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Editorial

Medical Education as a Career?

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India has the best and the worst medical education in the world, according to a review of the world's largest database of peer-reviewed literature. Four medical colleges in India are among the top 10 global institutions that published the most research between 2004 and 2014, while around 60% of the country's 579 medical institutions have published no research in a decade. Only 25 (4.3%) institutions published more than 100 papers a year and, among them, accounted for 40.3% of India's total research output of a little over 100,000 papers in the decade. Over 57% or 332 of the medical colleges did not have a single publication during this period while over 90% of NBE-affiliated colleges in Karnataka and Kerala had none. Moreover, states that have the largest number of private medical colleges produce very little of research publication.

India's total research output — including original articles, reviews, case reports, and reports of conferences and symposia — was 101,034 papers between 2005 and 2014, according to the journal *Current Medicine Research & Practice*. All the institutions surveyed were either recognised by the Medical Council of India (MCI) or the National Board of Examinations, the two bodies that regulate medical education in India. In comparison, the annual research output of the Massachusetts General Hospital was more than 4,600 and the Mayo Clinic was 3,700. The All India Institute of Medical Sciences, with more than 1,100 annual publications, ranked third.

A handful of institutes, a majority of them publicly-funded, account for the bulk of research output from medical institutions in India. At the other extreme, nearly 60% of institutes did not have a single publication over a decade. Overwhelming clinical burden leaving little time for academic activities is often cited as the reason for this state of affairs. This is belied by the fact that the most prolific Indian publications come from institutions that also deal with the largest numbers of patients. This is also true of many of the world's great hospitals, which along

with providing a high standard of patient care are also leaders in publication.

It is said lack of guidance and absence of role models among seniors, who themselves have published little, were major factors as was inadequate institutional support in the form of funds and infrastructure. To bring medical education across states at par, India needs to incentivise quality research, which is an indicator of an institute's quality of education and clinical care. The few attempts to encourage relevant and applied research are not enough. The MCI's 2015 guidelines require at least four research publications for the post of an associate professor and eight for the post of a professor.

China, which was at India's level 10 years ago, has emerged as the fifth leading nation in terms of its share of the world's scientific publications. It has done so by systematically investing a larger proportion of its GDP in R&D and by incentivising medical universities, hospitals, and institutes through monetary awards to authors with manuscripts published in prestigious journals, pointed out the study.

The policy of increasing the number of doctors by liberally allowing the creation of new medical institutions, mainly through private funding and enhancing seats has not been an unqualified success with what is generally perceived as a fall in standards of medical education, "which has now become a business venture for many politicians and is accompanied by widespread corruption both in its entry and exit processes", the study said, while calling for an overhaul of the medical education system.

FOUR INDIAN INSTITUTES ON GLOBAL LIST

Four medical colleges in India are among the top 10 global institutes that have published the most research between 2004 and 2014

1. Massachusetts General Hospital, US	46,311
2. Mayo Clinic, Rochester, US	37,633
3. AIIMS, Delhi	11,377
4. Peking Union Medical College, Beijing, China	10,102
5. PGMIR, Chandigarh	8,145
6. Tokyo Medical University, Japan	4,856
7. Christian Medical College, Vellore	3,742
8. Faculty of Medicine, Univ of Geneva, Switzerland	3,600
9. Sanjay Gandhi PGIMS, Lucknow	3,499
10. Aga Khan University Hospital, Karachi, Pakistan	2,332

(SOURCE: CURRENT MEDICINE RESEARCH & PRACTICE)

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- The style as well as bibliographic elements should be 100% accurate, to help get the references verified from the system. Even a single spelling error or addition of issue number/month of publication will lead to an error when verifying the references.
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- Sheahan P, O'leary G, Lee G, Fitzgibbon J. Cystic cervical metastases: Incidence and diagnosis using fine needle aspiration biopsy, *Otolaryngol Head Neck Surg* 2002; 127:294-8.
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Integrated Medical Teaching

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The basic objective of medical education is to educate the students regarding health, which includes physical, mental, social and spiritual well-being. The medical curriculum is vast and students are expected to learn many subjects at the same time. The teachers are also involved in a number of activities apart from teaching like research, administrative, capacity building etc. In doing so, teaching undergraduate medical students frequently remains restricted to separate academic department without any integration between subjects. This pattern again varies from country to country. The current medical education imparts knowledge in a disjointed manner and does not allow students to develop the skills to investigate, analyze and prepare to perceive the patient as a whole. Educational program has a better chance of being effective if its purpose has been clearly expressed. Integrated teaching, problem-based learning, community-based learning, core curricula with electives or options and more systematic curriculum planning have been advocated. Increasing emphasis is being placed on self-directed study with students expected to take more responsibility for their own learning

In this contest it is clear that an integrated approach in medical teaching has better chances of being effective^{1,2}. The term integrated curriculum is being discussed in medical education over the last two decades. Integration should promote retention of knowledge and acquisition of skills through repetitive and progressive development of concepts and their applications through interdepartmental co-ordination. Integration of curriculum is meant to make the teaching/learning activities meaningful. However the interpretation of 'integration' varies in different institutions and among individuals. Many medical schools find it hard to change their existing curriculum or develop a new integrated curriculum mainly because of lack of will, infrastructure and understanding the process of change.

The traditional method of didactic lectures on various topics results in unnecessary repetition, difference in opinions and hence the subject as a whole is never grasped. Hence the MCI encouraged integrated teaching between traditional subject areas using a problem based learning approach starting with clinical or community cases and thereby exploring the relevance of various preclinical subjects to help in understanding the problem. The regulations of the graduate medical education 2012 also suggested integrated teaching to bridge the gap between theory and practice, between clinical medicine and community medicine. Integrated teaching could explain the clinical applications better, improved the curiosity of students about the subject, helped them gain knowledge as well as skills for a better clinical practice.

Three areas which need improvement for successful integration are suggested, such as:

1. Ensuring synchronous presentation of material avoiding the tendency to diminish the importance of the basic sciences.
2. Using unified definitions for all throughout the curricula.
3. Making necessary and comprehensive changes in the curricula.

It is stated that "ossified curricular structures" and "archaic assessment practices" present continuing challenge for academicians interested in innovative teaching. The International Association of Medical Science Educators' review proposed alternatives such as integrated curriculum model which can promote the retention of knowledge across the basic and applied sciences. To enhance long-term retention and deeper understanding the following areas can be integrated.

1. The integration of discrete topics within a course of study, such as implementing ethics and clinical skills education into first-year courses or palliative care education across all years.
2. Integrating once separate courses or clinical experiences into a single unit, including combining basic science courses, preclinical or clinical preparatory education, or clinical education.
3. Integrating clinical exposure into earlier stages of medical education. Teaching medical students about basic science in the context of clinical examples and explicitly making connections among concepts through integrated presentation of material.

Integration as defined by Harden is the organization of teaching matter to interrelate or unify subjects

frequently taught in separate academic courses or departments³. This organization can take place across time periods or depth within and among subjects. Using comparisons of clinical examples help students identify features of basic science concepts that will help them elaborate as they progress into clinical education. This is the essence of ‘ICE’ model. Students are first introduced to foundational concepts (ideas), after which they connect or incorporate them with other learning like clinical scenario (connections) to develop a fundamental conceptual framework. Learners then apply the concepts to real-life examples (extensions). Complete integration with transdisciplinary teaching throughout all years of a curriculum represents the ideal way in which medical school curricula would be organized to promote

Step-1	Isolation	Faculty organize their teaching without considering other subjects or disciplines
Step-2	Awareness	Teachers of one subject are aware of what is covered elsewhere, but no explicit attempt is made to help students look at a subject in an integrated manner
Step-3	Harmonization	Teachers communicate with each other about their courses and adapt their content accordingly
Step-4	Nesting or infusion	Teachers target content from other courses within their own courses
Step-5	Temporal co-ordination	Similar content is covered in parallel across courses
Step-6	Sharing or joint teaching	Conducted when there are common areas of content or there is a need to include new content in a curriculum
Step-7	Correlation	Integrated teaching session may be introduced in addition to subject-based teaching
Step-8	Complementary programming	Often related to a theme or topic to which several disciplines can contribute
Step-9	Multi-disciplinary	Themes are identified, sometimes related to an area in which practical decisions need to be made, other times when the subject matter transcends subject boundaries. These themes or problems are viewed through a multi disciplinary lens even though the disciplines maintain their own identity and understanding of the problem
Step-10	Inter-disciplinary	There is further development of the commonalities across disciplines
Step-11	Trans-disciplinary	Curriculum focuses on the learner’s process of constructing meaning from information and experience

Table-1: Z-shaped curriculum model

the learner’s synthesis, application, and retention of material.

Integrated teaching can be of two types,

- (1) Horizontal integration is defined as integration across disciplines but within a finite period of time. Examples of horizontal integration include teaching in basic sciences, during first year, integrated with clinical aspects. Here clinical faculty too contributes in teaching during first year. This will help students to appreciate the applied aspects of basic sciences in clinical medicine. Students reported more time for independent study and greater satisfaction with their education⁴. The McMaster approach represents horizontal integration by combining courses into units or “interdisciplinary blocks” before students begin their clinical learning.
- (2) Vertical integration represents integration across time, attempting to improve education by disrupting the traditional barrier between the basic and clinical sciences. Examples include the “Z-shaped curriculum model”.

SPICES Model

A new programme is created which can be a model of innovative teaching in all medical schools. Developing this new teaching programme in an ambulatory care venue provides an opportunity to introduce elements of the SPICES approach to learning. SPICES model of educational strategies remains a key tool for reforming and organizing the undergraduate medical curriculum. The key elements promoted in the SPICES model are student-centred learning, problem-based learning, integrated or inter-professional teaching, community based education, elective studies, and a systematic or planned approach^{3,5}.

S	Student-centred learning
P	Problem-based learning
I	Integrated or inter-professional teaching
C	Community based education
E	Elective studies
S	Systematic or planned approach

Table-2: SPICES Model of Medical Teaching

Role of a teacher

Whatever the educational strategy implemented, the teacher will play a key role in student learning. The changing role of the teacher may cause unease among those engaged in traditional approaches of education. More often the teacher has degenerated into an uneasy mixture of classroom teaching and traditional bed side teaching. The innovation in teaching is lacking all the time. A good teacher can be defined as a teacher who helps the student to learn⁶. Good teaching depends on what concept of teaching one has. Two concepts are based on the strategies of teacher-centered and student-centered education³. Teacher-centered strategies are focused on the teacher as a transmitter of information, with information passing from the expert teacher to the new learner. Student-centered strategies focus on changes in students’ learning and on what students do to achieve this rather than on what the teacher does. The teacher is having a range of key roles to play in the education process.

The 12 key roles of a good teacher are performed under six areas of activity as summarized below:

1. The teacher as information provider (Lecturer, Clinical practical teacher)
2. The teacher as role model(On the job role model, role model as a teacher)
3. The teacher as facilitator(Learning facilitator, Mentor)
4. The teacher as assessor(Student assessor, Curriculum assessor)
5. The teacher as planner(Curriculum planner, Course planner)
6. The teacher as resource developer (Resource material creator, Study guide producer).

Summary

For a successful integrated teaching there should be careful planning, creating curriculum development groups with appropriate representation from both the basic and applied sciences. For instance, a curriculum group for a particular clerkship module should appropriately include a majority of clinicians but must also emphasize participation from basic medical science

educators. Ideally, integrated sessions would be given synchronously as collaboration between professors and/or clinicians individually representing the basic and applied sciences or by a professor from one scientific discipline with academic knowledge of the other disciplines. Such a combination of foundational science and applied science education and educators would finally yield the benefits of true integration to students. Additional benefits of trans-disciplinary cooperation among educators could be realized through the establishment of connections between clinicians and basic scientists to have beneficial effect both in teaching and research among professionals.

