literature. 2.) Complementary and alternative medicine is defined according to the National Center for Complementary and Integrative Health (NCCIH) as "a group of diverse medical and health care systems, practices. 3.) Conventional medicine is defined by the National Cancer Institute (NCI) of the National Institutes of Health (NIH) as "a system in which health professionals who hold an MD or DO degree treat symptoms and diseases using drugs, radiation, or surgery".

What are the different types of CAM?

Traditional alternative medicine. This field includes the more mainstream and accepted forms of therapy, such as acupuncture, homeopathy, and Oriental practices.

Body. Touch has been used in medicine since the early days of medical care. Healing by touch is based on the idea that illness or injury in one area of the body can affect all parts of the body. Other *touch healing areas:* chiropractic and osteopathic medicine, Massage, body movement therapies, Tai chi, Yoga

1.3 Chinese or TCM

Next, the modality is TCM also called Traditional Chinese Medicine. This type of medicine was developed during the 3rd Century B.C.E. The people used acupuncture and herbs to take care of illnesses. The earliest known record was from the Huangdi neijiung, the Yellow Emperor Inner Classic. The TCM medicine is still in practice to this day. The Chinese healers used two distinct types of complementary forces: Yin (Passive) and the Yang (Active). Its primary aim is to promote healing and balance in the body. These modalities have specialized areas that can be combined, for example, Acupuncture, Acupressure, moxibustion (Moxa treatment), and cupping therapy where hot glass cups are placed on the body that draws the blood vessels to the skin. The Chinese practitioner may use a combination of different herbal medicines. Another course in TCM is Meridian Energy, which consists of pathways or channels that allow energy to flow through the body. The science of Energy flows through our system along a pair of major vessels and a set of lesser meridians. There are twelve major vessels that are in major organs, except two areas in our brain and our eyes. The meridian system is a key concept of traditional Chinese medicine (TCM), an understanding of the energetic body shared by many countries in Southeast Asia. It is believed that energy the life force, prana, or qi (chi), flows throughout the body. Energy is free to move and transform- that can mean different things. If Qi becomes disrupted, halted, under/overactive, or otherwise compromised it can impair the flow of energy. If Qi is a universal force, then healthcare rooted in TCM principles should be accessible and affordable for everyone.

1.4 It's All About the Qi or Chi

In advocating for this perspective, the understanding of Qi becomes a tool for promoting health equity it aligns with the idea that the benefits and availability of TCM to a person should not be limited to a privileged few, but accessible to individuals from all walks of life. In this regard, poverty is the stagnation of qi. This can create and perpetuate illness, especially for children.1 Chronic stress due to poverty can also affect health outcomes, quality of life, and longevity in adults as well.2 The energy, or chi, moves throughout the body along these lines. Each line relates to a bodily organ and an emotion or set of emotions. We begin our coverage with the two major vessels, and then proceed to the twelve meridians following the order of tapping points from EFT (Emotional Freedom Techniques),

1.5 Understanding the (EFT) Emotional Freedom Techniques and the (TFT) Thought Field Therapy

EFT is the First Group, The Second Group of TFT and the third group is the (TTT) for Trauma Tapping Technique. TFT (Thought Field Therapy), and TTT (Trauma Tapping Technique).

We begin our coverage with the two major vessels, and then proceed to the twelve meridians following the order of tapping points from EFT (Emotional Freedom Techniques), TFT (Thought Field Therapy), and TTT (Trauma Tapping Technique)

1.6 Disclaimer and Safety Note

A disclaimer a practitioner should never tell a patient they should not go to their family doctor. Make sure the practitioner has the appropriate certifications in your state or country. Also, research to make sure you go through the energy or chi moves throughout the body along these lines. Each line relates to a bodily organ and an emotion or set of emotions. be used for life coaching and spiritual coaching. Any of these modalities can be combined to suit the patient's needs. Make sure the patient is not allergic to any ingredients of herbs and oils. Always assess before applying any herbal plants or Essential oils to a patient. A disclaimer for a practitioner should never tell a patient they should not go to their family doctor. Make sure the practitioner has the appropriate certifications in your state or country.

Also, research to make sure you go to the right practitioner that fits your needs. to the right practitioner that fits your needs. Any of these modalities can be combined to suit the patient's needs. Make sure the patient is not allergic to any ingredients of herbs and oils.

1.7 Study Cases

TCM Review. Com,

https://tcmreview.com/wp-content/uploads/2019/01/TCM-Review-Cases-21-40-2018.pdf

Guides.Lib.UV.EDU,
https://guides.lib.uw.edu/hsl/cam/case

II. CONCLUSION

Here is the hard information we need as doctors to ask ourselves. What's the difference between complementary and alternative medicine? Complementary and alternative medicine are often lumped under the acronym "CAM" because they both refer to the same types of practices. But the difference is in how these practices are used:

Complementary medicine: means these therapies are used in addition to mainstream medicine.

Alternative medicine: means these therapies are used instead of mainstream medicine, which can be dangerous and even deadly.

The terms used to be used interchangeably. But "alternative medicine" now has a very specific meaning that doesn't apply to the majority of people — and isn't supported by research-driven, science-believing healthcare providers.

Research

Very Well Mind.com

https://www.verywellmind.com/alternative-therapies-types-and-uses-5207962

John Hopkins Medicine, https://www.Jhopkinsmedicine.org/health/wellnes

Health Cleveland Clinic org, https://health.clevelandclinic.org/complementary-alternative-medicine

Thrift Books.Com, https://www.thriftbooks.com/w/the-complete-family-guide-to-alternative-medicine-an-illustrated-encyclopedia-of-natural-healing-complete-family-guide_c-norman-

Bing.Com,

https://www.bing.com/images/search?q=Holistic+Alternative+Medicine&form=IARSLK&first=1

This page is intentionally left blank

Epidemiological Factors in Post COVID-19 Acute Invasive Fungal Rhinosinusitis Affecting Disease Incidence and Prognosis

Mostafa Mohammed Ayad, Yasser Ibrahim Aglan, Mohamed Hisham Aly Hamad & Kamal Abdelmonem Ebeid

Tanta University

ABSTRACT

Background: Acute Invasive fungal rhinosinusitis (AIFR) is a life-threatening disease presents usually in immune- compromised patients with impaired neutrophilic response.

Aim: To study and statistically analyze the epidemiological factors leading to the observed increased incidence of invasive fungal rhinosinusitis in coronavirus disease- 19 (COVID-19) diseased patients and identify the prognostic factors that may affect the course and outcome of the disease.

Methods: This case-control study was carried out on 23 patients diagnosed with acute invasive fungal sinusitis patients, patients with positive coronavirus or recently recovered from coronavirus infection admitted to tertiary or secondary centers in El-Gharbia governorate, and 46 participants as a control. The study was focused on the epidemiological predisposing factors that may affect the incidence of the disease.

Keywords: coronavirus disease-19, acute invasive fungal, rhinosinusitis, disease incidence.

Classification: DDC Code: 616.202

Language: English

Great Britain Journals Press

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

Epidemiological Factors in Post COVID-19 Acute Invasive Fungal Rhinosinusitis Affecting Disease Incidence and Prognosis

Mostafa Mohammed Ayad[α], Yasser Ibrahim Aglan[σ], Mohamed Hisham Aly Hamad[ρ] & Kamal Abdelmonem Ebeid[Ↄ]

ABSTRACT

Background: Acute Invasive fungal rhinosinusitis (AIFR) is a life-threatening disease presents usually in immune- compromised patients with impaired neutrophilic response.

Aim: To study and statistically analyze the epidemiological factors leading to the observed increased incidence of invasive fungal rhinosinusitis in coronavirus disease- 19 (COVID-19) diseased patients and identify the prognostic factors that may affect the course and outcome of the disease.

Methods: This case-control study was carried out on 23 patients diagnosed with acute invasive fungal sinusitis patients, patients with positive coronavirus or recently recovered from coronavirus infection admitted to tertiary or secondary centers in El-Gharbia governorate, and 46 participants as a control. The study was focused on the epidemiological predisposing factors that may affect the incidence of the disease.

Results: COVID-19 reporting and data system (CORAD), level of O_2 saturation, PH, steroid therapy dose and duration, duration of O_2 therapy, and anterior septal deviation were insignificantly different between the two studied groups. Random blood sugar (RBS), neutropenia, and type O_2 therapy were significantly different between the two studied groups. Steroid therapy dose and duration were significantly higher in the patients' group than control group (P<0.05). In the total number of 23 patients 16(69.6%) patients had their middle turbinate as the first site to be affected by the pathology, 3(13%) patients in the right maxilla, 1 (4.3%) patient in the left maxilla, 2(8.7%) patients in the right sphenoid sinus, 1(4.3%) patient in the hard palate.

Conclusions: The Prognostic factors favoring bad prognosis: Uncontrolled Co-morbidities, high CORAD grade, high grade of fungal invasion, serum neutropenia, the use of ventilators as an O_2 delivery method, and medical treatment alone without surgical treatment.

Keywords: coronavirus disease-19, acute invasive fungal, rhinosinusitis, disease incidence.

Author α: Resident of Otorhinolaryngology Department, Faculty of Medicine, Tanta University, Tanta, Egypt.
σ ρ: Professor Emeritus of Otorhinolaryngology Department, Faculty of Medicine, Tanta University, Tanta, Egypt.
Ↄ: Assistant Professor of Otorhinolaryngology Department, Faculty of Medicine, Tanta University, Tanta, Egypt.

I. BACKGROUND

Acute Invasive fungal rhinosinusitis (AIFR) is a life-threatening disease that presents usually in immune-compromised patients with impaired neutrophilic response. These patients include those with uncontrolled diabetes mellitus, acquired immunodeficiency syndrome (AIDS), iatrogenic immuno-suppression, organ transplantation, and hematological malignancies[1].

AIFR is characterized by the presence of hyphal invasion of sinus tissue and a time course of less than weeks[2, 3]. Histolo ical features include mycotic infiltration of blood vessels, vasculitis with thrombosis, tissue infarction, hemorrhage, and acute neutrophilic infiltration. Aspergillus

London Journal of Medical & Health Research

species and fungi in the order of Mucorales are the most implicated species [4].

In addition to the acute respiratory distress occurring in coronavirus disease 2019 (COVID-19) patients, a large number of COVID-19 patients develops a serious immune-compromised state due to a complex of factors including the common co- morbidities, especially diabetes mellitus and other previous respiratory disorders, the misuse of immune-suppressive agents as corticosteroids and empirical antibiotics as a main line of treatment and other epidemio-logical factors such as long duration of hospital stay that sometimes can reach up to 50 days and intensive care unit admission[4].

This immune-compromised state allows the development of a wide spectrum of opportunistic bacterial and fungal infections and acute invasive fungal rhino-sinusitis; a potentially fatal opportunistic fungal infection affecting nasal and sinus mucosa with high morbidity and mortality rate, considered one of the most serious infections COVID-19 patients may develop[5].

COVID-19 patients show overexpression of inflammatory cytokines, and impaired cell-mediated immunity with decreased cluster of differentiation 4 and 8 positive T-helper (CD4+ T and CD8+ T) cell counts, indicating susceptibility to fungal co-infections[6].

Hence the great importance of better understanding and identification of the epidemiological factors leading to this observed increased incidence of invasive fungal rhinosinusitis among COVID-19 patients, allowing us to prevent such a serious complication, as always prevention is the best treatment modality.

This work aimed tostudy and statistically analyze the epidemiological factors leading to the observed increased incidence of invasive fungal rhinosinusitis in COVID-19 patients and identify the prognostic factors that may affect the course and outcome of the disease.

II. METHODS

This case-control study was carried out on 23 patients diagnosed with acute invasive fungal sinusitis patients, patients positive coronavirus or recently recovered from coronavirus infection admitted to tertiary or secondary centers in El-Gharbia governorate, and 46 participants as a control, aged from 19 to 65 years old, both sexes.The study was done from June 2021 to December 2021after approval from the Ethical Committeeat Tanta University Hospitals, Tanta, Egypt.) *Approval code:* 35036/11/21). Informed written consent was obtained from the patients.

Exclusion criteria were previous sinus surgery and allergic fungal rhinosinusitis.

All patients were subjected to history taking, general examination, otorhinolaryngology clinical examination, laboratory investigations [complete blood count (CBC), Creactive protein (CRP), erythrocyte sedimentation rate (ESR), random blood sugar, serum ferritin, glycated hemoglobin (HbA1c), lactated dehydrogenase (LDH) and cytology (Fungal culture, biopsy histopathology), radiological [computed tomography (CT) forchest and nose, paranasal sinuses (PNS) and magnetic resonance imaging (MRI) for nose, PNS and brain].

First, the selected patients must be either coronavirus-positive or have recovered from coronavirus infection evident by CT chest finding (CORAD classification) and/or nasopharyngeal swab polymerase chain reaction (PCR) test.

The study focused on the epidemiological predisposing factors that may affect the incidence of the disease such as Environmental factors: Increased Humidity: This study analyzed the number of recorded cases to the humidity level in different months comparing between number of cases recorded in certain months and mean absolute humidity level in this month. August has the highest humidity level at 17 mg\m^3 then July at 16 mg\m^3 then September 15mg\m^3 then October and June 13mg\m^3 then November 11 mg\m^3 then December 10 mg\m^3. Increased weather temperature in comparison to fall and early winter months. In Egypt, temperatures range between average winter minimums of 14°C (November to April) and average summer maximums of 30°C [7].

2.1 Patient-Related Factors

Co-morbidities: This study analyzed the number of cases with co-morbidities that may increase the disease incidence focusing mostly on diabetes mellitus (DM) Renal insult and hematological diseases.

2.2 Immune-Compromised Patients

This study analyzed the relationship between disease incidence and factors causing an immune compromised state for COVID-19 patients including The duration and dose of immune-modulators as corticosteroids used as a part of the coronavirus treatment protocol. The level of co-morbidities control during the COVID-19 infection using (random blood sugar (RBS) in D.M patients, Urea and creatinine serum levels in renal patients and WBC count in blood diseases). The level of tissue hypoxia measured by oxygen saturation was recorded during the hospital stay. Presence of neutropenia using CBC test. Level of blood acidity: measured by arterial blood gases (ABG) test.

2.3 Cytokines Storm Event

Evident by the level of lung affection comparing the incidence of the disease to the grade of CORAD classification using Chest CT.

2.4 Ventilation

Type and duration of oxygen delivery method used.