INTEGRATED TEACHING IN TUBERCULOSIS

Integrated module for tuberculosis is depicted here to highlight how integrated teaching modules can be prepared

Teaching Module

Sl No.	Module	Domain	Time Frame
1.	Magnitude of Tuberculosis	Community Medicine	5 minutes
2.	Epidemiology of the disease	Community Medicine	10 minutes
3.	Microbiologic characteristics of the pathogen	Microbiology	10 Min
4.	Pathophysiology-	Pathology	10 min
5.	Clinical profile	Medicine/Chest Medicine	15 min
6.	Laboratory investigations	Micro/Patho	10 min
7.	X Ray Investigation	Radiology	10 min
8.	Anti TB Drugs-	Pharmacology	10 min
9.	Management of cases	Medicine/Chest medicine	15 min
10.	Prevention of spread of infection	Community Medicine	15 Min
11.	Education of patients, relatives as well as community	Community Medicine	5 min
12.	National control programme	DTO	15 min
13.	Extrapulmonary - LN	Surgery	20 min
14.	Meningeal TB	Medicine	
15.	Childhood TB	Pediatrics	
16.	Bone TB	Orthopedics	
17.	TB in Pregnancy	Obst. & Gynecology	

Who should teach this module (as described above)

Module teaching team comprises of

1. Community Medicine
2. Microbiology
3. Pathology
4. Medicine
5. Chest Medicine
6. Radiology

7. Pharmacology
8. Surgery,
9. Pediatrics
10. Orthopedics
11. Obst. & Gynecology
12. District TB Officer

Total Duration-2 Hours 30 min. (in 1 or 2 sessions)

Formative Assessment Strategies

1. Structured Long Answer Questions
2. Structured Short Answer Questions
3. MCQs
4. Case presentation on SNAPPS model*
5. Role play for counseling

*SNAPPS Model (1) Summarize briefly the history and findings; (2) Narrow the differential to two or three relevant possibilities; (3) Analyze the differential by comparing and contrasting the possibilities; (4) Probe the preceptor by asking questions about uncertainties, difficulties, or alternative approaches; (5) Plan management for the patient's medical issues; and (6) Select a case-related issue for self-directed learning.

Specific learning objectives

At the end of the module students should be able to understand the magnitude of the problem, microbiologic characteristics of the pathogen, epidemiology of the disease, pathophysiology, clinical profile, laboratory investigations that could help in diagnosis, management of cases, prevention of spread of infection, education of patients, relatives as well as community and National control programme.

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Understanding Critical Thinking to Create Better Doctors

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Abstract

Medical students master an enormous body of knowledge, but lack systematic problem solving ability and effective clinical decision making. High profile reports have called for reforms in medical education to create a better generation of doctors who can cope with the system based problems they would encounter in an interdisciplinary and collaborative environment and make better reasoned decisions for quality patient care. To achieve this critical thinking is at the very heart of development of new medical knowledge. Critical thinking (CT) can be defined as the ability to identify and analyse problems as well as seek and evaluate relevant information in order to reach an appropriate conclusion. Medical academics and practitioners have raised concerns about the low levels of critical thinking and stress the need for fostering critical thinking among medical practitioners. This article attempts to provide a conceptual analysis of critical thinking with reference to medical education along with measures to foster critical thinking through relevant teaching learning and assessment methods.

Key words: Critical thinking, medical education, quality patient care, fostering critical thinking.

Introduction

In the 21st century, students must think their way through abstract problems, work in teams, distinguish good information from bad, and be multilingual and globally/environmentally sensitive so that they can be more effective in their disciplines. These are the same characteristics expected of today's medical students also.[1] Doctors are expected to take effective decisions in well defined and ill defined medical emergencies.

However, when they face undefined medical emergencies they are unable to take effective clinical decisions and that leads to untoward incidents. One among the many reasons for this is a lack of critical thinking skills among doctors. It has been reported that critical thinking should be fostered at grassroots level among the medical students which will promote better decision making when they eventually practice.. The absence of an apprenticeship model of education and a lack of emphasis on critical thinking and on acquisition of skills and competencies has resulted in producing doctors who are incapable of independent practice.[2]

Health care is fallible and prone to diagnostic and management errors. Approximately one third of patient problems arise due to diagnostic errors. Part of the solution lies in improving the diagnostic skills and critical thinking abilities of physicians as they progress through medical school and residency training. [1] The medical school must teach the principles of scientific method and evidence-based medicine, including analytical and critical thinking, throughout the curriculum. [3]Health care education has emphasized critical thinking as an essential skill for more than 50 years. [4]Critical thinkers exhibit confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open mindedness, perseverance, and reflections as their habits of mind. The global minimum standards for medical education puts forward the essential components of medical education which lists critical thinking and research as an important component. [5] This paper attempts to present a conceptual analysis of critical thinking with reference to medical education.

What is Critical Thinking?

There are several key definitions for critical thinking to consider. The American Philosophical Association (APA) defined critical thinking as purposeful, self-regulatory judgment that uses cognitive tools such as interpretation, analysis, evaluation, inference, and explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations on which judgment is based. [6]

“Critical thinking is the ability and willingness to assess claims and make objective judgments on the basis of well-supported reasons. It is the ability to look for flaws in arguments and resist claims that have no supporting evidence. It also fosters the ability to be creative and constructive to generate possible explanations for findings, think of implications, and apply new knowledge to a broad range of social and personal problems.” [7]

Critical thinking, commonly referred to as rational/logical thought, has its birthplace in philosophy. Thus, critical thinking is a cognitive skill that can be taught and learned. It is assumed that critical thinkers make better decisions, are better problem solvers and are professionally more competent.[8]

The simplest definition is offered by Beyer (1995): “Critical thinking means making reasoned judgments”. In other words, critical thinking is a disciplined manner of thought that a person uses to assess the validity of something (statements, news stories, arguments, research, etc.).[9]

Characteristics of Critical Thinking

Wade (1995) has identified eight characteristics of critical thinking.[10] Critical thinking involves asking questions, defining a problem, examining evidence, analyzing assumptions and biases, avoiding emotional reasoning, avoiding oversimplification, considering other interpretations, and tolerating ambiguity. Dealing with ambiguity is also recognized as an essential part of critical thinking. Ambiguity and doubt are a necessary and even a productive part of the critical thinking process. [11]

Another characteristic of critical thinking identified by many sources is metacognition. Metacognition is thinking about one’s own thinking. More specifically, “metacognition is being aware of one’s thinking as one

performs specific tasks and then using this awareness to control what one is doing”. [12]

Beyer (1995) elaborately explains the essential aspects of critical thinking.[9] They are:

Dispositions: Critical thinkers are skeptical, open-minded, value fair-mindedness, respect evidence and reasoning, respect clarity and precision, look at different points of view, and will change positions when reason leads them to do so.

Criteria: One must apply criteria to think critically and need to have conditions that must be met for something to be judged as believable.

Argument: Is a statement or proposition with supporting evidence. Critical thinking involves identifying, evaluating, and constructing arguments.

Reasoning: The ability to infer a conclusion from one or multiple premises. To do so requires examining logical relationships among statements or data.

Point of View: The way one views the world, which shapes one’s construction of meaning. In a search for understanding, critical thinkers view phenomena from many different points of view.

Procedures for Applying Criteria: Other types of thinking use a general procedure. Critical thinking makes use of many procedures. These procedures include asking questions, making judgments, and identifying assumptions.

Steps in critical thinking

Health professionals use critical thinking skills when they reflect on knowledge derived from other interdisciplinary subject areas in order to provide a holistic health care to their patients.[13] It is believed that a critical thinker goes through a series of cognitive steps: [14]

1. gathers information from all senses, verbal and/or written expressions, reflection, observation, experience and reasoning;
2. raises vital, clearly defined questions and problems;
3. gathers and assesses relevant information;
4. uses abstract ideas that are interpreted and used effectively;

5. comes to well-reasoned conclusions and solutions;
6. tests outcomes against relevant criteria and standards;
7. uses alternative thought strategies according to task/needs;
8. evaluates all assumptions, implications, and practical consequences; and
9. communicates effectively with others in generating solutions to complex problems.

How critical thinking can help medical students?

Critical thinking helps healthcare professionals in the following ways:[15-19]

Avoid medical/clinical errors

Identify better alternate options for diagnosis and treatment.

Increases productivity

Better clinical decision making

Work in resource limited settings

Quality thinking and quality work output

Brings in innovation through creativity

Avoid litigations

Develops confidence

Helps to climb the leadership ladder

Get higher grades.

Understand the subjects better.

Succeed in one's career.

Learn throughout the life.

Can critical thinking be taught?

Oliver & Utermohlen (1995) see students as too often being passive receptors of information. Through technology, the amount of information available today is massive. Students need a guide to weed through the information and not just passively accept it. Students need to “develop and effectively apply critical thinking skills to their academic studies, to the complex problems that they will face, and to the critical choices they will be forced to

make as a result of the information explosion and other rapid technological changes”. [20]

One of the characteristics of critical thinking is questioning. It is important to teach students how to ask good questions, to think critically, in order to continue the advancement of the fields we are teaching. [21]

Teaching Strategies to Help Promote Critical Thinking

Effective learning involves providing students with a sense of progress and control over their own learning. This requires creating a situation where learners have a chance to try out or test their ideas. This testing is ideally accomplished by connecting students' ideas to concrete experience and that's where the “active” part of the learning comes in. [22,23] Active learning involves providing opportunities for students to meaningfully talk and listen, write, read, and reflect on the content, ideas, issues, and concerns of an academic subject. [22] There are four broad categories of learning strategies that one might use in an active learning classroom. They are individual activities, paired activities, informal small groups and cooperative student projects. The choice of these will depend on the size of the class, available physical space, objectives of the class, the amount of time the teacher can devote to the activity, and the comfort level of the teacher with the strategy. The benefits of active learning are widely acclaimed in higher education. There is some research evidence that this approach supports critical thinking and problem solving which are essential determinants of quality medical education. [22,24] There are a wide range of learning strategies that promote critical thinking such as concept mapping, collaborative writing, think-pair-share strategy, brain storming, one minute paper, problem based learning, team based learning, case based instruction, panel discussion, peer learning, simulation, etc. [21,22,24,25] The Socratic method of teaching has been suggested as one of the goal oriented method that promotes critical thinking because it is more participatory, focused and structured. The basic concept is that students will be able to learn better if they are subjected to active learning environments which also encourage learners to take responsibility for their learning.

Assessment of critical thinking

Assessment drives learning and it is applicable for promoting critical thinking among medical students. For assessing the critical thinking abilities of medical students it is important to establish clear criteria for assessment. The outcomes of the activities suggested in this article for fostering critical thinking can be used as a criterion for assessing critical thinking. There are various methods of formative assessment of critical thinking among the learners. The case study method presents the person being assessed with a scenario that describes a certain situation. The person being assessed should be given questions to help them explore their own problem-solving, prioritization, ethical responses, and assessment of the scenario. Case studies can be purchased or created by the assessor.[10] Exemplars can be an impactful self-reflection tool. The exemplar method asks the person being assessed to write or tell about a situation. The situation can be one he/she may have had or one that he/she may one day experience. In the reflection groups method, the learners are given opportunity to reflect on their experience after a clinical encounter. This will make them to think critically about their experience and frame strategies for better performance.[26] A number of critical thinking skills inventories and measures have been developed such as Watson-Glaser Critical Thinking Appraisal, Cornell Critical Thinking Test, California Critical Thinking Disposition Inventory, California Critical Thinking Skills Test, Health Science Reasoning Test. These tests help the teachers and researchers to assess the critical thinking, attitude towards critical thinking and the reasoning ability of learners. [8, 26, 27]

Conclusion

In recent times, there has been increasing recognition that medical education must focus more on the higher order thinking processes which is required to encounter the emerging challenges in medical education. Higher order thinking has become one of the essential characteristic of future health care professionals and an essential attribute of medical professionalism. Hence, knowing and thinking about critical thinking has become the need of hour and explore the avenues for its application in medical education through appropriate means.

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Social Constructivism in a Small Group : A Personal Experience

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Introduction

The English philosopher Michael Oakshott (1962), reflecting on the concept of conversation, claimed that it is the most important way for human beings to make meaning, to construct a worldview and to provide a 'meeting place of various modes of imagining'. James Dillon (1994) drew the distinction between conversations and discussions; conversations are aimless, carefree and effortless, while discussions are highly 'disciplined and concerned' talk between people. More recently Brookfield (2005) defined discussion as an 'alternately serious and playful effort by a group of 2 or more to share views and engage in mutual and reciprocal critique'.

What I hope to do

In this article, I share my teaching experience in England. Psychiatry trainees in England go through 6 years; 3 years at core training (CT) level and 3 years at senior training (ST) level, before they are granted their CCT (Certificate of Completion of Training). By the end of the core years they are expected to have finished their MRCPsych exam which is an entry criterion to higher specialist training or senior training (ST). I conducted a small group teaching consisting of 3 trainees at different stages of training from the first year in psychiatry (CT1) to final year training (ST6) in psychiatry. I would like to critique this session using the Social constructivist theory. I have taught in such groups before but they have more often taken a 'lecture' style rather than an interactive one. My aim was to *facilitate* a critically informed understanding of the subject under study, enhance trainee's insight of their own strengths and weaknesses and their ability for self critique. By respecting one another's views and acknowledging diversity in opinion, I hoped to encourage an open and honest discussion.

Theory of Social Constructivism

There are several similar terms being used in literature; Constructivist learning theory, Social constructivist learning theory and Social learning theory. They have similarities and subtle differences, but for the purpose of this critique, I will be using the concept of Social constructivist theory. In essence the theory or concept has two bits to it; the *social* part and the *constructivist* part. The name is a metaphor, drawing parallels with the construction of a building. i.e., the acquisition of knowledge is by adding one building block of knowledge/information to another (constructivist part) through social interaction (social part). Other related terminologies also tend to take on metaphors from the building industry like the use of term '*scaffolding*', which is used to explain the nature of the process aided by a facilitator. Learning is considered to be an individual matter, each of us building our own unique picture of reality shaped by prior knowledge, understanding and experience (1). This means the same information producing differing views, opinions and conclusions in different individuals. In short, effective learning takes place in the context of a social activity, when new sensory inputs are linked to pre-existing knowledge and understanding.

The concepts of social constructivism could be dated back to Greek times with Heraclitus seen as the earliest western contributor (2). Even the writings of Gautama Buddha and Lao Tzu bear some overlap with the principles of this theory (3). However, the constructivist approach and theory as we know it took birth in the twentieth century. Some authors have emphasised the importance of culture and context in understanding people's experience in the community and in constructing knowledge (4, 5).

Planning the session

I carefully chose the topic. A topic within the competency based curriculum would have produced challenging circumstances given the different stages in their training. A higher level competency could potentially stifle the confidence of the junior trainee and a low level competency could render the senior trainee bored stiff. I therefore decided to choose a topic that is relevant to all doctors in general. It is an area inadequately articulated in the curriculum, neglected in work place based assessments and sometimes overlooked in day to day clinical work. The topic I had chosen was about 'Values and Attitudes'. I expected this topic to motivate all trainees to an animated discussion, regardless of their stage in training. It was also because in my role as a medical educator, I have strived in developing a culture of good values and attitudes in future doctors. In a constructivist approach it is however not unusual to have sub-goals or even change goals as the session progresses. Christiansen et al, (2003) asserts that the collaboration itself may change goals.

Preparation

The small group consisted of 3 trainees at different levels of training. As a facilitator it is very important to establish the prior knowledge of the heterogeneous group to ensure a lively discussion. If the teaching session was on a specific competency in the curriculum, it would have been easier to judge where each learner is at, depending on their stage of training. However there are no curriculum requirements, competencies or assessments specifically designed for values and attitudes. One of the trainees was in the first year of training in psychiatry (CT1) but had several years experience as a junior doctor in another field. Another was a final year trainee in psychiatry (ST6) with little experience in any other field. Both doctors had perhaps equal number of years working as a junior doctor in the National Health Service (free health service run by the British government), following graduation from medical school. It would be a mistake to assume that the senior trainee was more knowledgeable in this area than the first year trainee. Hence the need to reassess their current awareness.

I did not use any specific method to assess the awareness but opened the discussion simply by asking what they

knew on this area. Perhaps a more effective method to achieve this is the KWL grid (What I know=K, What I want to find out=W, What I have learned=L). It is structured, graphic and easily viewed on a flip chart where one can continue to make notes, as trainees witness their shift from ignorance to knowledge. It helps the trainees to consider the topic in general, brainstorm their way and requires them to focus on specific questions which they would like to answer (6). I could have used a flip chart to record the themes in 3 compartments mentioned above. The topics or range of topics to be covered would have then been established and the trainees would easily be able to gauge their progress.

The Schema theory

Using the KWL or other similar approaches initiates discussion, focuses attention on the topic, sets objectives and most importantly promotes learning as described in the schema theory. Schemas are a set of integrated network of knowledge, which are stored in long term memory. It is a representation of all the knowledge that an individual has in an interconnected way depending on the degree of overlap in information and knowledge (7). They are organised around themes and topics and constantly growing. There are great many links both within and between schemas. The KWL approach or any similar approach will serve to activate such schemas and make the trainee or learner more 'ready' to absorb and learn (8, 9). Activating schemas through the KWL approach can be compared to how a gardener prepares the soil before he plants his seeds.

It is interesting to note the similarity between the concepts in the schema theory and the activation hypothesis of Schmidt (10). Both relate to previous knowledge and information being activated and the relevant bits being primed and equipped to imbibe new information to embed them in a more sophisticated manner. In social constructivism, this is achieved by an opportunity to collaborate.

The Process of learning

Vygotsky and Zone of Proximal development

The KWL approach also helps to identify the ZPD proposed by Vygotsky. ZPD is the Zone of Proximal

development. The ZPD is a notional area of cognitive development that is close to but just beyond a learner's current level of understanding (11). Learners advance by moving into this zone and are then considered to have moved into the next higher level. At this next level they will have a new ZPD, which entails a continual capacity for further growth at every stage. According to Vygotsky's Social learning theory the interaction with other people is fundamental to successful cognitive and intellectual growth. Learners can be assisted in this process by a more 'knowledgeable other'. The nature of this support by a more knowledgeable other is called scaffolding and is discussed in more detail below.

Legitimate peripheral participation

One of the trainees (CT1) was initially quite and non-participant. She had what appeared to be combination of limiting factors such as language barrier, cultural issues, lack of knowledge and self confidence. This became a real test of facilitator skills. I even wondered if such a teaching method (group setting) suited such trainees. I however found her more engaging as time went on and surprised by how much she had learnt. Such a feature is not uncommon and has been described by Bandura as a phenomenon called 'legitimate peripheral participation' in the context of the 'Apprenticeship model' of learning. Even though the CT1 appears to be in the periphery of the discussion they learn through the sheer proximity to the relative expert (ST6) (12). The facilitator however should regularly try engaging the CT1 especially when the topics or themes being discussed lie very much in his or her ZPD. This is another reason why the awareness of the audience's ZPD plays an important part, as it determines the nature and extent of support the facilitator needs to provide. To start with, they are described as being legitimately present and covertly participating, then by engaging in their ZPD they become increasingly confident. Their skills and performance gradually increase and soon they become valuable mature members of their professional community (Le vine et al, 1994).

I was initially worried whether the senior trainee would gain anything from this session. I discovered that the cognitive process of learning they undergo is different from the CT1s. It is best understood through Piaget's model of social learning.

Piaget's model of learning

The CT1 was relatively new to some of the areas that were discussed. She was in a position of constantly absorbing facts and information. This could be described in Piaget's terms as *assimilation*, a phenomenon of adding new information or learning to existing knowledge /schemas. This process involves little changes or modifications to existing schemas, if any. Piaget also described a second phenomenon where existing schemas are modified by new information, a phenomenon called *accommodation*. This appears to happen with those trainees that have more knowledge and experience in this area. In my session which started as a discussion on values, the collaboration with the ST6 led to other inter-related areas such as Role modelling, Whistle blowing, Professionalism and even Ethics. Links were being made amongst various schemas within a particular theme and also between various themes. As a facilitator and having more experience than the ST6, I was instrumental in initiating these inter-related themes, shaping some of his existing schemas and leading him to make more sophisticated links between schemas that already existed in his data bank. I was indeed witnessing the process of accommodation in the senior trainee.

One of the criticisms of this model of learning is that the relatively senior trainees leave such sessions having gained nothing more than a repetition of previous sessions, which only serves to reinforce some existing schemas. The facilitator, as with the CT1, should establish what the senior trainee knows, determine his ZPD and implement exactly the same actions of modifying the discussion to help the transition into the ZPD for the senior trainee also. This once again exhibits the important and complex role of the facilitator for a successful and meaningful lesson through constructivism, if it needs to be equally beneficial to all in the audience.

We have thus far seen the crucial role the facilitator plays in assessing prior knowledge, activating schemas, identifying the ZPD for each member of the audience and how they facilitate transition into the ZPD through the process of assimilation and accommodation. These are highly skilled interventions referred to as Scaffolding

Bandura's Cognitive apprenticeship

Human lives are not lived in isolation (13). People worked together on shared beliefs and common aspirations to improve their lives.

Bandura's social theory argues that people learn from observing role models. He states that "Learning would be extremely laborious and even dangerous if people rely solely on their own actions to inform them what to do" (14). Within this framework, learning is a student-centred active process. This finds a wide application in the acquisition of physical skills, e.g., surgical skills. However in Psychiatry a related concept called 'Cognitive apprenticeship' finds relevance (15). In Psychiatry, the skill learnt is the mature cognitive process/pathways of the more senior participants like the ST6 and the facilitator. These are hidden, subtle and implicit. When engaged in teaching, It is not unusual for the expert to overlook the undeclared processes involved in performing a complex skills. To address this, cognitive apprenticeships "...are designed, among other things, to bring these tacit processes into the open, where students can observe, enact, and practice them with help from the teacher..." (15). This would mean the facilitator bringing the method of thinking and problem solving being employed in the session(by himself and the ST6) into the open as a model for the CT1 trainee to learn from. These techniques are modelled explicitly for the CT1 to add to their own armament of cognitive strategies

The Role of the Facilitator

This is a term that has been borrowed from the construction industry. It refers to a temporary structure used to support a work crew and materials to aid in the construction, maintenance and repair of buildings. Translating this into the learning environment, it is a measured and appropriate intervention, which has the purpose of helping a learner move forward (16). In no other mode of teaching is this as apparent as in Social constructivism. It is perhaps seen throughout the session. More often than not it consists of a style of questioning and conducting the discussion but can also include materials and audio-visual aids used by the facilitator. The facilitator can either make planned interventions or is sometimes required to become creative and resort to ad-hoc interventions. The

latter is quite a common occurrence given the very nature of pushing the audience to become imaginative and freely explore alternative explanations. The facilitator can use various techniques or questioning methods such as prompts, feedback, simplification, explanation and motivation just to name a few (17). Hence there is a wide scope in the type of scaffolding used in actual practice. Good teachers would also be mindful of the danger of breeding dependence and helplessness by 'too much' scaffolding (18). The metaphor is similar to what happens when a building is rendered safe; the scaffolding is removed as it no longer requires it. Similarly the facilitator should remove such props when the learner has got a handle on the task and is moving smoothly through the ZPD.

Characteristics of the constructive Collaboration

We have already touched on several facilitator skills at various points in the essay. A group setting consists of interaction between the facilitator and the members of the group. It also consists of interaction amongst the group members. Whilst it is a highly energised and enthusiastic setting that sets one's imagination free, it can act as a cauldron of unhealthy group dynamics. The skill involved in facilitating such an interaction is demanding and vitally important for optimal outcomes. Members can be too independent or over dependant. The teacher needs to ensure that there is positive interdependence acknowledging that group success means personal success (Falchikov, 2001). Efforts to promote contribution and achievement of individual goals must be made. For e.g., goal setting must be clear and overt to the group to encourage contribution rather than competition (19). Once members recognise their own success as dependant on other member's success, the individual modifies their behaviour. They endorse the association between common goals and one another's individual goals. Crook (20) identifies this interdependence as a catalyst for discourse amongst group members. Several interpersonal skills such as listening, sharing and constructive feedback form the groundwork for collaboration. Members may not possess these skills and this would have to be compensated by facilitator skills in coordinating such a group.

Conclusion

They say a job well begun is half done. Good planning and preparation goes a long way to begin well. This includes choosing a topic that has relevance to an audience at different stages of learning. Awareness and understanding of the audience is very important. The KWL grid is very useful in not only assessing what they know but also their Zone of proximal development (ZPD). Members bring their personalities (Shy and quite to bold and talkative) and limitations such as language and culture with them. The facilitator therefore plays a crucial role in encouraging, supporting, prompting, listening, motivating, modelling and channelling the discourse. These roles and actions by the facilitator provide a strong scaffold in constructing knowledge and addressing the ZPD. I previously used to be uncomfortable with the quiet members, thinking they just didn't want to be there. I was pleased to learn of the concept of 'legitimate peripheral participation'. I was reassured to learn that even though quiet, they were engaged, participating and learning. Members at whatever stage in their training, were either 'assimilating' or 'accommodating' new knowledge. They were not only learning what we discuss but also how we arrive at particular concepts and in essence adopting cognitive styles being modelled by other members in the group (cognitive apprenticeship).