2.5 Local Nasal and Para-Nasal Sinus Factors

This study was focused on the relationship between the disease and the anatomical factors causing increased fungal spores' deposition such as The incidence of the disease starting on the middle turbinate in comparison to other areas in the nose and PNS as it's known that the space between the middle turbinate and nasal septum has the highest air turbulence. The incidence of the disease to anatomical variations causing the increase in air turbulence as the anterior septal deviation is evident by nose and PNS CT scan.

The prognosis of the disease was identified as death because of fungal invasion or eradication of fungal infection without recurrence during the six-month follow-up period using a CT scan as a follow-up method.

2.6 The Prognostic Factors this Study was focused on are

Whether the CO-morbidities are controlled or not: this study analyzed the impact of uncontrolled co-morbidities on the course and prognosis of the disease using RBS as a control indicator for DM, Urea, and creatinine serum level as a control indicator of renal disease and WBCs count as blood disease control indicator. The duration and dose of immune modulators as corticosteroids used as a part of the coronavirus treatment protocol. The level of fungal invasion at the time of diagnosis using MRI scan grading it as follows:[Grade I: fungal invasion confined to nose and PNS, Grade II: fungal invasion reaching one or more facial bone related to nose and PNS including (vomer, palatine bone, maxillary bone, frontal bone), Grade III: fungal invasion reaching extra nasal structures as the orbit - but without reaching the orbital apex- or the brain but the dura still intact and Grade IV: fungal invasion reaching orbital apex, causing intracranial lesion or lung fungal invasion][8].

2.7 Statistical Analysis

Statistical analysis was done by SPSS v26 (IBM Inc., Chicago, IL, USA). The Shapiro-Wilks test and histograms were used to evaluate the normality of the distribution of data. Quantitative parametric variables were presented as mean and standard deviation (SD) and compared between the two groups utilizing an unpaired Student's t-test. Quantitative non-parametric data were presented as the median and interquartile range (IQR) and were analyzed by Mann Whitneytest. Qualitative variables were presented as frequency and percentage (%) and were analyzed utilizing the Chi-square test or Fisher's exact test when appropriate. A two-tailed P value < 0.05 was considered statistically significant.

III. RESULTS

Demographic data, environmental factors, and Co-morbidities (cardiac, multiple myeloma, and

systemic lupus were insignificantly different between both groups. Other Co-morbidities (DM, RF) were a significantly difference between both groups.

Table 1: Comparison between the Two Studied Groups According to Demographic Data, Environmental Factors, and Co-Morbidities

		(Patients (n = 23	(Control (n = 46	p
(Age (years		12.0 ± 55.61	13.70 ± 54.17	0.671
Sex	Male	(43.5%)10	(45.7%)21	0.864
	Female	(56.5%)13	(54.3%)25	
Month	June	(8.7%)2	(10.2%)5	0.545
	July	(17.4%)4	(15.3%)7	
	August	(26.1%)6	(13.1%)6	
	September	(17.4%)4	(8.8%)4	
	October	(8.7%)2	(15.3%)7	
	November	(8.7%)2	(21.8%)10	
	December	(13%)3	(15.3%)7	
(Time of admission (Months	10 – 6	(78.3%)18	(80.4%)37	1.000
	12 – 11	(21.7%)5	(19.6%)9	
Co-Morbidities		(95.7%)22	(32.6%)15	*0.001>
DM		(78.3%)18	(23.9%)11	*0.001>
Cardiac		(4.3%)1	(0.0%)0	0.333
Multiple myeloma		(4.3%)1	(0.0%)0	0.333
RF		(30.4%)7	(6.5%)3	*0.013
Systemic Lupus		(4.3%)1	(0.0%)0	0.333
Anaemic		(4.3%)1	(2.2%)1	1.000

*Data are presented as mean ± SD or frequency (%). * Significant p-value <0.05, DM: diabetes mellitus, RF: Rheumatoid factor.*

CORAD, level of O_2 saturation, ABG PH, steroid therapy dose and duration, duration of O_2 therapy, and anterior septal deviation were insignificantly different between the two studied groups. RBS, neutropenia, and type O_2 therapy were significantly different between the two studied groups. Steroid therapy dose and duration were significantly higher in the patients' group than control group (P<0.05).

Table 2: Comparison between the two Studied Groups according to other Epidemiological factors and Anterior Septal Deviation

		Patients (n = 23)	Control (n = 46)	p
CORAD		3.39 ± 1.12	3.46 ± 0.84	0.946
O_2 saturation		88.70 ± 10.39	90.13 ± 4.75	0.114
ABG PH		7.47 ± 0.06	7.48 ± 0.07	0.628
No		14(60.9%)	34(73.9%)	0.267
Yes		9(39.1%)	12(26.1%)	
RBS		307.0 (184.0 – 345.5)	115.0(94.0 –224.0)	<0.001*
No		1(4.3%)	30(65.2%)	<0.001*
Yes		22(95.7%)	16(34.8%)	
Neutropenia		17(73.9%)	10(21.7%)	<0.001*
Steroid T Dose (mg/day)		132.6 ± 53.53	108.0 ± 39.86	0.172
No		0(0.0%)	31(67.4%)	<0.001*
Yes		23(100.0%)	15(32.6%)	
Steroid T duration (days)		8.50 (6.0 – 11.0)	7.0 (5.0 – 10.0)	0.532
No		0(0.0%)	32(69.6%)	<0.001*
Yes		23(100.0%)	14(30.4%)	
Type O_2 therapy	Nasal Mask	11(47.8%)	18(39.1%)	0.033*
	Ventilator	5(21.7%)	2(4.3%)	
	Room air	7(30.4%)	26(56.5%)	

Anterior septal deviation	12(52.2%)	17(37.0%)	0.227
	(n = 16)	(n = 20)	
Duration O_2 therapy (days)	8.50 (7.0 – 12.0)	7.0 (5.50 – 9.50)	0.190

*Data are presented as mean ± SD or frequency (%) or median (IQR). * Significant p-value <0.05,CORAD: COVID-19 Reporting and Data System, ABG: arterial blood gases, RBS: random blood sugar.*

In the total number of 23 patients 16(69.6%) patients had their middle turbinate as the first site to be affected by the pathology, 3(13%) patients in the right maxilla, 1 (4.3%) patient in the left maxilla, 2(8.7%) patients in the right sphenoid sinus, 1(4.3%) patient in the hard palate.

Table 3: Distribution of the Studied Cases According to Lesion Start in Patients Group
Data are presented as frequency (%)

	N=23
Right Maxilla	(13.0%)3
Left Maxilla	(4.3%)1
Right Sphenoid Sinus	(8.7%)2
Middle Turbinate	(69.6%)16
Hard Palate	(4.3%)1

Data are presented as frequency (%)

Distribution of the studied cases according to prognostic factors patients group shown in Table 4.

Table 4: Distribution of the Studied Cases According to Prognostic Factors Patients Group

		N=23	Death	Resolution
Control	Uncontrolled	(91.3%)21	(61.9%)13	(38.1%)8
	Controlled	(8.7%)2	(0.0%)0	(100%)2
CORAD	I	(8.7%)2	(0.0%)0	(100%)2
	II	(0.0%)0	(0.0%)0	(0.0%)0
	III	(56.5%)13	(38.4%)5	(61.6%)8
	IV	(13.1%)3	(100%)3	(0.0%)0
	V	(21.7%)5	(80%)4	(20%)1
Grading	I	(4.3%)1	(0.0%)0	(100%)1
	II	(13.0%)3	(33.3%)1	(66.7%)2
	III	(56.5%)13	(53.8%)7	(46.2%)6
	IV	(26.1%)6	(66.7%)4	(33.3%)2
Neutropenia		(78.3%)18	(55.6%)10	(44.4%)8
Type O_2 therapy	Nasal Mask	(47.8%)11	(27.2%)3	(72.8%)8
	Ventilator	(21.7%)5	(100%)5	(0.0%)0
	Room air	(30.4%)7	(71.4%)5	(28.6%)2
Treatment	Surgery + systemic antifungal	(52.2%)12	(16.7%)2	(83.3%)10
	Systemic anti-fungal	(100.0%)23	(56.5%)13	(43.5%)10
	Systemic anti-fungal alone	(47.8%)11	(100%)11	(0.0%)0
Outcome	Resolution	(43.5%)10		
	Death	(56.5%)13		

*Data are presented as frequency (%). * Significant p value <0.05, CORAD: COVID-19 Reporting and Data System.*

Case 1: Male, aged 42 years old when diagnosed with AIFRS with orbital affection as a complication for uncontrolled D.M.

Figure 1: A Case of AIFRS Post-Operative

IV. DISCUSSION

During the COVID-19 pandemic, there was an increased incidence of AIFRS which raised the need for studying the factors causing this increased incidence and the possible factors controlling the prognosis of this devastating complication[9].

According to our study, the highest incidence of AIFRS was during the hot weather months from July to October with 78.3% of cases during these months but still the impact of hot weather couldn't be confirmed as the percentage of admitted control cases in these months was also very high, 80.4% of the cases and still the time frame for the hot months was 4 months compared to only 2 months of cold weather November and December.

The patient group had 95.7% of the patients with other co-morbidities compared to a lower percentage of 67.4% in the control group which confirms the importance of the presence of other co-morbidities causing an immune deficient state in the incidence of post-COVID-19 AIFRS infection. This was proven with other research such as Blyth CC et al.[10] showing the close relation between the presence of other co-morbidities and the increased incidence of invasive fungal infection. Diabetes mellitus was the most predominant co-morbidity with as high as 78.3% of all cases compared to only 23.9% of controlled cases. Still, this may be affected by the high incidence of D.M. in Egypt. Still, the effect of D.M. on immunity is undeniable being one of the most common causes of the low immunity state favoring fungal infection worldwide. Schiefer HG et al.[11] studied this relation between D.M. and increased fungal infection. Another example of co-morbidities that may increase the incidence of AIFRS is blood diseases that affect immune cell activity.

The patient group showed a lower O_2 saturation level compared to the control group which confirms the effect of tissue hypoxia and tissue damage in favoring fungal invasion of mucosal barriers. Fungi can benefit from tissue hypoxia in different ways, V. Monceaux et al.[12] showed how hypoxia dampens the oxygen-dependent antimicrobial activities of macrophages and neutrophils, such as the production of reactive oxygen species (ROS), also Blosser SJ et al.[13] showed the impact of hypoxia in decreasing the efficiency of anti-fungal drugs as triazoles and polyenes.

There was a huge gap between the percentage of the patients with high RBS in patients with AIFRS

in the patient group 95.7% and in the control group 34.8% which gives clear evidence of the impact of uncontrolled DM in the incidence of AIFRS. High sugar levels in blood can fuel the growth of fungal colonies; this is supported by Carlile M.J et al.[14] demonstrating how glucose plays a central role in the metabolism of most of the fungi species.

The same was recorded according to the impact of serum neutropenia with 73.9% of the patient group with serum neutropenia compared to 21.7% in the control group. Chamilos G et al.[15] showed how neutrophils play an important role in host defense against invasive candidiasis and aspergillosis by their rapid deployment to the site of fungal invasion and by mediating fungal destruction using an extensive collection of effector mechanisms.

The study showed that both the O_2 therapy method and duration played a role in the incidence of AIFRS as the patient group had a longer duration of O_2 therapy and higher numbers of patients on nasal masks and ventilators compared to the control group. Ventilator use showed the highest incidence increase in the comparison between the patient and control group. Ding et al.[16] showed in their study that long-term ventilation increases the risk of fungal infection, which is caused by humidifiers and ventilator loops that are the source of the fungal pathogen due to exposure as the majority of ICUs are closed units and air circulation is not smooth.

The study showed a very high incidence of AIFRS firstly affecting the middle turbinate 69.6% of all cases compared to other sites. This may show the importance of air turbulence in this area in the fungi deposition ultimately resulting in AIFRS infection still there was no statistical significance in the incidence of AIFRS in patients with anterior septal deviation after comparison between patient and control group. This doesn't go along with what both Wolf M et al.[17] and Grützenmacher S et al.[18]showed that the greatest air turbulence during normal inspiration develops in the limited area between the nasal septum and middle turbinate and how anterior nasal deviation increase this turbulence promoting more spore deposition in this area.

There was no doubt that the uncontrolled co-morbidities played an important role in the bad prognosis of AIFRS cases as 91% of cases resulting in death suffered from uncontrolled co-morbidities. This was the same finding in other studies such as Blyth CC et al.[10] and Schiefer HG et al. [11].

According to the CORAD classification the highest incidence of resolution was between grade I patients but still the highest incidence of death between grade 4 patients which shows the CORAD grading as a possible indicator for AIFRS prognosis among the COVID-19 patients. This may be related to the cytokine release and its relationship with the severity of the disease as described before. Spellberg B et al.[19] described in their study the impact of the degree of fungal invasion and fungal load on the prognosis of AIFRS which was consistent with our finding, the worse the fungal grading the worse the prognosis evident by the highest incidence of death among grade VI patients and the highest incidence of resolution among grade I patients.

Patients with neutropenia showed a slightly higher incidence of death compared to patients without neutropenia. This goes along with what Tobias E. Rodriguez et al.[19] described in their study about the role of Neutrophils in preventing and resolving acute fungal sinusitis.

Our study showed that among the different O_2 delivery methods ventilators had the worst prognosis which shows the role of ventilators use in providing a suitable environment favoring AIFRS infection in COVID-19 patients. Ding et al.[16]described in their study how ventilator loops are a continuous source of fungal spores increasing the fungal burden on COVID-19 patients.

Limitations of this study included that the sample size was relatively small. The study was in a single center.

V. RECOMMENDATION

There must be a proper control for factors reducing immunityfor reducing the incidence of AIFRS such as other co-morbidities, especially D.M. Steroid therapy should be used in such cases with great caution only in recommended cases with proper monitoring for the dose and duration of the treatment. Tissue hypoxia and serum acidity should be avoided with proper treatment modalities in those patients to avoid the risk of AIFRS. Patients suffering from other mentioned risk factors that can't be avoided should be monitored closely for early detection of AIFRS. For a better prognosis in AIFRS patients, there must be close control of other co-morbidities, treatment of tissue hypoxia, and early detection of the disease before further fungal invasion. The use of ventilators only in recommended cases with close monitoring of their cleanliness especially between cases and in their use for long periods for the presence of fungal contamination and finally surgical debridement should be a cornerstone in the treatment protocol of AIFRS cases.

VI. CONCLUSIONS

The Epidemiological factors increasing the incidence of AIFRS in post-COVID-19 patients: Environmental Factors: Increased humidity, other Epidemiological factors [reduced immunity due to: the presence of other Co-morbidities, uncontrolled D.M, steroid therapy, serum neutropenia, tissue hypoxia, increased serum acidity, cytokine storm event, and the use of ventilators as a method of O_2 therapy] and anatomical factors: infection Favors nasal areas with increased nasal air turbulence. The Prognostic factors favoring bad prognosis: Uncontrolled Co-morbidities, high CORAD grade, high grade of fungal invasion, serum neutropenia, the use of ventilators as an O_2 delivery method, and medical treatment alone without surgical treatment.

List of Abbreviations

AIFR: Acute Invasive fungal rhinosinusitis
ABG: arterial blood gases
AIDS: acquired immunodeficiency syndrome
CBC: complete blood count
CRP: C- reactive protein
*COVID-19:*coronavirus disease-19
CORAD: COVID-19 reporting and data system.
CT: computed tomography
DM: diabetes mellitus
ESR: erythrocyte sedimentation rate
RBS: Random blood sugar
HbA1c: glycated hemoglobin
MRI: magnetic resonance imaging
LDH: lactated dehydrogenase
PNS: Paranasal Sinuses
PCR: polymerase chain reaction

Declarations

Ethics Approval and Consent to Participate

The study was done from June 2021 to December 2021 after approval from the Ethical Committee Tanta University Hospitals, Tanta, Egypt. (Approval code: 35036/11/21). An informed written consent was obtained from the patients.

Consent for Publication

Consent for publication was taken.

Availability of Data and Materia

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

Funding

No funding was received for conducting this study.

REFERENCES

1. Gwaltney JM, Jr. (1985) Virology and immunology of the common cold. Rhinol.23(4):265-71.
2. Jernigan DB, COVID C, Team R. (2020) Update: public health response to the coronavirus disease 2019 outbreak—United States, February 24, 2020. MMWR. 69(8): 216-25.
3. Control CfD, Prevention, Control CfD, Prevention. Clinical questions about COVID-19: questions and answers. 2020. p. 210-22.

4. For Immunization NC. Science Brief: SARS-CoV-2 and Surface (Fomite) Transmission for Indoor Community Environments. CDC COVID-19 Science Briefs [Internet]. 5. 2nd ed: Centers for Disease Control and Prevention (US); 2021. p. 12-4.
5. Tang JW, Marr LC, Li Y, Dancer SJ. Covid-19 has redefined airborne transmission. British Medical Journal Publishing Group; 2021. p. 120-36.
6. Abdulnoor M. Public Health Applications of Genomic Epidemiology during the COVID-19 Pandemic 2022.
7. Hautea S, Parks P, Takahashi B, Zeng J. (2021) Showing they care (or don't): Affective publics and ambivalent climate activism on TikTok. Social media+ society.7(2):20-56.
8. Shahid F, Hussain A, Ul Ain N, Mehmood Bhatti M. (2023) Invasive Fungal Rhinosinusitis: Clinical and Surgical Factors Affecting Its Prognosis and Disease-Specific Morality. Cureus.15(5):e38830.
9. Hoenigl M, Talento AF. Fungal Infections Complicating COVID-19: MDPI-multidisciplinary digital publishing institute; 2021.
10. Blyth CC, Hale K, Palasanthiran P, O'Brien T, Bennett MH. (2010) Antifungal therapy in infants and children with proven, probable or suspected invasive fungal infections. Cochrane Database Syst Rev.2010(2):35-45.
11. Schiefer HG. (1997) Mycoses of the urogenital tract. Mycoses.40 (2):33-6.
12. Monceaux V, Chiche-Lapierre C, Chaput C, Witko-Sarsat V, Prevost M-C, Taylor CT, et al. (2016) Anoxia and glucose supplementation preserve neutrophil viability and function. Am J Hematol.128(7):993-1002.
13. Blosser SJ, Cramer RA. (2012) SREBP-dependent triazole susceptibility in Aspergillus fumigatus is mediated through direct transcriptional regulation of erg11A (cyp51A). Antimicrob Agents Chemother. 56(1):248-57.
14. Carlile MJ, Watkinson SC, Gooday GW. The fungi: Gulf Professional Publishing; 2001.
15. Chamilos G, Lionakis MS, Kontoyiannis DP. (2018) Call for action: Invasive fungal infections associated with ibrutinib and other small molecule kinase inhibitors targeting immune signaling pathways. Clin Infect Dis.66(1):140-8.
16. Ding C, Zhang Y, Yang Z, Wang J, Jin A, Wang W, et al. (2017) Incidence, temporal trend and factors associated with ventilator-associated pneumonia in mainland China: a systematic review and meta- analysis. BMC infectious diseases.17(5):1-10.
17. Wolf M, Naftali S, Schroter RC, Elad D. (2004) Air-conditioning characteristics of the human nose. J Laryngol Otol.118(2):87-92.
18. Grutzenmacher S, Robinson DM, Grafe K, Lang C, Mlynski G. (2006) First findings concerning airflow in noses with septal deviation and compensatory turbinate hypertrophy – a model study. ORL.68(20): 199-205.
19. Spellberg B, Kontoyiannis DP, Fredricks D, Morris MI, Perfect JR, Chin-Hong PV, et al. (2012) Risk factors for mortality in patients with mucormycosis. Med Mycol.50(6):611-8.

This page is intentionally left blank

How to use Alternative Medicine in the 21st Century Part II

Dr. Rebecca L. Burkett

ABSTRACT

Alternative and Natural Medicine are nonmedical techniques and therapies that help a client heal faster and use non-medication for the mind, body, and soul. Also, Holistic perspectives provide a framework for understanding how sentient beings, including humans, perceive and interact with the world. In the Holistic study, these guidelines are for us to follow, and they are the: The Six Universal Reality Dimensions, as presented in the Theory of Holistic Perspective, they describe the fundamental aspects through which all sentient beings perceive and engage with reality.

Keywords: NA

Classification: NLM Code: WB890

Language: English

LJP Copyright ID: 392863

Great Britain Journals Press

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

How to use Alternative Medicine in the 21st Century Part II

Dr. Rebecca L. Burkett

ABSTRACT

Alternative and Natural Medicine are nonmedical techniques and therapies that help a client heal faster and use non-medication for the mind, body, and soul. Also, Holistic perspectives provide a framework for understanding how sentient beings, including humans, perceive and interact with the world. In the Holistic study, these guidelines are for us to follow, and they are the: The Six Universal Reality Dimensions, as presented in the Theory of Holistic Perspective, they describe the fundamental aspects through which all sentient beings perceive and engage with reality.

I. INTRODUCTION

Alternative medicine goes with Integrative Medicine. It has modalities to combine healing methods. These modalities can intermix with modern-day medicine. If the family physicians approve of it. That is alternative medicine, and does it work?

What is alternative medicine, and does it work?

The term "alternative medicine" is subjective. While doctors in one part of the world might regard a practice as mainstream, doctors elsewhere might view the same practice as alternative.

The term "alternative medicine" describes any form of medicine or healing that does not fall into conventional medical practice. In the U.S. it refers to forms of medicine that are not widely accepted or practiced by medical doctors. Some types of alternative medicine have been around for hundreds and even thousands of years.

Is alternative medicine the same as complementary medicine?

Alternative Medicine: This describes medical systems or practices that function as a replacement Trusted Source for conventional medicine. An example of this would be a person using energy healing for a condition rather than mainstream treatments.

Complementary Medicine: This describes nonconventional medical approaches as a complementary or positive addition to conventional treatment. For example, a person who experiences migraine may take conventional pain medications but also attend biofeedback sessions.

Integrative Medicine: This describes an approach to medicine that combines conventional and less conventional methods in a coordinated, evidence-based way.

Holistic Medicine: This refers to treatment that considers a person's health as a whole, rather than focusing on one organ or bodily system. Some types of alternative, complementary, and integrative medicine are also holistic.

Natural Medicine: Naturopathy, or natural medicine, is a form of alternative medicine with a deep history of traditional philosophies and practices and natural treatment options for patients. It aims at stimulating the body's self-healing capacity and promotes a concept of going back to an innate balance. It involves the treatment and prevention of health disorders through the use of natural therapies, methods, and materials.

Other Alternative Medicine

1. *Mind-body therapies* focus on the relationship between the mind and body to help treat or manage a condition. This includes Life Coach, Health Coach, Holistic Coach, Reiki, and Chakra healing.
2. *Biological Therapies:* Biologically based therapies use substances such as plants and foods to improve health or treat conditions.

Dietary Supplements and Vitamins. See a CAM or Integrative practitioner who can offer a dietary care plan.

Botanicals: The use of plants or plant compounds for medical benefits. There are examples of Trusted Sources of plants that people use to treat symptoms including Cannabis, evening primrose oil, curcumin, which comes from turmeric allicin, which comes from garlic, and valerian root conditions.

Popular examples include of Botanicals:

- cannabis
- evening primrose oil
- curcumin, which comes from turmeric
- allicin, which comes from garlic
- valerian root

3. *Biofield Therapies* These therapies aim to help people by manipulating invisible energy fields. This would include Acupuncture, Acupressure, and Auricular Therapy.
4. *Body-Based Therapies* can be used along with Hypnosis involves someone going into a deep state of relaxation and focusing on suggestions a clinician makes while the person is in a hypnotic state. The aim is for the suggestions to help change a person's mental state, resulting in health benefits. Yoga is like meditation; yoga is a mind-body exercise that originates in spiritual practices. It involves moving through sequences of poses and stretches while also focusing on breathing. People around the world practice yoga to promote mental and physical well-being. Yoga also has beneficial health work lowers stress, improves sleep, improves balance, manages anxiety or depression, reduces neck and lower back pain, manages weight, alleviates the symptoms of menopause, and reduces the symptoms of chronic conditions, it is also a Mind-body and spiritual exercise.

or more parts of a person's body for therapeutic benefits. Common examples include Massage therapy, Reflexology therapy and chiropractic therapy.

5. *Whole Medicine Systems:* Has been involved over hundreds of years. The most well-known methods include: (TCM) Traditional Chinese Medicine, Ayurvedic medicine, and Homeopathic medicine.

Holistic Perspectives: This provides a framework for understanding how sentient beings, including humans, perceive and interact with the world.

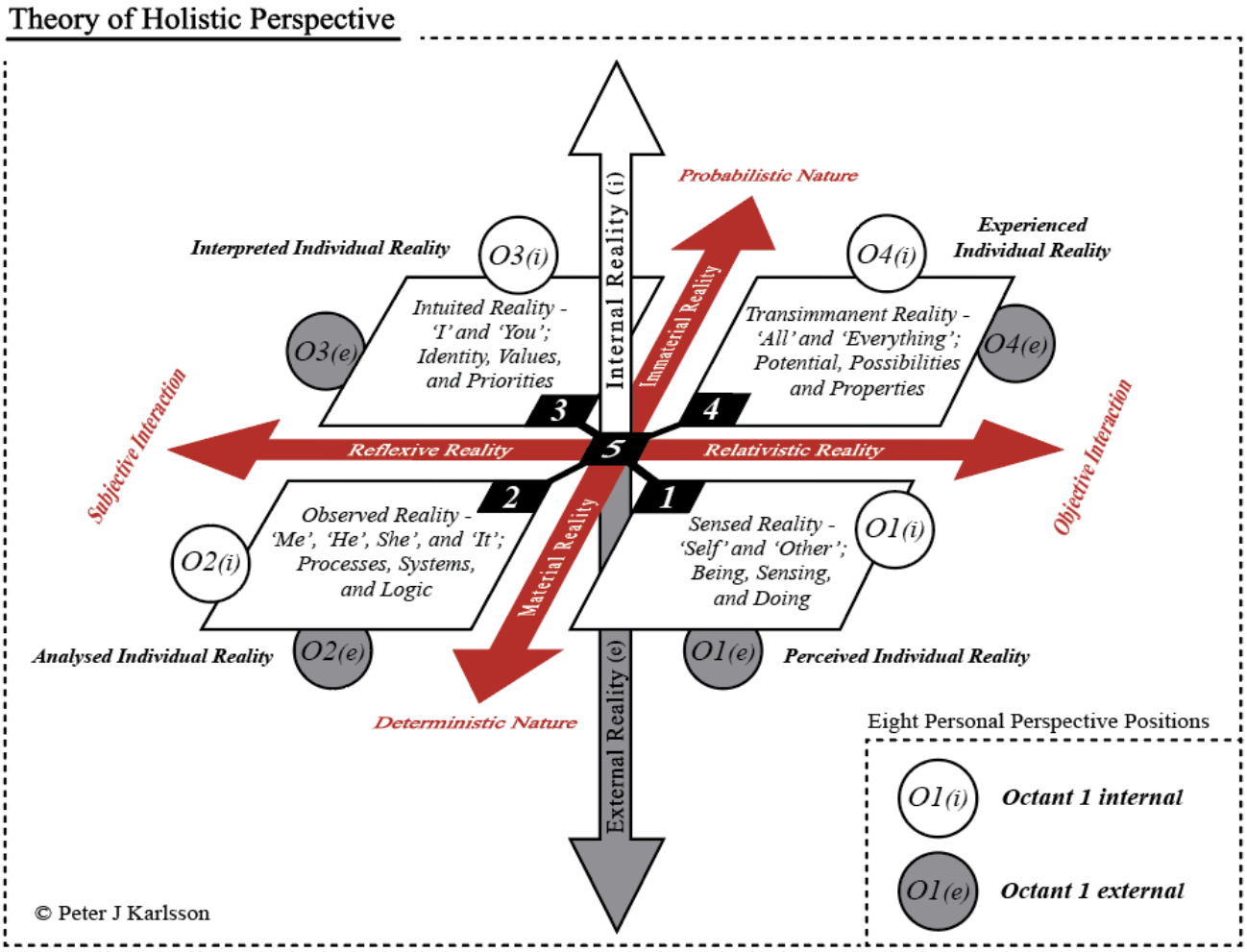

Fig 1:

Key Components of the Theory of Holistic Perspective

The Eight Personal Perspective Positions outlined in the Theory of Holistic Perspective form the basis for developing a nuanced understanding of reality through diverse perspectives. These positions emerge from the intersection of three axes in a three-dimensional Cartesian coordinate system, signifying the only perspectives a sentient being can adopt. Each position generates Personal Truths about reality, facilitating the emergence of Shared Truths among individuals who perceive or believe in something similar. These perspectives are:

Sensed Reality (Internal and External): Involves the perception of the world through our senses (e.g., sight, touch, smell), forming the basis of our understanding of reality. This is our immediate, sensed experience, expanded through Witnessing Awareness exercises.