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How much is too much? Burnout in anaesthesiology

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For many, burnout is seen as an extreme state, akin to nervous breakdown, and only experienced by the most overworked, overwrought, unbalanced members of our community. They do not see it as the smoldering, relapsing and remitting condition currently being experienced by roughly half of American physicians. Whether by loss of control over our practice, ever-increasing documentation, the constant threat of litigation, time away from family or the mounting complexity of modern medicine, our profession is suffering from an epidemic of burnout. It is affecting our health, our professionalism, the care of our patients and our career longevity.

Burnout Defined

Burnout is defined by the Merriam Webster Dictionary as “exhaustion of physical or emotional strength or motivation usually as a result of prolonged stress or frustration.” This definition highlights that burnout is multifaceted (emotional, physical and motivational) and not synonymous with stress; rather, it is the result of prolonged stress. To highlight the distinction, consider the following visual: a stressor is a wave coming to shore – it can be large or small, solitary or in a set, loud or tranquil, even fun depending on perspective. Burnout, on the other hand, is like being trapped under a set of large waves – deafening, overwhelming, isolating, suffocating, relentless – leaving you disoriented and unsure if you will ever surface again.

In 1974, Freudenberg published an occupational health paper outlining a phenomenon he branded the “burnout syndrome,” whereby, in response to accumulated stress, one cascades from a desire to prove one’s worth to a state of depression, depersonalization, isolation and a revision of core values by way of a general neglect for one’s own well-being.¹ Given the degree of sacrifice

required to matriculate medical school and residency, the first steps toward burnout are virtually prerequisites for medical education.

Others began to investigate this “burnout syndrome” in various professional arenas. In 1981, in response to a need for a quality measure of burnout, Maslach et al. published the Maslach Burnout Inventory (MBI).² The MBI has subsequently become the gold standard burnout metric, having been utilized across a wide breadth of demographic and professional populations. The MBI categorizes the symptoms of burnout into three major characteristics: emotional exhaustion, depersonalization and a low sense of personal accomplishment.

Studies of burnout prevalence have been published for more than 30 years – many of these investigating the impact on physicians. Then, in 2012, Shana felt et al. published the results of the first large national survey of U.S. physicians focusing on burnout.³ The results of this study ignited a flurry of interest, both in the medical community and in the lay press. With a 26.7 percent response rate (more than 7,000 responses), he showed nearly half of U.S. physicians had at least one major symptom of burnout, with anaesthesia just above the mean for rates of burnout. Strikingly, while the average holder of a non-medical graduate degree had lower rates of burnout than the average high school graduate, physicians had significantly higher rates than both groups. The most prevalent symptom was emotional exhaustion, followed by depersonalization.

Burnout in Anaesthesiology.

There has been longstanding interest in the impact of burnout on physician anaesthesiologists. In 2003, Nyssen et al. published the results of a study from

Belgium looking at the levels, causes, and moderating factors associated with stress and burnout in physician anaesthesiologists using self-reporting questionnaires. They found that the level of stress was similar to the global working population, but that physician anaesthesiologists (particularly those less than 30 years old) had high levels of burnout in the form of emotional exhaustion (40.4 percent). When queried on the sources of stress, respondents cited lack of time control, risk-taking and work planning. Fortunately, they also revealed high levels of moderating factors (empowerment, work commitment and job satisfaction).⁴

That same year, Kluger et al. published a similar study of physician anaesthesiologists in Australia. They found lower rates of overall burnout than other studies, but similar etiologies. The most commonly cited stressors were work-home conflicts and time constraints, and they felt that improved organization and assistance at work would mitigate stress.⁵

Studies of burnout in American anaesthesiologists have concentrated mostly on academic practice. In 2011, De Oliveira published two studies with high response rates, investigating burnout in academic anaesthesiology department chairs and anaesthesia residency program directors. She demonstrated that more than half of the department chairs demonstrated either high or moderately high levels of burnout. Independent risk factors for high levels of burnout were low levels of job satisfaction and a lack of spousal support.⁶ Of program directors, half of respondents qualified as either high risk of burnout or at risk for burnout. This population identified issues of regulatory compliance and spousal support as the major predictors of burnout.⁷

Burnout and Our Health

Burnout's impact on our health has been well established in both the medical and non-medical literature. The Finnish Health 2000 study provides a wealth of information on the general population and demonstrates a relationship between burnout and multiple physical ailments, including musculoskeletal disorders and admissions for cerebrovascular disease.⁸ In one editorial, Shirom

highlights the proven links between burnout and myriad other consequences, including increases in sick-leave absences, disability, admissions for mental health issues, insomnia and back pain.⁹ More recently, burnout has shown correlation with suicidality in medical students.¹⁰

Burnout Beyond Ourselves

One may ask: "So what? We are burned out and it is impacting our health. We knew we would have to make personal sacrifices when we started down the medical path – this is simply the cross we have to bear, and we have born it for centuries without complaint." Beyond the utter lack of self-compassion demonstrated, the problem with this argument is that burnout doesn't just impact our own health, but also our professionalism, career longevity and patient care.

Burnout, distress and compromised well-being in medical students have been linked to decreased altruism, empathy and increased self-reported unprofessional conduct.^{11,12} Burnout was related to higher rates of application for disability pensions in Finland,¹³ and in a Canadian economic model, burnout was responsible for a loss of more than \$200 million in the form of lost work days and early retirement.¹⁴ While burnout has been correlated with increases in medical errors^{15,16} and suboptimal patient care,¹⁷ studies proving causation are still needed.

Interventions to Decrease Burnout

To date, there have been no large, randomized, controlled trials investigating interventions specifically designed to decrease physician burnout. However, there have been a plethora of smaller studies (many randomized, controlled) showing a benefit from various interventions, including mindfulness training,¹⁸⁻²¹ peer support,²² physical fitness²³ and proper rest.²⁴

Where Do We Go From Here?

Looking at the issue of burnout in the medical community, we are reminded of the problem of central line-associated blood stream infections (CLABSIs). Everyone knew they impacted both patients and health

care costs. There was a volume of data supporting various interventions leading to small reductions in CLABSI rates, but no one had identified a unified strategy of risk reduction. It wasn't until Pronovost et al. presented their "bundle" of interventions that the community as a whole started to believe that these events could be prevented.²⁵

Since the causes of burnout are multifactorial, it stands to reason that the solutions will be equally multifaceted. The solutions will have to occur at both the institutional and personal level and involve a combination of educational, supportive and skill-building constructs. Any solution offered must educate first and foremost – one cannot combat his or her own burnout (or that of a colleague) if one does not acknowledge its existence. A solution must provide support not only for those already burned out, but also for those encountering great stressors, such as adverse clinical outcomes or life events. This support must be offered on a peer level, from departmental leadership, and often from more formal sources. Finally, it must teach resilience-building skills, such as mindfulness training or the pursuit of appropriate work-life balance, which provide a buffer from the daily stressors we encounter.

Burnout exists. When defined and quantified into granular details, we can all probably self-identify to some extent. We also recognize that it can possibly harm our patients, and may harm our health and careers. The problem of burnout has been identified and characterized thoroughly and we are now entering the phase of a rigorous approach to solving the problem. As more studies are released showing reductions in burnout, optimism and interest will grow and an eventual solution will emerge.

Courtesy: American Society of Anaesthesiologists

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A Clinico- epidemiological Study on Dengue Epidemic in 2015 at Manassery, Kozhikode, Kerala

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Abstract

During the Dengue epidemic in 2015 at Manassery, Kozhikode, 1074 serum samples were received in the Microbiology laboratory, KMCT Medical college from clinically suspected dengue fever patients . All samples were subjected to Dengue Day 1 test, solid phase rapid immunochromatography. Dengue epidemic in Manassery began in May 2015 & largest proportion of serologically positive cases was seen during June – August 2015 corresponding to the rainy season. Clinical picture of the 86 in- patients showed high fever in all (100%) with severe headache in 76 (88.3%) & vomiting in 63 (73.2%). Thrombocytopenia was seen in 18 (20.9%) . One patient developed dengue shock syndrome (DSS) and expired (1.1%). Maximum dengue cases were seen in the age group 21- 40 yrs (39.5 %). Male female ratio was 5:4. Forty NS1 antigen positive samples were sent to MCVR Manipal for PCR. The results showed DENV -1 in 28 samples & DENV-3 in 3 samples. 9 samples were untypable.

Key words: Dengue NS1 antigen , DENV-1, Aedes aegyptii , Aedes albopictus.

Introduction

Dengue fever is caused by dengue virus (DENV) a mosquito borne flavivirus. DENV causes a wide range of diseases in humans from Dengue fever (DF) to life threatening syndrome called Dengue hemorrhagic fever (DHF) or Dengue shock syndrome (DSS) . Dengue can be diagnosed by serological tests, isolation of the virus, or by molecular methods. Diagnosis of acute or recent dengue infection can be established by testing serum

samples during the first 5 days of symptoms / or early convalescent phase (more than 5 days of symptoms) by RT-PCR for identifying DENV or by doing IgM ELISA .

The objectives of the present study was to know the prevalent serotype of laboratory confirmed dengue cases in the 2015 epidemic at Manassery and to study the clinical profile of these patients .

Materials & Methods

1074 serum samples were received in the microbiology laboratory KMCT Medical college hospital in 2015 from clinically suspected dengue fever patients. All serum samples were subjected to Dengue Day 1 Test – solid phase rapid Immunochromatography. 40 serum samples positive for NS1 antigen in July 2015 were sent to Manipal centre for Virus Research (MCVR) for RTPCR to identify Dengue virus serotype.

Results

Among 1074 suspected dengue fever cases in KMCT Hospital from Jan – Dec 2015, 486 were seen in the outpatient clinic and 86 patients were admitted .Clinical and demographic details of the 86 in patients was obtained from the case sheets.

Dengue seropositivity from January– December 2015 is shown in Table I . The age / sex ratio and clinical profile of the 86 in- patients are shown in Table 2&3. Male to female ratio in this study was 5:4 , the youngest patient with Dengue was a one year old female & the oldest was a 79 yr old male. Dengue serotypes were identified by RT PCR at MCVR Manipal from 40 NSI

antigen positive samples. The results are shown in Table 4.

The commonest symptom was fever (100%) headache (88.3%), vomiting (73.2 %). Thrombocytopenia was seen in 18 (20.9%). One patient developed dengue shock syndrome (DSS) and expired (1.1%)

Table 1

	NS1	NS1,IgM	IgM	IgG	NS1IgM	IgM,IgG	Total Samples	Total positive	Total negative
Jan	2	-	-	-	-	-	21	2	19
Feb	-	-	-	-	-	-	14	0	14
Mar	-	-	-	-	-	-	5	0	5
Apr	5						14	7	7
May	21	2	5	3	1	2	59	34	25
Jun	166	22	11	3	3	2	280	207	73
July	139	18	3	2	-	3	308	165	143
Aug	76	7	3	-	-	-	186	86	100
Sep	43	3	-	-	-	-	79	46	33
Oct	6	-	-	-	-	-	48	6	42
Nov	5	2	-	-	-	-	34	7	27
Dec	9	2	1	-	-	-	26	12	14
Total	472	56	24	9	4	7	1074	572	502

Table 2

Age, Sex & Month wise distribution of 86 in-patients diagnosed as dengue fever in 2015

Month	0-20 yrs		21-40 yrs		41-60 yrs		61-80yrs		Total
	M	F	M	F	M	F	M	F	
Jan				1					1
Feb									
Mar									
April	2		1				1	1	6
May	1	1	2						4
June	2	3	5	8	3	5	1	4	31
July	4	1	3	5	3	1	1	2	20
Aug	2	1	5		3	2	3		16
Sep	1		2		1			2	6
Oct									
Nov	1								1
Dec			1						1
Total	13	6	19	15	10	8	6	9	86

Table -3
Clinical Profile of 86 Dengue fever in patients:

Symptom	Number	%
Fever	86	100
Headache	76	88.3
Vomiting	63	73.2
Abdominal Pain	42	48.8
Loose stool	15	17.4
Rash	2	2.3
Dyspnoea	2	2.3
Myocardial dysfunction	2	2.3
Severe gastroenteritis	1	1.1
DSS	1	1.1

Table - 4
Dengue Serotypes of 40 NSI Antigen positive samples

Serotype	Number
DEN – 1	28
DEN -3	3
UNTYPABLE	9

Discussion :

In the year 2010 India witnessed a massive wave of dengue fever caused by DENV – 1 as the predominant serotype. Kerala was the third most affected state in the country.⁽¹⁾ In Kottayam district, Pradeep kumar et al (2013) recorded all four serotypes circulating and serotypes 2&3 to be the major serotypes involved in out breaks.⁽²⁾ It is known that infection with one dengue serotype, provides life-long homologous immunity , but only transient cross protection against other serotypes . The change in the prevalent dengue serotypes is the major factor responsible for the enormous number of dengue cases as the population is by and large non –immune. Primary DENV 1 cases were more overt and had more DHF and severe dengue. Primary DENV 2&3 were usually silent, with low risk of DHF, but present with joint pain and low platelet count. ⁽³⁾ In this study it is seen that 28 patients were positive for DENV- 1 and

only 3 were positive for DENV -3. We feel that DENV-1 was the predominant serotype causing epidemic in Manassery Kozhikode in 2015.