Observed Reality (Internal and External): Deals with understanding cause-and-effect relationships through processes, systems, and logic, forming our Analyzed Individual Reality. Causality Awareness exercises help explore and expand this reality.

Intuited Reality (Internal and External): Concerns the interpretation of meaning, narratives, and mental models relating to values, priorities, and ethics. This is our Interpreted Individual Reality, deepened through Mindfulness Awareness exercises.

Transient Reality (Internal and External): Encompasses understanding the full potential and infinite possibilities inherent in ourselves and the world, forming our Experienced Individual Reality. Open Awareness exercises are designed to explore this reality.

Holistic frameworks are centered around the concept that all beings simplify reality by intuitively assigning three of the six universal dimensions to their experiences, particularly when interacting with their environment.

Six universal reality dimensions

The Six Universal Reality Dimensions, as presented in the Theory of Holistic Perspective, describe the fundamental aspects through which all sentient beings perceive and engage with reality. The spectrum of our experiences and understandings.

1. *Material and Immaterial- Existence/space:* This dimension differentiates between what is tangible and physical (material) and what is conceptual or ideational (immaterial). It encompasses the physical objects and substances in our world as well as the thoughts, ideas, and concepts that do not have a physical form.
2. *Internal and External- Interconnections/ holons:* Incorporating the Internal and External dimension with the concept of holons, which are entities that are simultaneously whole and parts of another whole, highlights our interaction with reality through nested layers of complexity. Holons exemplify how we perceive and influence our internal experiences and the external world. This distinction aids in understanding the interconnectedness of self with broader systems, emphasizing that our internal perceptions (thoughts, feelings, and intuitions) and external actions (interactions with the environment and others) are integral parts of a continuous spectrum of reality. By recognizing this we can better navigate the boundaries and interconnections between the internal and external, appreciating the complexity and interdependence of our existence.
3. *Relativistic and Reflexive– interaction/time:* Relativistic Reality relates to the objective interaction of inanimate objects, following physical and natural laws, devoid of interpretation. The "Law of Least Resistance" describes this kind of interaction. This dimension is always in the present moment. Reflexive reality in contrast, involves subjective interactions based on intent, free will, and personal interpretation. The "law of eliminating discrepancies" describes this kind of interaction. This dimension is always in the past or future. By becoming aware of how these dimensions influence our perceptions, we can better navigate the challenges and opportunities presented.
4. *Understanding Biases and Mental Models:* The Theory of Holistic Perspective enriches our approach to understanding biases and mental models by emphasizing the conscious recognition of how we intuitively assign the six universal reality dimensions to our experiences. This enhanced awareness is fundamental in identifying potential blind spots and limiting beliefs that can obscure our perception of reality. By acknowledging these automatic cognitive processes, we can begin to challenge and expand our mental models, paving the way for a more accurate and inclusive understanding of the world around us.
5. *Seeing True Reality:* The Theory aims to encourage a more holistic view of reality by recognizing and integrating the material and immaterial, the internal and external, and the relativistic and reflexive dimensions of experience. This holistic viewpoint acknowledges the complexity and interconnectedness of all aspects of reality, encouraging a deeper appreciation for the ways in which we can experience and understand our existence.
6. *Promoting holistic decision-making:* In promoting holistic decision-making, the Theory not only enhances personal growth and understanding but also equips us to navigate the complexities of modern life with greater empathy, compassion, and effectiveness. By embracing its framework, we can make healthy decisions for a fuller appreciation of the diverse facets of reality, leading to outcomes that are beneficial for ourselves and the broader community. The holistic perspective website offers a great deal of information that offers in-depth of how Holistic measures can be used for the client's

healing process. Please check out the graphs on how the holistic perspective works.

Theory's Relevance:

It stands as a guide for personal and societal evolution. It equips us to comprehend and navigate the tide of technological innovations and societal transformations. Advocating for growth, empathy, and environmental stewardship. By deepening our understanding of cognitive processes, biases, and our mental models of the world, the Theory empowers us to face modern complexities with informed, ethical decision-making. Emphasizing the well-being of all life and our planet's health.

Case Studies for Alternative Medicine

Evidence-Based Complementary and Alternative Medicine in Current Medical Practices. "The health-seeking behavior of people, especially in developing countries, calls for bringing all CAM healers into the mainstream by providing them with proper training, facilities, and backup for a referral. Evidence-based CAM or (EBCAM) therapies have shown remarkable success in treating diseases. It necessitates the integration of modern CAM systems in terms of evidence-based information sharing. Although a synergistic effect of interaction between the two systems works large gaps in EBCAM still exist and are worth further studies to develop evidence for the best CAM practices for the common goal of improving the health of people". Evidence-based complementary and alternative medicine (CAM),5 goes over the section of the PubMed Search box, type: Diabetes Mellitus, Type 2. Then filter to: Complementary Medicine and/or Dietary Supplements under Subjects. This strategy will produce results for alternative treatments for diabetes. For evidence-based articles, and for the filter under Article Type to: Randomized controlled trial, meta-analysis, and clinical trial.

II. CONCLUSION

The two case studies will help doctors and practitioners determine the individuals to make a clear and concise care plan that will need pacific techniques and therapies for their healing needs. Also, please go to the Holistic Perspectives website, which is the rules that are listed under the title Holistic Perspectives.

REFERENCES

1. What is alternative medicine, and does it work? Medical News Today. 2021. https://www.medicalnewstoday.com/articles/alternative-medicine
2. Holistic perspective. Theory of Holistic Perspective. 2024. https://www.bing.com/search?q=Holistic+perspective.+Theory+of+Holistic+Perspective.
3. Webmd.com, https://www.webmd.com/balance/what-is-naturopathic-medicine.
4. Denise M. Overview of integrative, complementary, and alternative medicine. Merck Manuals. 2023. https://www.merckmanuals.com/professional/special-subjects/integrative-complementary.
5. Eman M. Evidence-based complementary and alternative medicine in current medical practice. Cureus. https://assets.cureus.com/uploads/review_article/pdf/215334/20240209-24447-s7savz.pdf
6. Evidence-based complementary and alternative medicine (CAM). https://www.med.unc.edu/phyrehab/pim/wp-content/uploads/sites/615/2018/03/

This page is intentionally left blank

Antimicrobial Susceptibility Profile at Uganda Martyrs Hospital Lubaga, Kampala Uganda

Nakiboneka Winnie & Laboratory Technologist

INTRODUCTION

The majority of infectious diseases are of bacterial in origin. With the discovery of laboratory methods to grow these microorganisms using an appropriate growth medium known as "culture," determining the sensitivity and resistance of specific pathogens to a wide range of antimicrobial agents is necessary so clinicians can immediately institute proper treatment regimens. (Bayot & Bragg, 2024) This targeted approach of treatment is considered the gold standard however most clinicians use or opt for empiric antibiotic therapy as an approach to treat the suspected infection. This has resulted into irrational use of antibiotics in clinical practice hence and emerging antimicrobial resistance.

Antimicrobial resistance (AMR) has emerged as a major threat to public health globally. (Gajic et al 2022) An estimated 1.14 million deaths were directly caused by antimicrobial resistance (AMR) in 2021 worldwide, and it is projected that over 39 million people will die from AMR-related infections between 2025 and 2050 (GBD 2021)

Keywords: NA

Classification: NLM Code: QW 25

Language: English

LJP Copyright ID: 392864

Great Britain Journals Press

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

Antimicrobial Susceptibility Profile at Uganda Martyrs Hospital Lubaga, Kampala Uganda

Nakiboneka Winnie[α] & Laboratory Technologist[σ]

INTRODUCTION

The majority of infectious diseases are of bacterial in origin. With the discovery of laboratory methods to grow these microorganisms using an appropriate growth medium known as "culture," determining the sensitivity and resistance of specific pathogens to a wide range of antimicrobial agents is necessary so clinicians can immediately institute proper treatment regimens. (Bayot & Bragg, 2024) This targeted approach of treatment is considered the gold standard however most clinicians use or opt for empiric antibiotic therapy as an approach to treat the suspected infection. This has resulted into irrational use of antibiotics in clinical practice hence and emerging antimicrobial resistance.

Antimicrobial resistance (AMR) has emerged as a major threat to public health globally. (Gajic et al 2022) An estimated 1.14 million deaths were directly caused by antimicrobial resistance (AMR) in 2021 worldwide, and it is projected that over 39 million people will die from AMR-related infections between 2025 and 2050 (GBD 2021)

This public health crisis has potential severe implications for resource-limited settings. However, accurate and rapid detection of resistance to antimicrobial drugs, and subsequent appropriate antimicrobial treatment, combined with antimicrobial stewardship, are essential for controlling the emergence and spread of antimicrobial resistance. (Gajic et al 2022)

Therefore, the purpose of this study is to: develop an antibiogram to empower doctors to make informed prescribing decisions in the clinic regarding use of antibiotics at Uganda martyrs' hospital Lubaga and to generate data regarding the concept to bring greater clarity to this issue.

II. METHODOLOGY

This study was a retrospective analysis conducted in the microbiology laboratory at Uganda Martyr's Hospital. The susceptibility data obtained from the Vitek 2 Compact, based on client samples for culture and sensitivity, were evaluated for the year 2024.

Uganda Martyrs' Hospital Lubaga Laboratory Microbiology Laboratory 2024																
Organism	Number of Isolates	Antibiotics														
		ceftriaxone	Cefotaxime	Amoxicillin clavulanic	Ampicillin/sulbactam	Gentamycin	Ciprofloxacin	Trimethoprim sulfamethoxazole	Nitrofurantoin	Ceftoxitin	Amikacin	meropenem	Cefepime	Ceftriaxime	Aztreonam	Ceftazidime
Klebsiella Pneumoniae	57	05	11	44	09	55	43	13	30	98	93	99	06	05	33	05
		95	89	56	91	45	57	87	70	02	07	01	94	95	67	95
Escherichia Coli	122	19	16	66	31	75	40	08	95	94	100	100	21	19	26	17
		81	84	34	69	25	60	92	05	06	00	00	79	81	74	83
Pseudomonas Aeruginosa	12	Cefepime	Piperacillin Tazobactam			Ceftazidime	Ciprofloxacin				Amikacin	Meropenem			Aztreonam	
		80	83			50	75				80	90			41	
		20	17			50	25				20	10			59	
ORGANISM	NUMBER OF ISOLATES	Erythromycin	Clindamycin	Tetracycline		Vancomycin	Trimethoprim sulfamethoxazole	Nitrofurantoin	Linezolid				Ciprofloxacin	Levofloxacin	Moxifloxacin	Gentamycin
Staphylococcus Heamolyticus	67	08	26	08		92	15	97	90				19	26	92	29
		92	74	92		08	85	03	10				81	74	08	71
Staphylococcus Aureus	24	13	38	67		100	38	100					100	67	59	35
		87	62	33		00	62	00					00	33	41	65

Key

	Percentage of the isolate resistant to the antibiotic
	Percentage of the isolate susceptible to the antibiotic
	The organism was not exposed to the antibiotic or not recommended
	Gram negative
	Gram positive

Notes

Data from organisms with fewer than 30 isolates (n=30) may lead to interpretation errors. (CLSI 2024). However, Pseudomonas Aeruginosa and Staphylococcus Aureus were included for because of their medical implication and future reference this being a baseline Antimicrobial Susceptibility Profile.

Nitrofurantoin reported on urine isolates only. (CLSI 2024).

Antibiogram results are interpreted as percentages to determine the susceptibility of organisms to different antimicrobials. The percentage susceptible (%S) is used to guide treatment decisions.

Susceptibility Categories (The Sanford Guide, 2024)

1. *Susceptible:* If a high % of bacterial isolates (90% or more) are categorized as susceptible to an antibiotic, it is considered an effective choice for treatment.
2. *Intermediate:* susceptibility range (50 – 89%), it may still be effective in certain situations depending on factors like the site if infection and the patient's clinical condition.
3. *Resistant:* susceptibility range (<50%), is classified as resistant and alternative treatment options should be considered.

If the risk of morbidity and/or mortality is high, agents with 90-95% susceptibility should be selected. Agents with 80-85% susceptibility may be acceptable for treating infections in patients without a risk for morbidity and/or mortality in the next 24-48 hours. However, other factors need to be considered in conjunction with the antibiogram. (The Sanford Guide, 2024)

REFERENCES

1. Clinical and Laboratory Standards Institute (CLSI). (2024). Performance Standards for Antimicrobial Susceptibility Testing (34th ed.). CLSI supplement M100.
2. Bayot, M. L., & Bragg, B. N. (2024). Antimicrobial Susceptibility Testing. In StatPearls. StatPearls Publishing; 2025 Jan–. PMID: 30969536.
3. Gajic, I., Kabic, J., Kekic, D., Jovicevic, M., Milenkovic, M., Mitic Culafic, D., Trudic, A., Ranin, L., & Opavski, N. (2022). Antimicrobial Susceptibility Testing: A Comprehensive Review of Currently used Methods. Antibiotics (Basel, Switzerland), 11(4), 427. https://doi.org/10.3390/antibiotics11040427
4. The Sanford Guide, 2024. Accessed on 14th March 2025. https://www.sanfordguide.com/ GBD 2021 Antimicrobial Resistance Collaborators (2024). Global burden of bacterial antimicrobial resistance 1990-2021: a systematic analysis with forecasts to 2050. Lancet (London, England), 404(10459), 1199–1226. https://doi.org/10.1016/S0140-6736 (24)01867-1

This page is intentionally left blank

Severity Factor in the First Forty-Eight Hours of Thoracic Trauma in University Hospital Center Joseph Ravoahangy Andrianavalona Antananarivo

Mosa F, Ramifehiarivo M, Ravoatrarilandy M, Razafimanjato NNM, Rakotoarisoa AJC, Rajaonera T A, Rakoto Ratsimba H N & Rakotovao HJL

ABSTRACT

Introduction: Severe thoracic trauma is the second leading cause of death in multiple traumas after head trauma. Our objective is to research the profound factors of thoracic trauma at the Joseph Ravoahangy Andrianavalona Antananarivo University Hospital Center.

Patients and Methods: This is a retrospective cohort study on patients with closed and open chest trauma hospitalized in the thoracic surgery department from January 1, 2015, to December 31, 2022.

Results: We collected 331 patients with a male predominance (82.2%), with the median age of 29 years. Many of our patients were treated by chest drainage (62.8%), and 17.2% received a thoracotomy. The mortality rate is 36.2%.

Keywords: chest; mortality; risk factors; surgery; trauma; wounds.

Classification: NLM Code: WO 700

Language: English

LJP Copyright ID: 392865

Great Britain Journals Press

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

Severity Factor in the First Forty-Eight Hours of Thoracic Trauma in University Hospital Center Joseph Ravoahangy Andrianavalona Antananarivo

Mosa F[α], Ramifehiarivo M[σ], Ravoatrarilandy M[ρ], Razafimanjato NNM[ω], Rakotoarisoa AJC[¥], Rajaonera T A[χ], Rakoto Ratsimba H N[ν] & Rakotovao HJL[Θ]

ABSTRACT

Introduction: Severe thoracic trauma is the second leading cause of death in multiple traumas after head trauma. Our objective is to research the profound factors of thoracic trauma at the Joseph Ravoahangy Andrianavalona Antananarivo University Hospital Center.

Patients and methods: This is a retrospective cohort study on patients with closed and open chest trauma hospitalized in the thoracic surgery department from January 1, 2015, to December 31, 2022.

Results: We collected 331 patients with a male predominance (82.2%), with the median age of 29 years. Many of our patients were treated by chest drainage (62.8%), and 17.2% received a thoracotomy. The mortality rate is 36.2%. Several factors were found: age ≥ 55 years (RR=2,7 [2,2-3,4]); chronic respiratory disease including obstructive pulmonary disease and asthma (RR=2,8 [2,3-3,4]); the comatose state (RR=2,1[1,6 -2,8], hemodynamic instability and respiratory distress syndrome, the patient victim of penetrating trauma and neurological lesion associate; severe anaemia ≤ 70g/l (RR=2,4 [1,7-3,1]); chest flap, compressive pneumothorax (RR=5,5 [2,5-6,7]) and large hemothorax ≥ 1500 ml (RR=3,6 [2,4-5,4]; delay in management beyond six hours (RR=2,1 [1,6-2,8]); massive blood transfusion, Chest tube flow ≥ 250 ml/h.

Conclusion: Profound thoracic trauma leads to a high mortality rate. Several factors have been implicated: clinical, biological, scannographic and therapeutic factors.

Keywords: chest; mortality; risk factors; surgery; trauma; wounds.

I. INTRODUCTION

Thoracic trauma is a common situation in emergency. It is the second leading cause of death in multiple trauma patients after head trauma [1]. The United States, thoracic trauma is the most common cause of death related to trauma, accounting for 20% of deaths [2]. In Europe, thoracic trauma is one of the leading causes of death in all age, penetrating and blunt chest trauma accounted for 25 to 50% of all injuries [3]. There is currently no recommendation for the management of thoracic trauma. In our context, where the technical platform is still limited, other severity factors apart from those described in the literature may affect the morbidity and mortality rate of thoracic trauma in Madagascar. Our objective is to research the profound factors of thoracic trauma at the Joseph Ravoahangy Andrianavalona Antananarivo University Hospital Center (CHU-JRA).

II. METHOD

It is a retrospective cohort study of the files of patients hospitalized in the thoracic surgery department at CHU JRA for closed and open thoracic trauma. We included in this study all patients aged 15 years and over, victims of closed or open thoracic trauma by bladed and ballistic weapons and by zebu goring, over for seven years, from January 1, 2015, to December 31, 2022.

III. RESULTS

We had retained 331 cases of closed and penetrating thoracic trauma out of 375 cases recorded during our study period, giving an average of 47 patients per year, with a median age was 29 years (figure 1) with a male predominance. The sex ratio was 4,6 in favour of men. The majority of our patients had no antecedent's pathology in 62,5% cases, chronic respiratory diseases were found in 5,7% cases and ischemic heart disease, heart failure 2,1% cases (table I). Our patients were victims of blunt chest trauma in 58,01% cases and penetrating in 34,44% cases (table II). The thoracic injuries were mainly represented by a syndrome of pleural effusion such as hemothorax in 44,4% (n=147) and pneumothorax in 18,4% cases followed by a rib fracture in 23,1% of which 9,9% (n=33) of them presented a thoracic flap, vascular and tracheobronchial wounds are rare, represented respectively 13,5 et 4,8% cases. (Table III). The injuries were isolated in 47,83%, and they were associated with abdominal lesions in 37,1% (n=123), limb injuries in 9,3% (n=31), and neurological injuries in 6,6% cases (n=22). (Table IV)

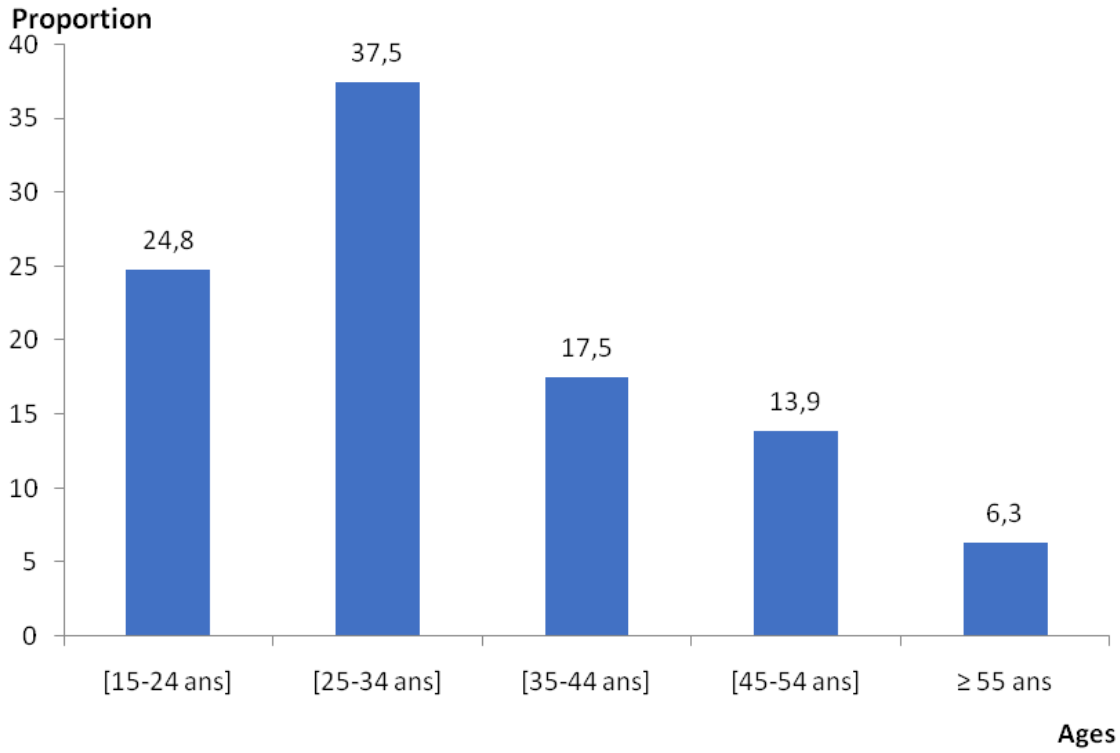

Figure 1: Distribution of Patients by Age Group

Table I: Distribution of Patients According to Antecedent

Antecedent	Effective (n)	Percentage (%)
Asthma	8	2,4
BPCO	11	3,3
Diabetes	4	1,2
High blood pressure	7	2,1
Heart disease	17	5,1
Tobacco	77	23,6
Anticoagulant	0	0
No antecedent	207	62,5

Table II: Distribution of Patients According toType of Thoracic Trauma

Type of trauma	Effective (n)	Percentage (%)
Penetrating trauma	114	34,44
Closed trauma	192	58,01
Parietal wound	25	7,5

Table III: Distribution of Patients According to Thoracic Lesion

Thoracic lesion	Effective (n)	Percentage (%)
Hemothorax	147	44,4
Pneumothorax	61	18,4
Diaphragmatic rupture	21	6,3
Pauci-costal fracture	44	13,2
Thoracic flap	33	9,9
Tracheobronchial wound	16	4,8
Vascular wound	45	13,5

We found a delay in care in 41,09% of our patients. The most of our patients were treated by a thoracic drainage (62,08%), only 17,2% of our patients benefited from an emergency thoracotomy. We analyzed several factors, and we found that the presence a history of chronic respiratory pathologies in particular asthma and chronic obstructive pulmonary disease increase the risk of mortality (Tableau V), age greater than or equal to 55 years is a significant factor in the severity of thoracic trauma, the risk of mortality is multiplied by 2,7 avec IC95 [2,2-3,4], $p=0,1.10^{-5}$.

Low Glasgow score ≤ 7, hemodynamic instability with PAM ≤ 80 mm Hg and tachycardia > 120 battements/min increases 1,9 times the risk of mortality with IC95 [1,4-2,5], hypoxemia avec Sa02 ≤ 92% are factors that increase the mortality risk by 2,5 times with IC95 [1,9-3,3] the patients suffering from chest trauma. (Tableau VI). Patients with penetrating chest trauma had a higher risk of mortality compared with patients with blunt chest trauma. The risk is 2,5 times with IC95[1,9-3,3], $p=0,2.10^{-8}$. Head trauma combined with chest trauma increases the risk of mortality 3,2 times with IC95[2,4-3,5]. Other associated injuries, including abdominal injury and limb trauma, are not significant (Tableau VII). The mortality risk in patients with a thoracic arch is 4,1 times with IC95 [2,2-7,5] higher compared to patients with a pauci-costal fracture. Large hemothorax increases the risk of mortality 3,5, the tension pneumothorax increases the risk of mortality 5,5 times, compared to patients without pleural effusion, low haemoglobin levels ≤ 70 g/l are risk factors for mortality in patients with chest trauma (Tableau VIII). Delay in treatment beyond six hours, massive blood transfusion are factors that increase the risk of mortality. A chest drain flow rate greater than or equal to 250 ml/h indicates the seriousness of thoracic trauma from the outset. (Tableau IX).

Table IV: Treatment-Related Severity Factors

Therapeutic factor	Deceased N(%)	Alive N(%)	RR [IC 95%]	p-value
Delay in treatment Yes No	 72(52,9) 48(24,6)	 64(47,1) 147(75,4)	 2,1 [1,6-2,8]	 $0,2.10^{-5}$ S
Bood transfusion Yes No	 19(70,4) 14(14,1)	 8(29,6) 85(85,9)	 4,9 [2,8-8,5]	 $0,3.10^{-7}$ S
Chest drain flow Yes No	 25(89,3) 95(31,4)	 3(107) 208(68,6)	 2,8 [2,3-3,5]	 $0,1.10^{-8}$ S

S: significant

NS: No significant

Table V: Severity Factors Related to Comorbidites

Comorbidites	Decreased n(%)	Alive n(%)	RR [IC 95%]	p-value
High blood pressure Yes No	 1(14,3) 119(36,7)	 6(85,7) 205(63,3)	 0,1	 0,21 NS
Diabetes Yes No	 0 120(36,7)	 4(100) 207(67,3)	 0	 0,16 NS
Chronic phatology respiratory: asthma, BPCO Yes No	 17(94,4) 103(32,9)	 1(5,6) 210(67,1)	 2,8 [2,3-3,4]	 $1,8.10^{-7}$ S
Ischemic heart disease Yes No	 15(88,2) 105(33,4)	 2(11,8) 209(66,5)	 2,6 [1,8-3,4]	 $0,2.10^{-6}$ S
Tobacco Yes No	 4(5,2) 116(45,7)	 73(94,8) 138(53,3)	 0,2 [0,07-0,9]	 0,03 NS

Table VI: Clinical Severity Factors

Clinic factor	Decreased n(%)	Alive n(%)	RR [IC 95%]	p-value
Age 55 years Yes No	 19(90,5) 101(32,6)	 2(9,5) 209(67,4)	 2,7 [2,2-3,4]	 $0,1.10^{-5}$
Low Glasgow Yes No	 65(55,1) 55(25,8)	 53(48,5) 158(74,2)	 2,1 [1,6-2,8]	 $1,2.10^{-4}$
Low blood pressure Yes No	67(51,5) 53(26,4)	63(48,5) 148(73,6)	1,9 [1,4-2,5]	$0,1.10^{-7}$
Respiratory rate Yes No	 66(58,9) 54(24,7)	 46(41,1) 165(75,3)	 2,4 [1,8-3,2]	 $0,1.10^{-7}$
Desaturation Yes No	 67(60,4) 53(24,1)	 44(39,4) 164(75,9)	 2,5 [1,9-3,3]	$0,1.10^{-8}$

Table VII: Morphological Severity Factors

Morphologic factor	Deceased n(%)	Alive n(%)	RR [IC 95%]	p-value
Penetrating trauma	68(59,6) 52(24)	46(40,4) 165(76)	3,2 [2,4-3,5]	$0,2.10^{-8}$ S
Heard trauma	21(95,5) 99(32)	1(4,5) 210 (68)	3,2 [2,4-3,5]	$0,2.10^{-8}$ S
Associated abdominal trauma	11(8,9) 109(52,4)	112(91,1) 99(47,6)	0,1 [0,09-0,3]	0,01 NS
Associated limb trauma	3(9,7) 117(39)	28(90,3) 183(61)	0,2 [0,08-0,7]	0,01 NS

Table VIII: Paraclinical Severity Factors

Paraclinc factor	Deceased N(%)	Alive N(%)	RR [IC 95%]	p-value
Low haemoglobin	71(56,3) 49(23,9)	55(43,7) 156(76,1)	2,4 [1,7-3,1]	$0,27.10^{-6}$
Large haemothrax	38(77,6) 21(21,4)	11(22,4) 77(78,6)	3,6 [2,4-5,4]	$0,1.10^{-7}$ S
Tension pneumothorax	20(87) 6(15,5)	3(13) 32(84,2)	5,5 [2,5-6,7]	$0,4.10^{-6}$ S
Thoracic flap	28(84,8) 9(20,5)	5(15,2) 35(79,5)	4,1 [2,2-7,5]	$0,13.10^{-6}$ S
Pulmonary contusion	5(2,9) 115(73,7)	170(97,1) 41(26,3)	0,03 [0,01-0,09]	0,01 NS