Dengue fever affects humans of all age groups. In Delhi in 2010 maximum dengue cases was in the age group 21-30yrs, (30.8%) and the male/female ratio was 1.6:1. (1). In the present study also, maximum cases were in the age group 21-40 yrs (39.5%). There was no significant difference in male /female ratio (5:4).

Classical Dengue fever is characterized by sudden onset of high grade fever, headache, retro-orbital pain, myalgia & thrombocytopenia. In our study headache was seen in 88.3% & thrombocytopenia in 20.9%. Thus, most dengue fever cases were clinically indistinguishable from other febrile illnesses and could be missed, lacking the clinical suspicion & timely diagnosis.

“Dengue package” concurrent assay of DENV NSI, IgM & IgG with platelet enumeration is immensely beneficial for patients, clinicians and public health officials . Cases with primary & secondary DENV infection in the initial febrile phase of illness will not escape with the dengue package. ⁽⁴⁾

The role of environmental factors in infectious diseases is well known. In most countries dengue epidemics are seen during the warm and humid rainy seasons, which favour abundant mosquito growth & shorter extrinsic incubation period. ^(5,6) In our study the Dengue epidemic began in May 2015 and the largest proportion of serological positive cases was seen during June –August 2015 corresponding to the rainy season.

Although the vector capacity of A. albopictus is comparatively less than A.aegyptii for DENV , the wide spread prevalence of Aedes albopictus in kerala state may contribute to a new scenario in terms of health situation in the state . DENV may undergo crucial mutations that could be naturally selected to overcome this disadvantage as was recorded for Chikungunya in Kerala and also this could be a possibility for dengue virus also in this part of India. ^(7,8)

Conclusion

Dengue fever is clinically indistinguishable from other febrile illnesses and could be missed lacking clinical suspicion. “Dengue package”- concurrent assay of

DENV NS₁, IgM and IgG with platelet count is immensely beneficial for diagnosis and treatment. DENV-1 is the predominant-serotype causing dengue epidemic in 2015 at Manassery, Kozhikode.

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Role of Yoga Therapy and Strength Based Group Intervention on Quality of Life Among the Individual with Alcohol Dependence Syndrome

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Abstract

Background: The Yoga is oldest, natural and culture friendly technique growing positive and sound mental health. Yoga therapy plays an important role for the healthy life of an individual in the form of various techniques as surya namaskar, pranayam and yog- nidra. Strength based therapy for substance abuse is a one-in-one social service intervention for adults with substance use disorders that is designed to reduce the barriers and time to treatment entry and improve overall client functioning. Nowadays it has been observed that alcohol dependence syndrome is a common psychiatric disorder in the general population. The present study is an attempt to see the role of yoga therapy and strength based group intervention on patients with alcohol dependence syndrome. **Aim of the study:** To assess and examine the efficacy of yoga therapy on quality of life in patients with alcohol dependence syndrome in pre-post assessment with control group. **Method:** By using random sampling technique 30 patients of alcohol dependence syndrome were chosen according to ICD-10 DCR criteria and were divided randomly into two groups, experimental group and control group. Quality of life was assessed among all the participants of experimental group as well as control group by using Quality of Life Scale. After baseline assessment, yoga therapy and strength based group intervention were provided to the experimental group and only strength based group intervention was provided to the control group and after the therapy both the groups were assessed by using quality of life scale. Treatment as usual has been provided both the groups. **Result:** The patients

with alcohol dependence syndrome demonstrated improvement in various domains of Quality of life as physical, psychological, social, environmental domain and overall quality of life. **Conclusion:** This study reveals that yoga along with strength based group intervention lead to significant symptomatic improvements in quality of life of persons with alcohol dependence syndrome.

Key words: Alcohol Dependence Syndrome, Quality of Life, Strength Based Group Intervention, Yoga Therapy

INTRODUCTION

The Global status report on alcohol and health released by the World Health Organization (1) states that the amount of alcohol consumption has raised in India between the period of 2008 to 2012. The per capita consumption of alcohol in the country increased from 1.6 liters in the period of 2003-2005 to 2.2 liters from the period of 2010-2012 (1). Alcohol-related problems cause a tremendous social and public health burden worldwide. Alcohol dependence (AD) is a common, chronic and relapsing psychiatric disorder which is the main cause of physiological and psychological problems in individuals such as liver disease, cancer, low self esteem, depression, anxiety, stress, memory problems, fear, aggressiveness and rage and the combination of these problems create poor quality of life of an individual. Alcohol dependence (AD) carries a high mortality burden, which may be mitigated by reduced alcohol consumption. There are various researches showing efficacy of different type of therapies on alcohol dependence problems as

relapse prevention therapy, counseling etc. It is only in the last two decades that mental health professionals have started looking at yoga as a possible treatment option for various psychiatric disorders as well as for the addiction problems. The introduction of yoga as an alternative and/or complementary treatment for patients with psychiatric disorders as well as for addiction could be an effective solution for three basic reasons: (1) yoga which originated in India, is seen to be a practical and accepted intervention for patients to practice at home (2) the number of yoga therapists is more than the number of mental health professionals available in India, and (3) yoga is cost-effective and has no side-effects as in the case of psychiatric medications.

The World Health Organization (2) defines Quality of life as individual's perception of their own position in life in the context of the culture and value system in which they live and in relation to their own goals, expectations, standards and concerns. Quality of life for people with mental health problems were identified: well-being and ill-being; relationships and a sense of belonging; activity; self-perception; autonomy, hope and hopelessness and physical health. Quality of life has become a dominant theme in planning and evaluating services for people with alcohol dependence. It is recognized increasingly as an important component in the evaluation of alcohol treatment processes. The Quality of Life in alcohol misusing subjects has been little studied till date. Today the issues on quality of life are discussed widely in different scientific fields. Many factors influence quality of life, i.e. physical, spiritual and health state, independence level, social relationship with the environment and others (3). To put it in other words quality of life can be defined as satisfaction of a person with the current life dimensions in comparison with the pursued or ideal quality of life.

Strength based therapy for substance abuse is a one-on-one social service intervention for adults with substance use disorders that is designed to reduce the barriers and time to treatment entry and improve overall client functioning. There are five functions of component of strength based group intervention: assessment, planning, linkage, monitoring and advocacy. This intervention helps the group to identify personal skills, abilities and assets by discussion; supports group decision making so that the group sets treatment goals and determines how the goals will be met; encourages group participation in

seeking informal sources of assistance and works to resolve any client-identified barriers to treatment. The therapist attempts to develop a strong working alliance with the client, which is considered central to the process of linking with and using substance abuse treatment services effectively.

The studies related to Alcohol related quality of life reported that coexisting mental disorders or the severity of psychopathology was associated with poorer Health Related Quality of Life among people with alcohol use disorders (4, 5,6). A recent article by Schuckit (7) on alcohol use disorder lays down emphasis on the standard criteria for alcohol dependence the severity of the disorder can be used to reliably identify people for whom drinking causes major physiological consequences and persistent impairment of quality of life and ability to function. Pyne et al (8) found out that six of the seven scales of Addiction Severity Index correlated with quality of life Well Being Scale. Persons with Alcohol Dependence Syndrome had lower level of Quality of life compared with general population, norms or with other chronic health conditions.

The present study has been undertaken with the aim to assess the efficacy of yoga therapy and strength based group intervention among the persons with alcohol dependence syndrome.

Material and Method: The sample consisted of 30 patients selected as per ICD-10 DCR criteria for persons with alcohol dependence syndrome from different in patient ward of Ranchi Institute of Neuro Psychiatry and Allied Sciences, Kanke, Ranchi. Inclusion criteria were male patients in the age range of 21 to 35 years, as they are physically feasible for yoga practices. Random sampling technique was used for selecting the sample. The 30 patients were divided into experimental group and control group having 15 patients in each group. Quality of life scale (WHOQOL-BRIEF, Hindi version (9)) was applied to assess the quality of life in the group of persons with alcohol dependence syndrome before and after the therapies were provided. The experimental group was given both the therapies (Yoga therapy and strength based group intervention respectively). Control group was given strength based group intervention only. Yoga therapy and strength based group intervention were used to give the patients. These therapies have been divided into two sections. Part 1 includes yoga therapy

in which surya- namaskar, pranayam and yog nidra has been given to the patients. Part 2 provides strength based group intervention which is especially for alcoholic patients. Mann Whitney U test was applied for baseline

assessment and for post treatment assessments. Treatment as usual has been provided both the groups. Therapy package was for one month.

RESULT AND DISCUSSION

Table-1: Table showing age of the Experimental Group and Control Group of Persons with Alcohol Dependence Syndrome.

Subjects Variables	Experimental Group	Control Group	Mann Whitney U Test	
	Mean± SD	Mean± SD	U Value	Z Score
Age (in years)	29.00±5.35	29.60±2.32	109.00	0.146NS

NS Not Significant

Table- 1 and 2 shows socio demographic variables of experimental group and control group of persons with alcohol dependence syndrome. It has been found that the mean age of persons with alcohol dependence syndrome in experimental group and control group was found to be 29.00±5.35 years and 29.60±2.32 years respectively.

Table-2: Socio Demographic Variables of the Experimental Group and Control Group of Persons with Alcohol Dependence Syndrome.

Subjects		Experimental Group	Control Group	Chi Square Value Df
Variables				
Education	Illiterate	2 (13.3%)	0 (0%)	7.361NS (3)
	Below Matric	5 (33.3%)	11 (73.3%)	
	Matric	1 (6.7%)	2 (13.3%)	
	Above	7 (46.7%)	2 (13.3%)	
Occupation	Employed	10 (66.7%)	13 (86.7%)	1.677NS (1)
	Unemployed	5 (33.3%)	2 (13.3%)	
Family Income	>5000	5 (33.3%)	12 (80%)	7.261NS (3)
	6000-10000	6 (40%)	2 (13.3%)	
	11000-20000	2 (13.3%)	0 (0%)	
	>20000	2 (13.3%)	1 (6.7%)	
Marital Status	Married	11 (73.3%)	10 (66.7%)	0.159NS (1)
	Unmarried	4 (26.7%)	5 (33.3%)	

Family Type	Joint	9 (60%)	11(73.3%)	0.439NS (1)
	Nuclear	6 (40%)	4 (26.4%)	
Domicile	Rural	5 (33.3%)	6 (40%)	0.144NS (1)
	Urban	10 (66.7%)	9 (60%)	
Religion	Hindu	6 (40%)	12 (80%)	5.3600NS (3)
	Muslim	4 (26.7%)	1 (6.7%)	
	Christian	1 (6.7%)	1 (6.7%)	
	Sarna	4 (26.7%)	1 (6.7%)	

NS Not Significant

Obtained data have been scored using standard procedure for further analysis. Subjects belonging to both experimental group and control group were male. There were no significant differences in marital status, religion, occupation, domicile, socio economic status and family type. Most of the patients were married, Hindu, educated up to below metric, employed and from joint family.

Table-3: Baseline Assessment of Experimental Group and Control Group of Persons with Alcohol Dependence Syndrome on Quality of Life Scale.