V. DISCUSSION

In our study, we found that age greater than or equal to 55 years is significantly a factor in the severity of thoracic trauma with a risk multiplied by 2,7 on IC_{95} [2,2-3,4], $p=0,1.10^{-5}$ compared to young patients. This result differs from reported by Battle et al. who found from 65 years [4]. This difference is explained by the low life expectancy of the Malagasy population compared to Europeans. This high mortality in older people is due to a loss of physiological reserve or to underlying comorbidities common in the elderly. In our study, a statistical analysis showed that patients with chronic lung diseases, including asthma and chronic obstructive pulmonary disease, had 2,8-fold increased risk of mortality IC_{95} [2,3-3,4] $p=1,8.10^{-7}$ compared to patients without a history. This result is identical to that reported by Bergeron et al, who said that the risk of mortality was 2,98 on (1,1–8,3 IC95) [5]. Christin et al. said the pre-existing pathology aggravates the respiratory distress secondary to a pulmonary contusion. Pre-existing pathologies are added so that the elderly subject tolerates hemodynamic instability less well and has less physiological reserve, mainly respiratory, to respond to the increase in need during a thoracic trauma [6]. In our study, hemodynamic instability was found in 39,2% of cases (n=130), including 51,5% (n=67) of which died. This instability is due to a lesion of the internal mammary artery and intercostal artery in 13,5% of cases; in other cases, they are secondary to a hemothorax of great abondance, we found significantly that the patient presenting a hemodynamic instability had a risk of mortality 1,9 times more with IC à 95% [1,4-2,5], $p=0,3.10^{-4}$ compared to the hemodynamically stable patients, this results is similar to that reported by Roberto et al. said that a hemodynamic instability of the patients is a bad prognosis of this patients victims of the thoracic trauma [7]. In a study by Roberto S et al. significant correlation between low Glasgow

scores, less than or equal to 7 on admission and high mortality (p< 0,001) [7]. This result is identical in our study, and this poor neurological state is due either to cerebral hypoxia secondary to respiratory distress due to pulmonary collapse or due to an associated brain lesion [7]. This study is identical to our result; we found that 33,8% (n=112) of our patients presented a respiratory distress syndrome, of which 58,9% (n=66) of them died, a statistical analysis showed that the patient presenting respiratory distress increased the risk of mortality by 2,4 times high with IC à 95% [1,8-3,2] p=0,1.10^{-7}. This respiratory distress is due to damage to the ventilatory mechanism and inadequate ventilation-perfusion due to pulmonary collapse during a compressive pneumothorax or a large hemothorax or during pulmonary compression of digestive contents during a diaphragmatic breach which aggravates hypoxia [8].

In a study by Ottochian et al., they found that penetration trauma increases the risk of mortality by 2,6. with IC à 95% [2,42–2,85]) [9]. Overall mortality from penetrating trauma was found to be 2,63 times higher than from blunt mechanisms with IC à 95%: 2,42-2,85 p < 0,0001 [9]. This result is similar in our study, we have found that penetrating trauma is more deadly than blunt trauma. The mortality risk is multiplied by 2,5 IC à 95% [1,8-3,2] p=0,2.10^{-8}.

Kollmorgen et al. showed that the existence of associated extra thoracic lesions, notably craniocerebral, is a determining element of the severity of the trauma [10]. Our study was similar to this study, the neurological lesion represented 6,6 % of case (n=22) of which 95,5% of them died in the first 24 hours, a statistical analysis showed significantly that thoracic trauma associated with a head trauma increases the risk of mortality to 3,2 with IC à 95% [2,4-3,5] p=0,2.10^{-8}. Marasco S F et al. said, the mortality rate of isolated chest injuries is in the range of 4% to 12% but increases to é à 13% to 15% if there is another system involved especially abdominal; and 30% to 35% when two or mor systems are involved. Early mortality is usually due to haemorrhage, catastrophic injury and associated abdominal trauma, while late mortality is often due to sepsis [12].

Duranteau et al. said that the haemoglobin level must be kept above 70 g/l to have a good vital prognosis for patients who are victims of penetration chest trauma to ensure good cerebral oxygenation while avoiding aggravated tissue hypoxia [13]. In our series, our patients had a drop in hemoglobin level in 39,8% cases (n=132), 56,3% of which died. We found that the hemoglobin level ≤ 70 g/l is a factor that can engage the vital prognosis of patients who are victims of chest trauma, a haemoglobin level lower than or equal a risk of mortality of 2,4 with IC à 95% [1,7-3,1] p= 0,27.10^{-6} more compared to patients whose haemoglobin level was normal. Meyer et al. a said, large hemothorax signifies the severity of the intra thoracic lesion, it increases the mortality risk by de 3 à 4 times (p<0,0001). In the face of massive bleeding with instability of the hemodynamic state, the patient's vital prognosis was immediately engaged. Anterolateral thoracotomy is urgently necessary to control the bleeding [14]. Our study is identical to that of Meyer et al. significantly showing that patients with a large hemothorax had a 3,6 times higher risk of mortality IC to 95% [2,4-5,4] p=0,1.10^{-7}.

In our study, a delay in care greater than or equal to six hours is found in 41,8% of cases (n=136), of which 52,9% of them died. A statistical analysis showed that a delay in care beyond six hours increases the risk of mortality, it is multiplied by 2,1 with IC à 95% [1,6-2,8], p= 0,12.10^{-5}. Our result was identical to Raherinantenaina F et al [15]. This delay in transporting patients to the hospital is due to multiple reasons, the transport where the patients is brought by their means of transport, personal car or taxi. And our center is the only reference center to manage profound chest trauma in Madagascar.

Thoracic drainage is the first choice in emergencies for any thoracic trauma with associated pleural effusion [16]. In our series, emergency thoracic drainage was used in many of our patients 62,8 % cases (n=208). Michelet P said, the mortality rate increases linearly with the quantity and flow rate of the thoracic drain [16].

This result is identical to our study; we found that the flow rate of the thoracic drain is greater than or equal to 250 ml per hour in the first three hours or a hemothorax of 1500 ml immediately increases the risk of mortality 2,8 with IC95 [2,3-3,5] sur $p=0,1.10^{-8}$. But O'connor et al. recommend repeat chest x-rays a monitoring element to assess whether surgery is necessary, because decreased blood flow through the drain does not mean that the bleeding has stopped. It could be from clots blocking the drain [17]. Surgical indication was proposed in the drain returns 1500 ml immediately or returns more than 250 ml per hour, in the first three hours with hemodynamic instability [40]. In our study, we performed a hemostasis thoracotomy in 17,2% cases with an anterolateral approach and sternotomy to control active bleeding from injury to the internal mammary artery and for aerostasis of a tracheobronchial lesion or even a segmental resection of the lung.

According to Avaro et al., massive blood transfusion promotes the development of Perico-tissue oedema during a pulmonary contusion greater than or equal to 20% of pulmonary collum, causing acute respiratory distress syndrome, which aggravates the mortality of patients massively transfused greater than or equal to ten bags of packed red blood cells, because massive transfusion aggravates the hemostasis disorder caused by massive haemorrhage due to platelet micro aggregates, responsible for pulmonary oedema, an alteration of the alveoli-capillary membrane by shock mediators and free radicals, which aggravates metabolic acidosis and increases the risk of mortality by two times [18]. In our study, we found that 8,1% cases (n=27) received massive transfusion, of which 70,4%of them died due to disseminated intravascular coagulation and multiorgan failure, a statistical analysis was performed, which significantly showed us that patients with severe chest trauma that required massive blood transfusion greater than or equal ten bags had a high risk of mortality to 2,3 times with IC à 95% [1,7-3,1] and $p=0,2.10^{-7}$. This result was similar to the study conducted by Avaro et al [18].

VI. CONCLUSION

Severe chest trauma had a high morbidity and mortality rate in developing countries. The present study made it possible to determine the severity factors of chest trauma; they are categorized into clinical factors: age ≥ 55 years, comorbidities such as chronic respiratory pathologies including asthma and chronic obstructive pulmonary disease, hemodynamic instability, comatose state, acute respiratory distress; in morphological factor: penetrating trauma and associated neurological lesion and paraclinical factors notably severe anaemia ≤ 70g/l, chest flap, compressive pneumothorax and large hemothorax ≥ 1500 ml; treatment-related factors notably delay in treatment beyond six hours, massive transfusion and chest drain flow ≥ 250 ml/h in the first three hours. The search for these different severity factors should be systematic for all patients' victims of closed or penetrating thoracic trauma. Which will allow a standardized protocol to be established and lifesaving therapeutic actions to be carried out.

BIBLIOGRAPHIC REFERENCE

1. Sauaia A, Moore FA, Moore EE, Moser KS, Brennan R, Read R A et al. Epidemiology of trauma deaths: a reassessment. J Trauma. 1995 Feb; 38(2):185-93.
2. Bergeron E, Lavoie A, Clas D, Moore L, Ratte S, Tetreault S et al. Elderly trauma patients with rib fractures are at greater risk of death and pneumonia. J Trauma. 2003 Mar; 54(3): 478-85.
3. Hunt PA, Grèves I, Owens WA. Emergency thoracotomy in thoracic trauma. Injury. 2006 Jan; 37(1):1-19.
4. Battle CE, Hutchings H, Evans PA. Risk factors that predict mortality in patients with blunt chest wall trauma: a systematic review and meta-analysis. Injury. 2012 Jan; 43(1): 8–17.
5. Bergeron E, Lavoie A, Clas D, Moore L, Ratte S, Tetreault S et al. Elderly trauma patients with rib fractures are at greater risk of death and pneumonia. J Trauma. 2003 Mar; 54(3): 478-85.

6. Christin F, Launoy A, Pottecher T. Évaluation de la gravité des traumatismes du thorax. Paris: Elsevier Masson SAS et société française d'anesthésie et de réanimation. Médecine d'urgence 2002: 131-41
7. Roberto S, Martin M G, Siqueira, Santos MTS, Moraes OJS. Pronostic factors and treatement of penetrating gunshot wounds to the head. J Surg Neurol. 2003 Aug; 60(2): 98-104.
8. 8. Pons F, Arigon J-P, Boddaert G. Surgical treatment of penetration thoracic trauma, surgical technic - EMC thorax. Paris : Elsevier Masson SAS 2011; 42-445
9. Ottochian M, Salim A, DuBose J, Teixeira PG, Chan LS, Margulies D R. Does age matter? The relationship between age and mortality in penetrating trauma. Injury. 2009 Apr; 40(4):354–7.
10. Kollmorgen DR, Murray KA, Sullivan JJ, Mone MC, Barton RG. Predictors of mortality in pulmonary contusion. Am J Surg. 2001 Dec; 168(6):659-63.
11. Marasco SF, Davies AR, Cooper J. Varma D, Bennett V, Nevill R et al. Prospective randomized controlled trial of operative rib fixation in traumatic flail chest. J Am Coll Surg. 2013 May; 216(5): 924-32
12. Pryor JP, Reilly PM, Dabrowski GP, Grossman MD, Schwab CW. Nonoperative management of abdominal gunshot wounds. Ann Emerg Med. 2004 Mar; 43(3):344-53
13. Duranteau J, Asehnoune K, Pierre S, Ozier Y, Leone M, Lefrant JY. Recommendations on the resuscitation of hemorrhagic shock, French society of anesthesia and resuscitation. Paris: Elsevier Masson 2015; 1: 62-74.
14. Meyer DM, Jessen ME, Wait MA, Estrera AS. Early evacuation of traumatic retained hemothoraces using thoracoscopy: a prospective, randomized trial. Ann Thorac Surg 2005; 64(5): 1396–400.
15. Raherinantenaina F, Rakotomena SD, Rajaonarivony T, Rabetsiahiny LF, Rajaonanahary TMA, Rakototiana F A et al. Traumatisme fermés et pénétrantes de l'abdomen: Analyse rétrospective sur 175 cas. Pan Afr Med J. 2015 Feb 16; 20: 129
16. Michelet P. Traumatisme thoracique, prise en charge des 48 premières heures: SFAR, éditeur. Conférences d'actualisation. Congrès national d'anesthésie et de réanimation. Paris: Elsevier Masson 2015; 1: 272-87.
17. O'Connor JV, Adamski J. The diagnosis and treatment of non-cardiac thoracic trauma. J R Army Med Corps. 2010 Mar; 156(1): 5-14.
18. Avaro JP, D'journo XB, Trousse D, Roch A, Thomas P, Doddoli C.severe chest trauma in the emergency room, initial management strategy. Resuscitation. Paris: Elsevier Masson 2006; 15: 561-72.

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

Dr. Rebecca L. Burkett

ABSTRACT

Alternative and Natural Medicine are nonmedical techniques and therapies that help a client heal faster and use non-medication for the mind, body, and soul. Also, Holistic perspectives provide a framework for understanding how sentient beings, including humans, perceive and interact with the world. In the Holistic study, these guidelines are for us to follow, and they are the: Six Universal Reality Dimensions, as presented in the Theory of Holistic Perspective, they describe the fundamental aspects through which all sentient beings perceive and engage with reality.

This article will continue from Article PT II the modalities, perspective, and theory of alternative. Also, the discussion will have a plethora of TCM and Herbology medicine.

Keywords: NA

Classification: NLM Code: WB890

Language: English

Great Britain Journals Press

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

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

Dr. Rebecca L. Burkett

ABSTRACT

Alternative and Natural Medicine are nonmedical techniques and therapies that help a client heal faster and use non-medication for the mind, body, and soul. Also, Holistic perspectives provide a framework for understanding how sentient beings, including humans, perceive and interact with the world. In the Holistic study, these guidelines are for us to follow, and they are the: Six Universal Reality Dimensions, as presented in the Theory of Holistic Perspective, they describe the fundamental aspects through which all sentient beings perceive and engage with reality.

This article will continue from Article PT II the modalities, perspective, and theory of alternative. Also, the discussion will have a plethora of TCM and Herbology medicine.

Author: Doctorate of Natural Medicine Online, IBEM College, USA.

I. INTRODUCTION

Natural medicine should be considered complementary medicine rather than an alternative to standard medical care. You should inform your doctor if you are also using alternative therapies.

Naturopathy, or natural medicine, is a form of alternative medicine with a deep history of traditional philosophies and practices and natural treatment options for patients. It aims at stimulating the body's self-healing capacity.

Many people view natural medicine as a form of complementary medicine. Complementary medicine refers to treatments that are used alongside conventional medicine to support overall health and well-being. Natural medicine, which includes practices like herbal medicine, acupuncture, or homeopathy, often falls into this category because it is typically used alongside mainstream treatments rather than replacing them. The key benefit of considering natural medicine in this way is that it can provide holistic care, addressing physical, emotional, and mental health through alternative approaches. For example, while a doctor might treat a condition with medication, someone might use natural remedies to manage stress or support their immune system during recovery.

That being said, the effectiveness of various natural treatments can vary, and it is important to approach them with an open yet cautious mindset, especially when combined with conventional treatments.

Many people find success when both approaches work together, but it is always best to consult with a healthcare provider to ensure the combination is safe. What are your thoughts on this, or do you have any natural remedies you personally find effective?

Naturopathic medicine is built around six core principles that guide naturopathic doctors (NDs) in their approach to healing. These principles focus on treating the whole person and supporting the body's inherent ability to heal itself. Here are the six core principles:
The six core principles that a naturopath follows for the treatment of patients, which include:

1. *Identify and Treat the Cause:* This principle emphasizes the body's innate ability to heal itself. Naturopaths believe that when the body is given the right support—through proper nutrition, rest, and lifestyle changes—it can overcome illness and return to balance. Naturopaths aim to identify and remove obstacles to healing, rather than just focusing on symptom management.

2. *Use the Healing Power of Nature:* Naturopathic doctors use treatments and approaches that minimize the risk of harm to patients. This includes using the least invasive therapies possible and avoiding harmful side effects. The goal is to promote healing in a way that does not cause additional harm to the body, and when possible, to utilize therapies that have a strong safety profile.
3. *Do no harm Doctor as Teacher (Docere):* Naturopaths see themselves as educators who empower patients to take responsibility for their health. Through guidance and education, they help patients understand their bodies, make healthier lifestyle choices, and become active participants in their healing journey. This principle encourages patients to develop knowledge and habits that promote long-term health.
4. *Treat the Entire Patient:* Naturopathic doctors recognize the interconnectedness of the physical, mental, emotional, and spiritual aspects of a person.
5. *Be a Teacher First:* Treatment plans are personalized to meet the individual needs of each patient, taking into account all aspects of their well-being, not just the physical symptoms they present with.
6. *Prevention of Disease and Health Promotion (Tolle Totem):* Naturopathy emphasizes the importance of preventive care. NDs believe that maintaining health is preferable to treating disease. By promoting healthy living, proper nutrition, exercise, stress management, and regular checkups, naturopathic medicine aims to prevent illness before it arises.
7. These principles are designed to promote overall health and encourage the body's natural healing abilities.

Naturopathic medicine is a system that uses natural remedies to help the body heal itself. It embraces many therapies, including herbs, massage, acupuncture, exercise, and nutritional counseling. Naturopathy was brought to the United States from Germany in the 1800s, but some of its treatments are centuries old. As naturopathy doctors, they should examine your diet, exercise, or stress management tips. They might use complementary medicine -- like homeopathy, herbal medicine, and acupuncture. naturopathic medicine in hospitals, clinics, community centers, and private offices. They fall into three groups, and they all have different educations and backgrounds.

Naturopathic Physicians: These are also called naturopathic doctors (ND) or Doctor of Naturopathic Medicine (NMD).

Traditional Naturopaths: These practitioners do not attend an accredited naturopathic medical school or receive a license. Their education varies widely.

Safety Measures for Side Effects

A few naturopathic treatments have known side effects and risks.

Supplements (vitamin and herbal): Some of these may interfere with prescription medications. In large doses, certain vitamins may raise your risk of a disease like cancer.

Spinal Adjustments this area can cause sprains, damage to the vital importance of vertebrae and their muscles, arteries, and veins.

Detox Diets: These include certain foods or fasting, diabetes care, and nutrients to keep the body going.

Herbology for Healing

Herbology, also known as herbal medicine, is the practice of using plants and plant extracts for therapeutic purposes. It is one of the oldest forms of medicine and has been used across cultures for thousands of years to promote health, prevent illness, and treat various conditions.

Herbology focuses on the medicinal properties of herbs, including their leaves, flowers, stems, roots, and even seeds. These plants contain a variety of bioactive compounds, such as alkaloids, flavonoids, and essential oils, which can have various therapeutic effects on the body.

Some Key Aspects of Herbology Include:

1. *Types of Herbal Remedies:*

Tinctures: Concentrated extracts of herbs dissolved in alcohol or glycerin.

Infusions: Made by steeping dried or fresh herbs in hot water, similar to making tea.

Decoctions: Herbal extracts made by simmering tougher plant parts, like roots or bark, in water.

Capsules/Tablets: Dried herbs are powdered and placed in capsules or compressed into tablet form.

Topical applications: Herbal ointments, creams, or oils used on the skin.

2. *Common Herbs and their uses:*

Echinacea: Often used to boost the immune system and help prevent colds.

Lavender: Known for its calming properties, often used for anxiety and sleep issues.

Peppermint: Can help with digestive issues, headaches, and muscle pain.

Ginger: Commonly used for nausea, digestive health, and inflammation.

Turmeric: A powerful anti-inflammatory antioxidant, often used for joint pain and skin conditions.

3. *Principles of Herbology:*

Holistic Approach: Herbology treats the body as a whole, addressing underlying causes of illness rather than just symptoms.

Balance and Harmony: Herbs are often used to restore balance within the body, supporting their natural healing mechanisms.

Personalization: Herbal remedies are tailored to the individual, considering factors like health condition, lifestyle, and constitution.

4. *Safety and Considerations:*

Dosage: Like any form of medicine, the proper dosage is important. Too much of an herb can cause side effects, while too little may be ineffective.

Interactions: Herbal remedies can interact with prescription medications, so it is essential to consult a healthcare provider before starting a regimen.

Quality: The quality of herbs can vary, so it is important to source them from reputable suppliers to ensure they are safe and effective.

5. *Herbalists:*

In many cultures, herbalists are professionals trained in the use of plants for medicinal purposes. They have knowledge of the plants, their properties, and how to prepare and administer them for specific health issues. In some countries, they are licensed healthcare providers, while in others, they work more informally.

Herbology is often seen as a more natural, holistic approach to medicine, and many people turn to it to complement conventional treatments or as part of preventive care. However, like all forms of medicine, it is important to approach it with caution and ensure that the herbs used are appropriate for your specific health needs. Do you have any favorite herbs or a specific area of herbology you would like to learn more about?

Defining Herbology and Herbalism: Core Concepts and Practices

Understanding Herbology and Herbalism

Herbology and herbalism, while often used interchangeably, pertain to the study and application of plants with distinct nuances worth exploring. Both fields delve into the rich world of botanical remedies, yet they stand apart in their focus and methodologies.

Defining Herbology

Herbology can be described as the scientific discipline that revolves around understanding the biological nature of herbs. This field is heavily rooted in empirical study and aims at categorizing and documenting plant species, their properties, chemical constituents, and their potential medical applications. The practices in herbology revolve around classification, research, and evidence-based exploration of herbs. Scholars and practitioners focus on identifying the active ingredients within plants, such as alkaloids, terpenes, and flavonoids.

Timeline of Herbology 60,000 BCE

Evidence that our paleolithic ancestors used native herbs in a deliberate way! A Neanderthal burial unearthed at Shanidar in northern Iraq revealed a man laid on soil covered with grape hyacinth (Muscari armeniacum), yarrow (Achillea millefolium), ephedra (Ephedra sp.), henbane (Hyoscyamus Niger), St. Barnaby's thistle (Centaurea solstitialis), marshmallow pollen (Althea officinalis), and other herbs which are still

used in herbal practice and folk medicine today (Storl, 2012; Griggs, 1981; Solecki, 1975).

30,000 BCE: Shamanism Practices First Recorded

Some of the earliest herbalists of the past were the shamans or medicine keepers of a tribe. Shamanism was even practiced in Paleolithic times. Ancient cave art dated at 30,000 years old shows evidence of shamanic practices first being used (Villoldo, 2017). Thousands of years later, around 4000 BCE, the tradition of shamanism developed in Eurasia. Shamans, in general, are known to have a direct connection with spirit or the ability to communicate with gods or guides.

3000+ BCE: Sumerian Tablets + The Roots of Ayurveda and Traditional Chinese Medicine (TCM)

The first dated, written record of medicinal plants was etched on clay tablets by the Sumerians over five thousand years ago in ancient Mesopotamia (modern-day Iraq); around this time period in China, the roots of traditional Chinese medicine were beginning to be transcribed, and in India.

3000-1500 BCE: Medical Theories of Ancient Egypt

During this time period, the Ancient Egyptians wrote the Ebers Papyrus, a compilation of important and diverse medical texts written over the course of 1500 years that describes over 850 different herbs and their traditional uses.

Case Studies

1. https://www.naturalmedicinejournal.com/journal/prescription-nature
2. https://globalhealing.com/blogs/education/modern-medicine?utm_source=bing&utm

II. CONCLUSION

This article has a plethora of information for other researchers to expand their knowledge of the lternative and natural medicine fields. This included perspectives, theories, and Holistic perspectives to provide a framework on how to make a treatment plan for a client.

RESOURCES

1. Natural Medicine Journal, https://www.natural medicinejournal.com/peer-reviewed
2. Webmd.com https://www.webmd.com/balance/what-is-naturopathic-medicine
3. Chatgpt.com, https://chatgpt.com
4. Herbstrove.com, https://herbstrove.com/what-is-the-difference-between-herbology-and-herbalism
5. The Herbal Academy, https://theherbalacademy. com/blog/herbalism-a-history/

Controlled Comorbidities, Uncontrolled Malignancy: A Case of Early Detection in Complex CKD Patients

Suha Al Fathima Mohamed Al Sabry, Gamage Ravindi Lakma Perera, Mohomed Ali Sabry Haya Ali Fathima, Karpovich Yulia Ivanovna, Bogdanovich Vladimir & Karpovich Yuri Leonidovich

Grodno State Medical University

ABSTRACT

Background: Multiple Myeloma, a haematological malignancy that is characterized by the clonal proliferation of plasma cells often presents with renal dysfunction, anaemia and bone lesions (CRAB criteria). Diagnosing Multiple Myeloma in patients who are suffering from preexisting chronic kidney disease and other comorbidities such as Diabetes and Hypertension can be quite challenging as these diseases have overlapping clinical presentation. This case serves to highlight the complexities in diagnosing MM in a patient with well-controlled comorbid diseases and atypical renal presentation.

The Case: We describe a case of a 66-year-old female patient with chronic kidney disease stage 2, diabetes mellitus type 2, chronic hypertension and coronary heart disease that presented to the clinic with complaints of lower limb oedema and severe proteinuria. Laboratory findings revealed a hypochromic normocytic anaemia and increased ESR. Initially, it was suspected to be diabetic nephropathy but the patient's optimal glycaemic control as well as the disproportionate levels of anaemia and proteinuria cast doubts on that diagnosis. A sternal puncture was performed and revealed Multiple Myeloma

Keywords: multiple myeloma, chronic kidney disease, differential diagnosis (source: MeSH, NLM)

Classification: NLM Code: WH 250

Language: English

Great Britain Journals Press

London Journal of Medical & Health Research

Volume 25 | Issue 4 | Compilation 1.0

Controlled Comorbidities, Uncontrolled Malignancy: A Case of Early Detection in Complex CKD Patients

Suha Al Fathima Mohamed Al Sabry[α], Gamage Ravindi Lakma Perera [σ], Mohomed Ali Sabry Haya Ali Fathima[ρ], Karpovich Yulia Ivanovna[Ↄ], Bogdanovich Vladimir [¥] & Karpovich Yuri Leonidovich[χ]

ABSTRACT

Background: Multiple Myeloma, a haematological malignancy that is characterized by the clonal proliferation of plasma cells often presents with renal dysfunction, anaemia and bone lesions (CRAB criteria). Diagnosing Multiple Myeloma in patients who are suffering from preexisting chronic kidney disease and other comorbidities such as Diabetes and Hypertension can be quite challenging as these diseases have overlapping clinical presentation. This case serves to highlight the complexities in diagnosing MM in a patient with well-controlled comorbid diseases and atypical renal presentation.

The Case: We describe a case of a 66-year-old female patient with chronic kidney disease stage 2, diabetes mellitus type 2, chronic hypertension and coronary heart disease that presented to the clinic with complaints of lower limb oedema and severe proteinuria. Laboratory findings revealed a hypochromic normocytic anaemia and increased ESR. Initially, it was suspected to be diabetic nephropathy but the patient's optimal glycaemic control as well as the disproportionate levels of anaemia and proteinuria cast doubts on that diagnosis. A sternal puncture was performed and revealed Multiple Myeloma.

Conclusion: Physicians must consider multiple myeloma as a part of a differential diagnosis in patients with chronic kidney disease presenting with atypical haematological or renal signs, particularly those that have a multitude of comorbidities. Such clinical suspicion may lead to early diagnosis, thus greatly reducing mortality rates in this patient category. This case also serves to highlight the importance of utilising a multidisciplinary approach in patients with overlapping comorbid conditions.

Keyword: multiple myeloma, chronic kidney disease, differential diagnosis (source: MeSH, NLM)

Author α σ ρ Ↄ ¥ χ: Department of Internal Medicine 1, Grodno State Medical University, Grodno, Republic of Belarus.

ORCID: 0009-0005-4002-0748,

ORCID:0009-0008-4503-5676,

ORCID:0009-0003-7444-8780,

ORCID: 0000-0001-8548-6414,

ORCID: 0000-0002-5392-7518

I. INTRODUCTION

Multiple myeloma (MM) is a malignancy of haematological origin characterized by the clonal proliferation of cancerous plasma cells(1) in the bone marrow. MM is the second most-common haematological malignancy in adults and commonly presents in elderly patients over the age of 60(2). The precise aetiology of MM is unknown(3). This disease often presents with a constellation of symptoms and laboratory abnormalities, including anaemia, renal dysfunction, hypercalcemia, and bone lesions, collectively known as the CRAB criteria(4).

Diagnosing multiple myeloma can be quite challenging when it presents together with other comorbid diseases like kidney failure. This is especially due to MM's age of onset targeting the older part of the population(5)(6), as by this age an individual is prone to have multiple diseases;

due to this, MM can be found at a much more advanced stage that can be detrimental and can cause an increase in mortality rate. Furthermore, the asymptomatic nature of presentation(6) in certain patients and the similarity of presenting symptoms with other comorbidities can cause the differential diagnosis and treatment of illnesses in these groups of patients difficult.