Subjects	Mean±SD		Mann Whitney U Test			
	Experimental Group	Control Group	Mean Rank		U Value	Z Score
			Experimental Group	Control Group		
Physical Health	9.53±3.02	8.40±1.91	18.20	12.80	72.00	1.862NS
Psychological Health	6.46±1.06	6.86±1.88	15.27	15.73	109.00	0.208NS
Social Health	3.26±0.703	3.53±1.407	15.37	15.63	110.50	0.140NS
Environmental Health	10.20±2.04	10.06±2.68	16.00	15.00	105.00	0.3451NS
Overall Quality of Life	29.40±3.33	29.26±8.53	17.83	13.17	77.50	1.533NS

NS Not Significant

Table-3 shows baseline assessment of experimental and control group of persons with alcohol dependence syndrome on quality of life scale, shows an overall impairment in all the domains of quality of life in both the groups. There were significant impairment in all the variables of quality of life scale specifically for the domain of physical health (U value=72.00, Z score=1.862, p>0.05), psychological health (U value=109.00, Z score=0.208, p>0.05), social health (U value=110.50, Z score=0.140, p>0.05), environmental health (U value=105.00, Z score=0.3451, p>0.05) and overall quality of life (U value=77.50; Z score=1.533, p>0.05). This shows that both the groups of persons with alcohol dependence syndrome had poor quality of life.

Similar findings were obtained by other researchers (10). The result thus confirms previous research findings which showed persons with alcohol dependence have lowered Quality of life compared with the general population (11). Further evidence has revealed that Quality of life is negatively influenced by diagnosis of mental illness. Those with mental illness report problems in physical, psychological, cognitive, social and occupational functioning in veterans of alcohol dependence (12). Further evidence also favours the present study that besides problems related to severity of alcohol use, both the groups were impaired on several physical and mental components of quality of life (13). Studies also suggested that addiction, depression, anxiety and stress are related to the formation of a vicious cycle where addicts due to alcohol intake behavior, patients suffer from guilt feelings and loss of prestige and to get rid of these feelings he would consume more amount of alcohol. This leads to a vicious cycle which will eventually lead to low quality of life for these individuals (14).

Table- 4: Post Intervention Assessment of Experimental Group and Control Group of Persons with Alcohol Dependence Syndrome on Quality of Life Scale.

Subjects Variables	Mean±SD						Mann Whitney Test			
	Experimental Group			Control Group			Mean Rank		U	Z
	Pre	Post	Difference Pre-Post	Pre	Post	Difference Pre-Post	Experimental	Control		
Physical Health	9.53±3.02	31.93±2.18	22.40±3.56	8.40±1.91	22.13±3.45	13.73±3.45	22.30	8.70	10.50	4.23*
Psychological	6.46±1.06	28.46±2.55	22.00±3.42	6.86±1.88	12.20±3.46	12.20±3.46	22.43	8.57	8.50	4.356*
Social Health	3.26±0.703	14.06±2.57	10.80±3.02	3.53±1.407	5.66±2.02	5.66±2.02	21.80	9.20	18.00	4.064**
Environmental Health	10.20±2.04	38.60±5.74	28.40±6.98	10.06±2.68	15.53±4.65	15.53±4.65	21.97	9.03	15.50	4.054*
Overall Quality of Life	29.40±3.33	1.130±11.78	83.60±13.78	29.26±8.53	46.86±11.83	46.86±11.83	22.43	8.57	8.50	4.321*

- * Significant at .05 level
- ** Significant at .001 level

Table-4 shows the post intervention assessment of experimental group and control group of persons with alcohol dependence on quality of life scale. There were significant differences between all the domain of quality of life scale between the experimental group and control group. The difference was significant at 0.01 level for physical health (U value=10.50, Z score=4.253), psychological health (U value= 4.356, Z score=4.356), social health (U value= 18.00, Z score=4.064) and environmental health (U value= 15.50, Z score= 4.054) Further, for Overall Quality of life (U value=8.50, Z score=4.321) the difference was significant at 0.01 level. Results shows a significant difference on almost all the domains of quality of life scale and hence improvement in the overall performance in the experimental group of persons with alcohol dependence syndrome as a result of both the therapies, i.e; yoga therapy and strength based group intervention respectively.

The present study found that the experimental group showed more improvement than the control group as they were given both the therapies (Yoga therapy and strength based group intervention respectively). Control group was given only strength based group intervention. Improvement has been seen but less than experimental group. Implementation of strength based case management has been attempted in varieties of fields such as substance abuse, mental health, school counseling, old people and children, young people and females (15). For instances, Siegal and colleagues (16) looked observed 632 with substance abuse issues and found that providing strength based case management was associated with retention in aftercare treatment. Additionally, in a follow-up study, a relationship between case management improved retention and severity of use was found in the same group, as well as improved employability outcomes (15).

The results indicated that yoga therapy along with strength based group intervention can be more effective for ADS patients rather than just using strength based therapy alone. Therefore, the results indicated a better quality of life in experimental group intervention as compared to control group. Similar findings were also reported by Posadzki (17) who found that seven RCT (Randomised Clinical Trials) suggested that various type of Yoga including hatha yoga, Iyenger yoga, Nidra yoga, Pranayam or CBT plus Vinayasa yoga led to significantly more favourable results for addicts as compared to various control intervention. In another study of Marlatt (18), it was reported that Yoga therapy involves instructions in yogic practices and teaching to prevent, reduce or alleviate structural, physiological, emotional and spiritual pain, suffering or limitations. Yogic practices enhances muscular strength and body flexibility, promote and improve respiratory and cardiovascular functions, promote recovery and treatment of addiction, reduce stress, anxiety, depression and chronic pain, improve sleep pattern and enhance overall well being and quality of life. In a study on changes in stress pancreatitis patients were randomized to receive or not receive biweekly yoga sessions for 12 weeks (19). Improvement were seen in quality of life, stress symptoms, mood changes alcohol dependence and appetite after 12 weeks periods, apart from the general feeling of well being and desire to continue with the yoga therapy.

Conclusion

This study reveals that yoga can lead to significant symptomatic improvements in alcoholic patients and other psychiatric disorders, along with neurobiological effects which may underlie these changes. This suggest that mental health professionals should be ready to accept the potential benefits of spiritual practices for their patients, either as complementary interventions to modern treatment or as a sole treatment in some disorders.

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Papillary Thyroid Carcinomas with Oxyphil (hurthle cell) Morphology - A Variant with Diagnostic Challenges

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Introduction

Papillary carcinoma is the most common type of thyroid malignancy¹

Most tumours manifest in adults of 20-50 years with a female to male ratio of 4:1. The overall survival is excellent.²

Case details

Case 1:

41 Year old female presented with Thyroid swelling of 15 years duration o/E multiple nodules palpated, more on right side m/s 4x3 cm. USG findings multiple nodules both lobes, largest nodule right side with increased vascularity

FNAC showed Clusters of follicular cells with mild anisonucleosis, occasional nuclear grooves , Oncocytic morphology, Scant colloid, Clear cut papillae not visualized. Differential diagnosis considered in FNAC were- Neoplastic process? Papillary ?oncocytic/ ? follicular neoplasm

Total thyroidectomy was done.

Grossly – larger right lobe shows circumscribed grey white lesion m/s 3.2x3x2.8cm cutsection of which is granular. Isthmus & left lobe c/s shows irregular grey white areas & colloid filled nodules

Microscopy

Sections studied showed a neoplasm arranged in papillary pattern , broad papillae, lined by oncocytic cells with nuclear clearing, crowding, overlapping, occasional nuclear grooves, inclusions, psammomma bodies.

Diagnosis of papillary carcinoma, oxyphil variant was made. There was complete thick encapsulation , No evidence of capsular invasion or invasion into adjacent thyroid parenchyma or thyroid capsule. Rest of the thyroid parenchyma showed hashimoto thyroiditis & smaller nodules demonstrated features of nodular colloid goiter with adenomatous hyperplasia Two isolated lymph nodes showed only reactive changes & no evidence of any metastatic deposits. No parathyroid gland/s identified
Surgical margins: free from lesion. Nearest margin distance 0.2-0.3 cm away from capsule
pTNM classification: pT2pN0cMx

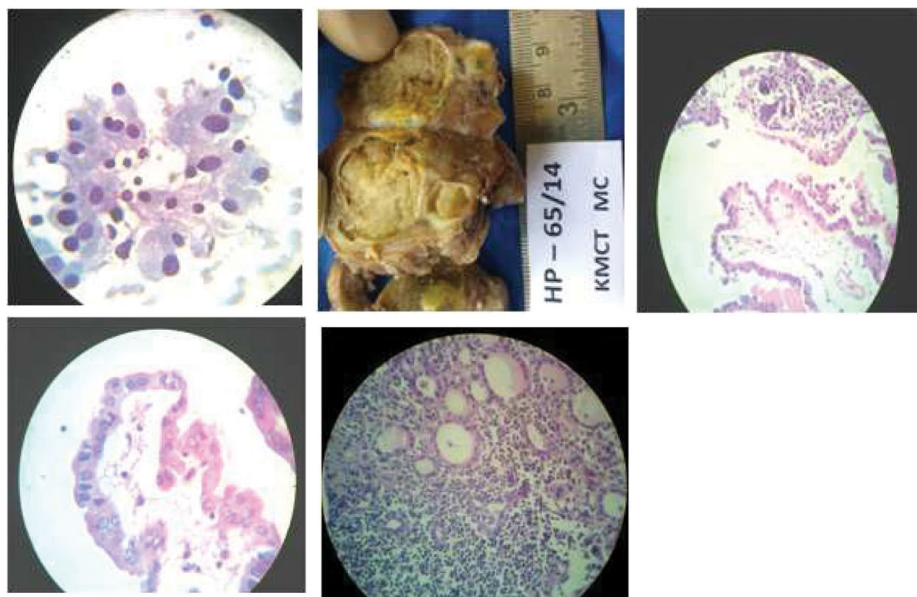


Fig1a-FNAC-clusters of follicular cells with oncocytic morphology
1b-Gross image 1c-broad papillae lined with oncocytic cells, 1d -occasional nuclear inclusions ,grooves
1e-Hashimoto thyroiditis

stage grouping: stage I

Case 2

Second case is that of a 37 female presented with a Solitary nodule thyroid of 6 months duration

USG- ill defined hypoechoic lesion right lobe m/s 1.4x1cm ? neoplastic

FNAC smears showed branching papillae & sheets with anatomical border, nuclei showing crowding, grooving, inclusions. Background showed plasma cells, lymphocytes & macrophages, scattered oncocytes & scanty thick colloid. Diagnosis of papillary Carcinoma was made

Total thyroidectomy done. Gross- Lt lobe 3.5x2x1.5cm, Rt lobe 4x2x1.5cm, isthmus 0.8x0.5x0.5cm C/s Rt lobe- circumscribed grey white lesion with granular appearance, m/s 1.5x1.5x 0.6cm

Sections studied shows a neoplasm arranged in papillae, broad papillae with lymphoplasmacytic infiltrate in fibrovascular core, lined by oncocytic epithelium. Nuclei showed crowding, clearing, inclusions. Rest of the thyroid showed hashimoto's thyroiditis. Diagnosis of **Papillary carcinoma of thyroid- warthin tumor like variant** was made. Thin poor encapsulation & foci of infiltration into adjacent thyroid parenchyma & into thyroid capsule. Rest of the thyroid parenchyma show features of hashimoto's thyroiditis. No lymphnodes/ parathyroid glands identified.

Surgical margins: Nearest margin less than 0.1cm (just sparing the margin)

TNM classification: pT1cNxcMx

Stage grouping -Stage I

Discussion

Papillary carcinoma thyroid

Most common thyroid neoplasm, .Most tumors manifest in adults of 20-50 years of age with , Female:male ratio of 4:1. It can present as solitary nodule or distinct nodule within a nodular goitre . It has got excellent prognosis.