This case report highlights the diagnostic challenges and complexities in managing a 66-year-old female patient with multiple comorbidities including Chronic Kidney Disease (CKD) stage 2, Type 2 Diabetes Mellitus, Arterial hypertension and Chronic Coronary Heart Disease, complicated by nephropathy, anaemia, and elevated Erythrocyte Sedimentation Rate (ESR). The patient was presenting with severe proteinuria despite having a good control of her blood sugar levels, which lead to the physicians to consider an alternative diagnosis. A sternal puncture was performed, and she was ultimately diagnosed with Multiple Myeloma.

This study is unique due to the atypical presentation of MM in a patient with well-controlled diabetes mellitus and CKD, emphasizing the diagnostic dilemmas met in distinguishing MM-related kidney damage from diabetic nephropathy. Such cases showcasing the coexistence of MM and preexisting CKD are rare, underscoring the need for thorough investigation of symptoms in patients with overlapping chronic conditions.

Written informed consent was obtained from the patient, and the CARE guidelines have been followed in writing this article.

II. THE CASE

A 66-year-old woman with CKD stage 2 was admitted to the nephrological unit with complaints of lower extremity oedema constant for about one and a half months, fatigue, exertional dyspnoea and significant fluctuations in her laboratory markers. These fluctuations started one year ago and were treated on an outpatient basis. The patient has a history of Type 2 Diabetes Mellitus, Arterial Hypertension, Chronic Coronary Heart Disease (complicated by Heart Failure: Functional class II), atherosclerotic cardiosclerosis, frequent ventricular extrasystole, aortic and mitral regurgitation. The patient has no relevant psychosocial or family history for oncological diseases.

Her day-to-day medications include anti-diabetic therapy (Metformin, Gliclazide), Aspicard 75 mg for antiplatelet purposes, Rosuvastatin 10 mg, Trimetazidine 35 mg morning and evening, Spironolactone 25 mg, Torsemide 5 mg in the morning.

After evaluating the patient, she was found to be conscious and alert, with a rhythmic pulse of 75 beats per minute. The respiratory rate was 17 breaths per minute, blood pressure was recorded as 110/90 mmHg. Lung sounds were clear, and heart sounds were muted and rhythmic upon auscultation. No tenderness was detected at the renal angle. Pitting oedema of the shins were noted. The rest of the examination revealed no noteworthy findings.

Laboratory investigations were conducted (Table 1). This revealed changes in general urine analysis such as proteinuria, increased pH and presence of erythrocytes; complete blood count showed signs of mild normocytic hypochromic anaemia and increased ESR; biochemical blood test unveiled decreased total protein.

The diagnosis upon admission was chronic tubulointerstitial nephritis due to the preexisting nephropathy of combined genesis (Diabetes mellitus, Arterial Hypertension). The patient's hypertension was effectively managed and within normal limits. She also had good glycaemic control (7%), but the level of proteinuria (2.1 g/l) was not consistent with this range of HbA1c, so alternative diagnoses were considered. After consultation with a haematologist, she was recommended to undergo sternal puncture, which revealed changes consistent with diffuse-focal form of Multiple Myeloma stage 2. *(Figure 1) (Table 2)*

Laboratory Analysis (Table 1)

Complete Blood Count	WBC (Leukocytes)	8.46x10*9/l (4-9) x10*9/l)
	RBC (Erythrocytes)	4.01x10*12/l (3.7-4.9) x10*12/l)
	HGB (Haemoglobin)	104g/l ((120-160) g/l)
	HCT (Haematocrit)	34.1% ((32-47) %)
	MCV (Mean Cell Volume)	85 Fl. ((82-92) Fl.)
	MCH (Haemoglobin content in RBC)	25.9 pg ((28-32) pg)
	MCHC (Haemoglobin concentration in RBC)	305g/l ((320-360) g/l)
	PLT (platelets)	439x10*9/l ((150-450) x10*9/l
	RDW-CV	16.8% ((11.5-14) %)
	NEUT (Neutrophils)	67% (45-70) %)
	LYPMH (Lymphocytes)	19% ((18-40) %)
	MONO (Monocytes)	9% ((3-8) %)
	ESR	58 (2-15)
General Urine Analysis	pH	8 (5.5-7)
	Protein	2.1g/l (0-0.15g/l)
	Glucose	0 mmol/l (0-1.4mmol/l)
	Blood	10 RBC/µl (0-5 RBC/µl)
	Colour	Yellow
	Transparency	Cloudy
HbA1C	Glycated haemoglobin	7%
Biochemical Blood Test	Total protein	58g/l ((65-85) g/l)
	Albumin	34g/l ((35-53) g/l)
	Urea	7.4mmol/l (1.7-8.3) mmol/l)
	Creatinine	78µmol/l ((53-97) µmol/l)
	Cholesterol	4.1mmol/l ((3.12-5.2) mmol/l)
	Triglycerides	1.93mmol/l ((<=1.52mmol/l)
	C-reactive protein	2.3mg/l ((0-6) mg/l)
	Blood glucose	6.7mmol/l ((3.5-6.2) mmol/l)
	Alkaline phosphatase	146 U/l ((30-120) U/l)
	Iron	13.4µmol/l ((9-30.4) µmol/l)
	Ferritin	55.2ng/ml ((10-120) ng/ml)

Sternal puncture (Table 2)

Cells	Values
Blast cells	0.2% (0.1-1.1%)
Neutrophils: Myelocytes	9.20% (7-12.2%)
Neutrophils: Metamyelocytes	1.80% (8-15%)
Neutrophils: Band	7.60% (12.8-23.7%)
Neutrophils: Segmented	8.20% (13.1-24.1%)
Eosinophils	1.40% (0.5-5.8%)
Basophils	0% (0-0.5%)
Monocytes	1.40% (0.7-3.1%)
Lymphocytes	19.40% (4.3-13.7%)
Plasma cells	25.2% (0.1-1.8%)
Normoblasts: Basophilic	4.0% (1.4-4.6%)
Normoblasts: Polychromatophilic	21.6 (8.9-16.9%)
Total erythropoietic cells	25.6% (14.5-26.5%)
Functional activity of megakaryocytes	12.82%

Weakly functioning megakaryocytes	17.95%
Leuko-erythroblastic ratio	2.91 (2-4.5)
Neutrophil maturation index	0.7 (0.5-0.9)
Erythrocyte maturation index	0.84 (0.7-0.9)

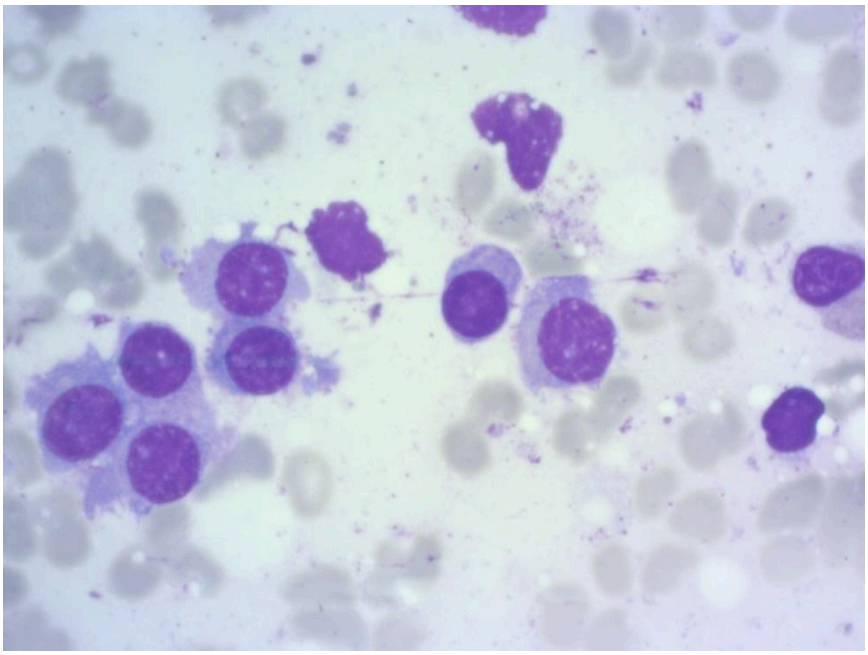

Figure 1: Abnormal Plasma Cells Revealed by Sternal Puncture

The patient was recommended to undergo treatment with Bortezomib 1.75mg intravenously jet and Cyclophosphamide 200mg intravenously drip on 1st, 4th, 8th and 11th days; Dexamethasone 20mg intravenously drip on 1st-4th days and 8th-11th days, which is the standard treatment regimen(7) for MM. Bortezomib is a proteasome inhibitor, which has been proved to be beneficial in patients with MM, complicated by renal insufficiency(8). Cyclophosphamide is given for its antineoplastic effect and Dexamethasone for its anti-inflammatory effect. Additionally, Furosemide 40mg intravenously to manage fluid overload and Omeprazole 20mg 1 tablet a day for gastrointestinal protection from prolonged steroid use were also added to treatment regimen.

III. DISCUSSION

Multiple myeloma and CKD are two diagnoses that have overlapping symptoms. In a patient presenting with pre-existing CKD, diagnosing MM can be quite challenging due to similar overlapping symptoms such as proteinuria and oedema. MM in such cases may go completely undiagnosed because of these common presenting features.

Diagnosing multiple myeloma in this 66-year-old patient was particularly challenging due to her complicated medical history disclosing the existence of multiple comorbidities such as heart failure, diabetes, hypertension and the pre-existing CKD. The revealing of multiple myeloma became even less likely due to the absence of classic symptoms.

When the patient 1st arrived at the clinic, her symptoms were attributed to the preexisting CKD and nephropathy secondary to diabetes and hypertension. However, the proteinuria did not align to what would be considered normal in a patient with well-controlled blood glucose levels or with stable blood pressure parameters, raising suspicion for an alternative diagnosis. This case demonstrates how renal manifestations of MM can coexist with diabetic nephropathy, especially with preexisting CKD. The normal glycaemic profile served to highlight the importance of further investigation and re-evaluation of

presumed diagnosis when clinical features deviate from expectations.

Furthermore, mild anaemia presenting in this patient projected many red flags that prompted the need for a haematological investigation. Firstly, the anaemia is disproportionate to the stage of CKD; for a patient such as this who is in stage 2 of CKD, a normocytic hypochromic anaemia would be atypical(9) as this often presents at much later stages of CKD due to erythropoietin deficiency.

Additionally, elevated ESR is seen in approximately 85 percent of patients with MM(10) and as well as the aforementioned proteinuria point to a systemic process beyond diabetic nephropathy or heart failure. Although this patient did not have hypercalcemia or bone abnormalities as a presenting feature which is a common initial presentation(11), the triad of anaemia, renal involvement and increased ESR justified the need to rule out haematological malignancies, hence a bone marrow biopsy was undertaken.

Even though there is a significant overlap in symptoms, there is a lack of research done on the topic of Multiple Myeloma and preexisting CKD in the same patient. The majority of existing studies mostly focus on MM-induced kidney damage as kidney disease can occur in upto 50% of patients with MM(12) and these studies don't address the fact that several symptoms are shared between the two diseases that could lead to a misdiagnosis. Further studies should be done examining the relationship between these two conditions. Recent guidelines (KDIGO, IMWG) encourage medical professionals to consider the possibility of MM in patients presenting with Acute Kidney Injury of unknown origin. It's important to note that a lack of awareness among physicians about the possibility of MM in a CKD patient could potentially have a fatal outcome.

IV. CONCLUSION

Overall, this case report emphasizes the difficulties in diagnosing MM in patients that present a history of multiple comorbidities which have similar symptoms, especially in patients suffering from CKD. When a patient presents with unexplained anaemia, increased ESR and proteinuria, it's always important to consider a possible MM diagnosis, especially if the patient is over the age of 60. The rapid diagnosis of such patients allows healthcare providers to offer better treatment modalities leading to lower rates in mortality and better outcomes for the patient as depicted in this case report. This report also serves to demonstrate the importance of thoroughly investigating patients with multiple comorbidities and complex medical histories.

REFERENCES

1. Rafae A, van Rhee F, Al Hadidi S. Perspectives on the Treatment of Multiple Myeloma. Oncologist. 2024 Mar 4;29(3):200–12.
2. Monteith BE, Sandhu I, Lee AS. Management of Multiple Myeloma: A Review for General Practitioners in Oncology. Current Oncology. 2023 Apr 22;30(5):4382–401.
3. Bladé J, Teresa Cibeira M, Fernández de Larrea C, Rosiñol L. Multiple myeloma. Annals of Oncology. 2010 Oct;21:vii313–9.
4. El Khatib HH, Abdulla K, Nassar LK, Ellabban MG, Kakarougkas A. Advancements in Multiple Myeloma Therapies: A Comprehensive Review by Disease Stage. Lymphatics. 2025 Jan 22;3(1):2.
5. Monteith BE, Sandhu I, Lee AS. Management of Multiple Myeloma: A Review for General Practitioners in Oncology. Current Oncology. 2023 Apr 22;30(5):4382–401.
6. Rajkumar SV. Multiple myeloma: 2024 update on diagnosis, risk-stratification, and management. Am J Hematol. 2024 Sep 28;99(9):1802–24.
7. Rajkumar SV, Kumar S. Multiple myeloma current treatment algorithms. Blood Cancer J. 2020 Sep 28;10(9):94.
8. Dimopoulos MA, Merlini G, Bridoux F, Leung N, Mikhael J, Harrison SJ, et al. Management of multiple myeloma-related renal impairment: recommendations from the International Myeloma Working Group. Lancet Oncol. 2023 Jul;24(7):e293–311.
9. Hashmi MF, Aeddula NR, Shaikh H, Rout P. Anemia of Chronic Kidney Disease. 2025.

10. Zhang X, Cui J, Bian S, Zhang R, Li Y, Chen X, et al. Adhesion of Immunoglobulins to Band3 Promotes Increased Erythrocyte Sedimentation Rate in Multiple Myeloma. Blood. 2023 Nov 2;142(Supplement 1): 6582–6582.
11. Mukkamalla SKR, Malipeddi D. Myeloma Bone Disease: A Comprehensive Review. Int J Mol Sci. 2021 Jun 8;22(12):6208.
12. Cesar BN, Braga WMT, Hamerschlak N, Junior M de SD. Kidney function in newly diagnosed myeloma patients: factors associated with kidney impairment and recovery. BMC Nephrol. 2024 Oct 11; 25(1):344.

.