Variants

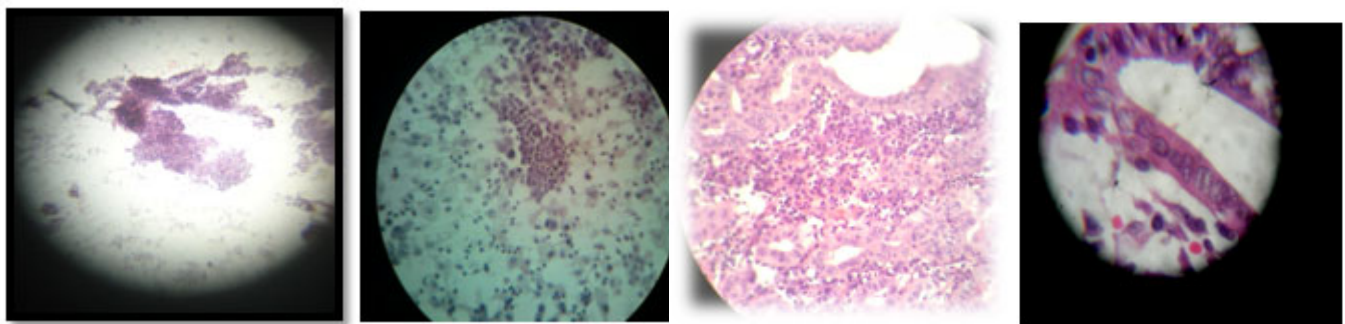
Immunohistochemistry of papillary thyroid carcinoma

Papillary carcinomas are reactive for cytokeratins, thyroglobulins, TTF-1

- Papillary carcinoma with fascitis like stroma
- Papillary carcinoma with focal insular component
- Papillary carcinoma with squamous cell or mucoepidermoid carcinoma
- Papillary carcinoma with spindle & giant cell carcinoma
- Combined papillary & medullary carcinoma

A number of immunohistochemical markers have been proposed to confirm the diagnosis of papillary carcinoma. Markers include high molecular weight cytokeratins, HBME1, galectin-3, CK-19

Metastatic papillary carcinomas of thyroid origin are positive for TTF-1, & thyroglobulin.



2a- branching papillary pattern, 2b- lymphoplasmacytic background (FNac), 2c- (biopsy) papillae with lymphoplasmacytic infiltrate in the core, 2d- lining by oncocytic epithelium, nuclei showing occasional grooves, crowding, inclusions

Oxyphilic (oncocyctic, Hurthle cell) variant

Rare subtype accounting for 1-11% of PTC. Oxyphilic lesions are characterized grossly by a distinct mahogany brown appearance & microscopically composed predominantly of cells with abundant eosinophilic granular cytoplasm due to accumulation of mitochondria³. There may be partial or total cytoplasmic clearing caused by ballooning of the mitochondria⁴. The nuclei in most cases shows nuclear features of papillary, but some cases there can be hyperchromasia & presence of nucleoli⁵. Behaviour is similar to conventional papillary carcinoma^{6,7}. It is important to distinguish this neoplasm from Hurthle cell follicular neoplasm. There can be association with Hashimoto's thyroiditis⁸

This variant can be missed in FNAC if nuclear features are not so evident.

Warthin tumor like variant of papillary carcinoma

Rare cases of papillary carcinoma resemble Warthin tumor of salivary gland by virtue of a papillary pattern & a rich lymphoplasmacytic infiltrate in the cores of papillae. 80 cases reported in literature till date. First described by Apel et al in 1995⁹. The cells that cover the papillae often have an oxyphilic appearance & can be tall¹⁰. The entity previously reported as tall cell papillary carcinoma with extensive lymphocyte infiltration represents this variant¹¹. There is association with autoimmune thyroiditis. Neoplastic behaviour is better than papillary carcinoma with low rate of nodal involvement, recurrence or metastasis^{12,13}

Presence of lymphatic tissue within tumor restrain neoplastic progression. The immunoprofile of lymphatic stroma is similar to that of chronic lymphocytic thyroiditis. In FNAC, one of the differential diagnosis would be Hashimoto's thyroiditis due to mixed population of lymphocytes, Hurthle cells, occasional nuclear pallor & grooves.

Oncocytic variant & Warthin tumor like variant are considered together because both of them have oncocytic morphology & association with autoimmune thyroiditis.

D/d of oncocyctic lesions in thyroid

- Hurthle cell neoplasm (Hurthle cell carcinoma, Hurthle cell adenoma)

- Hashimoto thyroiditis
- Oncocytic variant of medullary
- Tall cell variant of papillary

Hurthle cell neoplasm

- Cells with abundant granular cytoplasm, prominent nucleoli, follicular, solid/ trabecular pattern are the features. But nuclear features of papillary are absent. It can be confused with oncocytic variant of papillary if papillae & nuclear features not so evident.

Hashimoto's thyroiditis

- Mixed population of lymphocytes, Hurthle cells, occasional Nuclear pallor and nuclear grooves & Scant colloid are the features of Hashimoto's thyroiditis.

In any case if we see nuclear features of papillary thyroid carcinoma like nuclear clearing, grooves, inclusions, powdery chromatin, nuclear crowding in many clusters in FNAC, papillary carcinoma should be suspected & papillary pattern, follicular pattern or oncocytic change should be searched.

Oncocytic variant of medullary Carcinoma

It is one of the variants of medullary carcinoma & is a differential diagnosis for oncocytic lesions in thyroid. Focal areas of oncocytic change, solid or trabecular pattern, Stippled chromatin, presence of amyloid are the features. In aspirates of medullary carcinoma, cells are variable in shape with polygonal, bipolar or spindle shapes & nuclei often eccentric with a plasmacytoid appearance. Amyloid deposits may be found in 50-70% aspirates. Immunohistochemistry may be helpful for the diagnosis in difficult cases. The tumor cells are immunoreactive for calcitonin in the vast majority of cases. Carcinoembryonic antigen (CEA) is expressed in most cases & tumor cells are typically positive for neuroendocrine markers. There is also positivity for TTF-1

Tall cell variant of papillary

Tumor composed predominantly of cells with the height at least three times their width. Cytoplasm is plentiful & oxyphilic due to accumulation of mitochondria. Occurs in slightly older age group. (50-57). Bulkier tumors,

more likely to show extrathyroid extension(42-82%).More aggressive (recurrence in 18-58%, mortality 9-25%). Identification of this variant is important.

Conclusion

Papillary thyroid carcinomas with predominant hurthle cells constitute a distinct morphologic variant with variable prognosis.It poses many diagnostic challenges, mimicking both neoplastic & nonneoplastic conditions. Both clinician & pathologist should be familiar with difficulties involved in diagnosis. Attempts should be made to diagnose this variant by FNAC.

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Tic Disorder with Functional Overlay

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Introduction

Tics are sudden, brief, intermittent, repetitive and non rhythmic movements (motor tics) and utterances (phonic tics) that are involuntary or semi voluntary in nature (1). It is a hyperkinetic movement associated with sensory phenomenon (2). It commonly affects the muscles of face and neck and it occur in response to a stimulus or in response to an internal urge. Tic disorder begins at 4 to 5 years of age but often don't present until later at around 9 to 10 years. Tics usually began as simple motor tics and in some progress to complex motor tics and phonic tics over a period of 1 to 2 years (3). Tic disorders are common among males than females (4). Prevalence of tic disorder in children vary from 1% to 29% depending on the characteristics of the study populations, the diagnostic criteria and methods of case ascertainment(5).Epidemiological studies involving direct observation indicate the highest prevalence of tics at 3 to 5 years of age and worst ever symptoms at 9 to 12 years of age(6). Meta analysis of 13 studies of children yielded a prevalence of tourette at 0.577% and prevalence is higher in boys(1.06%) than girls(0.25%)(7).Tic disorders often have co-occurring psychiatric disorders, most commonly Obsessive-Compulsive Disorder(OCD) or Attention Deficient Hyperactivity Disorder(ADHD)(8).

Case

A 12 year old female child presented to the psychiatric OP with 1 year history of speech difficulties and unusual production of loud voice. She was also having frequent

blinking of eyes, head jerking, involuntary shrugging of shoulders and involuntary twitching movements of facial muscles. The motor tics started at the age of 9 years and vocal tics have a history of one year. The first appeared symptom was frequent eye blinking and then it progressed to involuntary motor movements like head jerking, shrugging of shoulders and grimacing. The symptoms were mild and were left untreated. The vocalization occurred 3 to 4 times per day initially and by time the frequency increased such that the sound occurred every few minutes. The vocalization was high pitched, troublesome and it severely affected her day today social life and was not going to school. Patient was seen by consultants, both psychiatrists and neurologist, she was treated with antipsychotics. In spite of the treatment the sound production persisted. As per the details obtained from her care taker no relevant family history of mental illness was found.

On physical examination she was conscious, oriented responding appropriately to oral commands and answering to questions. She was making sharp loud voice preceded by throat clearing and facial twitching. Her vitals were normal and no other physical symptoms were observed. Mental status examination was done. Though she was adamant and anxious rapport was easily established. She was the second among 4 siblings. There was no history of psychiatric illness in her family and her developmental milestones were normal. Her premorbid personality showed some borderline traits. The content of her thoughts showed some ideas of helplessness. She had a slight awareness of being sick,

but denying at the same time. She was admitted and all investigations including laboratory tests, MRI scan and EEG were done. There were no abnormalities observed. No features suggestive of obsessive compulsive disorder (OCD) were seen and the evidences of attention deficit hyperactivity disorder (ADHD) were also found negligible

Child apperception test (CAT) was performed on the second day which usually illustrates the various personality traits in children. CAT has the maximal benefit in children of 3-12 years age. She performed CAT without much narration and abstract thinking. She only mentioned concrete superficial and one-dimensional things. On evaluation it was assessed that she isn't bothered about constraints and believes in an easy start and end. She couldn't adapt to the situations and was intolerant. Evidences of sibling rivalry were seen during CAT. During counselling sessions and consultation her symptoms exaggerated showing her attention seeking behaviour. She was over attached to her grandfather and her conditions worsened in his absence.

She was admitted in the Psychiatry ward for about 30 days and managed with antipsychotics haloperidol and tetrabenazine. The risks of extra pyramidal side effects were prevented with trihexiphenydl hydrochloride 2mg twice a day. 5mg haloperidol was given twice a day and tetrabenazine in the dose 25 mg once a day. ASO titer result came positive and she was started with tablet Pentids 400mg on the 16th day of therapy.

Along with pharmacological therapy JPMR training was also given to the patient. During the initial days she was unable to complete the relaxation therapy without producing phonic tics but gradually the frequency of tics decreased and finally she was able to perform the relaxation therapy without tics. Psycho education was given to her care givers. Environmental manipulation was done in order to tangle the separation anxiety when grandfather is away from her. As a part of psycho education, the grandfather was advised to stop over satisfying her needs and also not to reinforce her insistence.

Discussion

Tic disorders begin at 4 to 5 year but often don't present until later at around 9 to 10 years. They are known to effect 10 % of children Tics begin as simple motor tics then it progress to motor tics and phonic tics appear later.(3).In this case the tics started at the age of 9 years. Motor tics appeared first and vocal tics have a history of 1 year. By 18 years tics often wane but in small percentage it may be problematic (9).ADHD often present prior to tic onset. They may improve during adolescence but at slower rate than tic behavior. The presence of co morbidity predicts poorer psychosocial outcome (10).Co morbid disorders were absent in this patient. Female relatives of patients with tics, have elevated rates of obsessive compulsive behavior and it appear likely that obsessive compulsive behavior is an alternate expression of tic disorder(11).The different approaches for management of chronic tics include : Pharmacological therapy,habit reversal training and exposure with response prevention.Add on therapies are contingency management, function based intervention, relaxation therapy etc.The pharmacologat treatment include dopamine D2 receptor antagonist therapy and dopamine agonist therapy. The neuroleptic drugs are the current standard in terms of efficacy in the treatment of tics .They can be effective at doses far below the usual treatment dose for psychosis. RCTs of haloperidol, fluphenazine , pimoxide reported to improve tics(12). Risperidone , olanzapine and ziprasidone have been shown to produce better efficacy with fewer side effects(13).In the disorder with co morbid ADHD, atomoxetine stimulants or clonidine should be considered or if tics are severe, combination of stimulants and risperidone. Mild to moderate tics associated with OCD , depression or anxiety sulphiride monotherapy can be helpful. More severe cases, combination of risperidone and SSRI should be given (14).here we used antipsychotic haloperidol and tetrabenazine.

Conclusion

This is a case of tic disorder with functional overlay. Along with tics the evidences of conversion disorder were also considered. This is one of the examples where the benefits of combining psychotherapy along with conventional pharmacologic treatments were proved.

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The Challenge of Antimicrobial Resistance the Global Concerns

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Bacterial resistance to antimicrobials is recognized by the WHO as a major health threat of the 21st century. Antimicrobial resistance threatens the effective prevention and treatment of an ever-increasing range of infections. Infections such as tuberculosis and septicemia - the scourge of earlier centuries - are once again killing patients at frightening rates. Bacterial resistance is driven by the continued use of antimicrobials and it is unlikely that the threat of resistance can be effectively mitigated by the discovery of new antimicrobials. We have used, or are using, our so-called drugs of last resort. There is nothing left in the armory and investments in new drugs are missing, we are moving into the post-antimicrobial era.

Majority of recent research articles published on infections are mainly discussing on drug resistant infections where we are fighting the losing battle with our last resort antibiotics. A few abstracts are quoted below,

1. Andre M. Siqueira, Aline C. Alencar, Gisely C. Melo et al; *Fixed-Dose Artesunate-Amodiaquine Combination vs Chloroquine for Treatment of Uncomplicated Blood Stage P. vivax Infection in the Brazilian Amazon: An Open-Label Randomized, Controlled Trial*; Clin Infect Dis (2016) ciw706. DOI: <https://doi.org/10.1093/cid/ciw706>

Published: 16 December 2016

Abstract

Background

Despite increasing evidence of the development of Plasmodium vivax chloroquine (CQ) resistance, there have been no trials comparing its efficacy with that of artemisinin-based combination therapies (ACTs) in Latin America.

Methods

This randomized controlled trial compared the antischizontocidal efficacy and safety of a 3-day

supervised treatment of the fixed-dose combination artesunate-amodiaquine Winthrop® (ASAQ) versus CQ for treatment of uncomplicated P. vivax infection in Manaus, Brazil. Patients were followed for 42 days. Primary endpoints were adequate clinical and parasitological responses (ACPR) rates at day 28. Genotype-adjustment was performed.

Conclusions

ASAQ exhibited high efficacy against CQ resistant P. vivax and is an adequate alternative in the study area. Studies with an efficacious comparator, longer follow-up and genotype-adjustment can improve CQR characterization.

Clinical Trials Registration. NCT01378286.

Key words: Plasmodium vivax, malaria, chloroquine, randomized clinical trial, artesunate-amodiaquine.

2. Shawn R. Lockhart Kizee A. Etienne Snigdha Vallabhaneniet al ; *Simultaneous Emergence of Multidrug-Resistant Candida auris on 3 Continents Confirmed by Whole-Genome Sequencing and Epidemiological Analyses*; Clin Infect Dis (2016) ciw691. DOI: <https://doi.org/10.1093/cid/ciw691>

Published: 16 December 2016

Abstract

Background

Candida auris, a multidrug-resistant yeast that causes invasive infections, was first described in 2009 in Japan and has since been reported from several countries.

Methods

To understand the global emergence and epidemiology of C. auris, we obtained isolates from 54 patients with C. auris infection from Pakistan, India, South Africa,

and Venezuela during 2012–2015 and the type specimen from Japan. Patient information was available for 41 of the isolates. We conducted antifungal susceptibility testing and whole-genome sequencing (WGS).

Results

Available clinical information revealed that 41% of patients had diabetes mellitus, 51% had undergone recent surgery, 73% had a central venous catheter, and 41% were receiving systemic antifungal therapy when *C. auris* was isolated. The median time from admission to infection was 19 days (interquartile range, 9–36 days), 61% of patients had bloodstream infection, and 59% died. Using stringent break points, 93% of isolates were resistant to fluconazole, 35% to amphotericin B, and 7% to echinocandins; 41% were resistant to 2 antifungal classes and 4% were resistant to 3 classes. WGS demonstrated that isolates were grouped into unique clades by geographic region. Clades were separated by thousands of single-nucleotide polymorphisms, but within each clade isolates were clonal. Different mutations in *ERG11* were associated with azole resistance in each geographic clade.

Conclusions

C. auris is an emerging healthcare-associated pathogen associated with high mortality. Treatment options are limited, due to antifungal resistance. WGS analysis suggests nearly simultaneous, and recent, independent emergence of different clonal populations on 3 continents. Risk factors and transmission mechanisms need to be elucidated to guide control measures.

Candida auris, candidemia, fluconazole resistance, amphotericin B resistance, whole genome sequence typing.

3. Faydra I. Lieveld Joop E. Arends Linde Amelung; *Overcoming Outpatient Loss to Follow-up as a Barrier to Efficiently Instituting Hepatitis B Liver-related Care*; Clin Infect Dis (2016) ciw746. DOI: <https://doi.org/10.1093/cid/ciw746>

Published: 16 December 2016

An estimated 72% of HBV patients in countries of low endemicity are untreated [2], which can be attributed to disease factors, physician factors, and patient factors, such as ignorance regarding seriousness of the disease with subsequent loss to follow-up [3, 4]. Outpatient loss

to follow-up does not necessarily indicate failure on behalf of the patient, but instead may indicate flaws in the outpatient-care system [5]. By identifying those at risk, optimal liver-related care can be given with subsequent deceleration of disease progression. We aimed to identify factors associated with outpatient loss to follow-up in a case-control study.

4. Yael Dishon Benattar Muna Omar Oren Zusman et al; *The Effectiveness and Safety of High-Dose Colistin: Prospective Cohort Study*; Clin Infect Dis (2016) 63 (12): 1605-1612. DOI: <https://doi.org/10.1093/cid/ciw684>

Published: 06 October 2016 Article history

Background

Optimizing colistin dosing should translate to improved patient outcomes.

Methods

We used data from 2 prospective cohort studies performed between 2006 and 2009 and between 2012 and 2015. In the latter period, a new policy of high-dose colistin (9 million international units [MIU] loading dose followed by 9 MIU daily for normal renal function) was introduced in 2 participating hospitals. We included adult inpatients with invasive infections caused by carbapenem-resistant gram-negative bacteria treated with colistin. Our primary exposure variable was colistin dose, dichotomized to high-dose vs other regimens. The primary outcome was 28-day mortality. We generated a propensity score for high-dose colistin and conducted propensity-adjusted multivariable and matched-cohort analyses for mortality.

Results

Of 529 consecutive patients fulfilling inclusion criteria, 144 were treated with high-dose colistin and 385 with lower-dose colistin regimens. The median daily dose in the high-dose group was 9 MIU (interquartile range [IQR], 9–9) vs 4 MIU (IQR, 3–6) with other regimens. There were 50 of 144 (34.7%) deaths with high-dose colistin vs 165 of 385 (42.9%) with low-dose colistin ($P = .1$). The propensity-adjusted odds ratio (OR) for mortality was 1.07 (95% confidence interval [CI], .63–1.83) for high-dose colistin. Similar results were obtained when using the study period as the exposure variable, in

the subgroup of bacteremic patients (n = 207) and in the propensity-matched cohort (OR, 1.11 [95% CI, .67–1.82]). Nephrotoxicity (RIFLE injury or higher; OR, 2.12 [95% CI, 1.29–3.48]; n = 396) and seizures were significantly more common with high-dose colistin.

5. Laura J. Rojas, M.S. Madiha Salim, M.D. Eric Cober, M.D et al; *Colistin Resistance in Carbapenem-Resistant Klebsiellapneumoniae: Laboratory Detection and Impact on Mortality*; Clin Infect Dis (2016) ciw805. DOI: <https://doi.org/10.1093/cid/ciw805>

Published: 10 December 2016

Abstract

Background Polymyxins including colistin are an important “last-line” treatment for infections caused by carbapenem-resistant *Klebsiellapneumoniae* (CRKp). Increasing use of colistin has led to resistance to this cationic antimicrobial peptide.

Methods

A cohort nested within the Consortium on Resistance against Carbapenems in *Klebsiellapneumoniae* (CRACKLE) was constructed of patients with infection, or colonization with CRKp isolates tested for colistin susceptibility during the study period of December, 2011 to October, 2014. Reference colistin resistance (CoIR) determination as performed by broth macrodilution was compared to results from clinical microbiology laboratories (Etest) and to polymyxin resistance testing. Each patient was included once, at the time of their first colistin-tested CRKp positive culture. Time to 30-day in-hospital all-cause mortality was evaluated by Kaplan-Meier curves and Cox proportional hazard modeling.

Results In 246 patients with CRKp, 13% possessed CoIRCRKp. CoIR was underestimated by Etest (very major error rate=35%, major error rate=0.4%). A variety of rep-PCR strain types were encountered in both the CoIS and the CoIR groups. Carbapenem resistance was mediated primarily by *bla*_{KPC-2} (46%) and *bla*_{KPC-3} (50%). CoIR was associated with increased hazard for in-hospital mortality (aHR 3.48, 95% CI 1.73-6.57, p<0.001). The plasmid-associated CoIR genes, *mcr-1* and *mcr-2* were not detected in any of the CoIRCRKp.

Conclusions In this cohort, 13% of patients with CRKp presented with CoIRCRKp. The apparent polyclonal nature of the isolates suggests *de novo* emergence of CoIR in this cohort as the primary factor driving CoIR. Importantly, mortality was increased in patients with CoIR isolates.

Key words: colistin, carbapenem-resistant Enterobacteriaceae, *Klebsiellapneumoniae*, mortality, ST258

6. Sallam MM, Abou-Aisha K, El-Azizi M; *A novel combination approach of human polyclonal IVIG and antibiotics against multidrug-resistant Gram-positive bacteria*; 8 December 2016 Volume 2016:9 Pages 301—311 DOI;

<https://doi.org/10.2147/IDR.S120227>

Background: Gram-positive bacteria, especially methicillin-resistant *Staphylococcus aureus* (MRSA) and enterococci, have shown a remarkable ability to develop resistance to antimicrobial agents.

Objective: We aimed to assess possible enhancement of the antimicrobial activity of vancomycin, amoxicillin, clarithromycin, and azithromycin by human polyclonal intravenous immunoglobulin G (IVIG) against 34 multidrug-resistant (MDR) bacterial isolates, including MRSA, *Enterococcus faecium*, and *Enterococcus faecalis*.

Materials and methods: Double combinations of the antibiotics with the IVIG were assessed by checkerboard assay, where the interaction was evaluated with respect to the minimum inhibitory concentration (MIC) of the antibiotics. The results of the checkerboard assay were verified in vitro using time-kill assay and in vivo using an invasive sepsis murine model.

Results: The checkerboard assay showed that IVIG enhanced the antimicrobial activity of amoxicillin and clarithromycin against isolates from the three groups of bacteria, which were resistant to the same antibiotics when tested in the absence of IVIG. The efficacy of vancomycin against 15% of the tested isolates was enhanced when it was combined with the antibodies. Antagonism was demonstrated in 47% of the *E. faecalis* isolates when clarithromycin was combined with the IVIG. Synergism was proved in the time-kill

assay when amoxicillin was combined with the antibodies; meanwhile, antagonism was not demonstrated in all tested combinations, even in combinations that showed such response in checkerboard assay.

Conclusion

The suggested approach is promising and could be helpful to enhance the antimicrobial activity of not only effective antibiotics but also antibiotics that have been proven to be ineffective against MDR bacteria. To our knowledge, this combinatorial approach against MDR bacteria, such as MRSA and enterococci, has not been investigated before.

Keywords: human polyclonal IVIG, MRSA, vancomycin, amoxicillin, *Enterococcus faecalis*, *Enterococcus faecium*, nonconventional antimicrobials, multidrug resistance

Considering the challenges of antibiotic resistance and the impact on health economics, WHO organized World Antibiotic Awareness Week between 14-20 November 2016. The slogan was 'Antibiotics: Handle with care'.

World Antibiotic Awareness Week aimed to increase awareness of global antibiotic resistance and to encourage

best practices among the general public, health workers and policy makers to avoid the further emergence and spread of antibiotic resistance.

A global action plan to tackle the growing problem of resistance to antibiotics and other antimicrobial medicines was endorsed at the Sixty-eighth World Health Assembly in May 2015. One of the key objectives of the plan is to improve awareness and understanding of antimicrobial resistance through effective communication, education and training.

The theme of the campaign, Antibiotics: Handle with Care, reflects the overarching message that antibiotics are a precious resource and should be preserved. They should be used to treat bacterial infections, only when prescribed by a certified human or animal health professional. Antibiotics should never be shared or saved for the future.

WHO is encouraged all Member States, health partners and students, and the public to join this campaign and help raise awareness of antibiotic resistance. A variety of resources were made available to support local campaigns and a number of additional materials were also made available in the lead up to the week.

Instruction for Authors

Journal of Advances in Medical Education and Research (JAMER) considers for publication articles in all fields of Medicine. Manuscripts must be prepared in accordance with “Uniform requirements for Manuscripts submitted to Biomedical Journal” developed by International Committee of Medical Journal Editors (2006). The uniform requirements and specific requirement of Journal of Advances in Medical Education and Research are summarized below.

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