

2nd International Conference on

Chronic Diseases

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Scientific Tracks & Abstracts Day 01





The development of chronic diseases and therapeutic concepts from a complex systems point of view

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The medical community fails dramatically in the understanding of chronic diseases and development of causal therapies. Unquestioned statistical associations between vaccinations or infections and autoimmune diseases, Gulf war illness, chronic fatigue syndrome, post Lyme syndrome, or the mild encephalitis in schizophrenia remains without any scientific rational. This points to the need for new scientific approaches, different from unsuccessful linear clonal selection concepts in immunology. Nonlinear dynamics analyzed in time series, phase portraits and mathematical models. Three different types of chronic diseases can be discriminated in neurology by cerebrospinal fluid analysis: (1) Chronic inflammatory diseases with persisting causative antigen, (2) Chronic inflammatory diseases without persisting antigens but humoral immune response and (3) Immune System Associated Pathologies (ISAP) without pleocytosis or signs of a humoral immune response. Ad1: In a virus-driven chronic disease, like Fuchs Heterochromic Cyclitis of the eye, the chronification of the infection was described as an attractor, i.e. as one of the stable optional states between complete immunity and death. This model helps create causal therapies by facilitating phase transitions to complete immunity. Ad 2: The arbitrary poly-specific immune response (e.g. in multiple sclerosis) is based on individual connectivity in the immune network. Ad 3: Chronic diseases with a sudden change from stable health to a pathological but stable state are phase transitions based on metabolic fluctuations spontaneous or facilitated by external influences (via the immune, endocrine or nervous system). With an immune system associated pathology, an initiation by vaccination or infection has to be regarded as a facilitator for a phase transition, like a catalyst, but not as the cause. With this causation we understand why no traces, like causative antigens, are found in these diseases as a self-organizing stable state. A reduced complexity with reduced stability in the regulation of diseased organisms can be shown by the numerical analysis of time series (e.g., heart rate) or attractor phase portraits. The complexity approach shows why antiviral or antibiotic medications fail in chronic diseases. Disease as an emergent property should be investigated on the phenotype level. Nonlinear analysis of time series of the individual patient gives information not available from group statistics of molecular multi-scale systems or systems biology. New research perspectives could base on the extended time of registry after vaccinations and should focus on causal therapies, which need financial support, independent from the medical-industrial complex, with its divergent interests.

Biography

Current Research: Integrative Medicine

Hansotto Reiber has completed his Diploma in Biochemistry, Dr. rer nat in Biophysics and is the Professor for Neurochemistry, University Göttingen, Germany, 1978-2005 (retirement). Since 1991-2015 he is the Supervisor and Organizer of the Cerebrospinal Fluid Quality Control (EQAS) for Germany and different European countries, INSTAND, Germany. Fields of Competence: Cerebrospinal fluid (CSF) analysis, theory of blood-CSF barrier function and CSF flow. Dynamics of brain- and blood-derived proteins in CSF. Neuroimmunology and basic research in chronic neurological diseases. Particular research in CSF analysis in tropical Neurology. Basic research on nonlinear dynamics of biological processes, self organization concepts in biological and medical sciences. Analysis of aqueous humor for diagnosis of eye diseases. >200 publications (www.horeiber.de). International courses and seminars on CSF analysis for diagnosis of neurological diseases.

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Chronic Diseases 2018
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How to manage uncertainty in clinical decision making of the complex inpatients

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From the beginning of the 1990s Evidence-Based Medicine (EBM) promoted the use of high quality clinical research in clinical decision making through systematic reviews and meta-analyses of best available research. EBM has challenged clinicians to modify their way of action based on practical reasoning and clinical judgment. At the same time increased life expectancy has resulted in an aging population with multiple chronic conditions and different clinical presentation. So that uncertainty is often present in clinical decision making. In this sense it is worth remembering what Sir William Osler said: Medicine is a science of uncertainty and an art of probability. According to Mishel's theory uncertainty arises from complexity, unpredictability, ambiguity and a lack of information. In the clinical real world uncertainty may develop from patients' inadequacy to give a complete history, the unpredictable response of diseases to treatment, patient's desire to participate, incompletely informed, in the clinical decision making process so that both physicians and patients are facing the uncertainty of treatment success with any strategy in a particular disease condition and with the impact of treatment outcome on overall prognosis. For this reason physician must be aware that standardized methods cannot provide all the answers for an optimum strategy for each patient. About this issue Lonergan's thought can help us. According to the Canadian philosopher, mathematician, theologian and economist science involves interpretation and needs methods not only for measurement and explanation but for how to perform interpretation as part of the scientific endeavor. This need for interpretation does not only concern science methodology but also clinical practice. Uncertainty does not represent a regrettable and unavoidable aspect of clinical decision making but a productive component.

Biography

Corrao Salvatore is an Associate Professor in the University of Palermo, Italy. He is the Member of the Biomedical DPT of Internal and Specialist Medicine, Director of C.R.E.A.M. (Interdipartimental Center of Research for Effectiveness and Appropriateness in Medicine), Director of Internal Medicine DPT with rheumatology, dermatology, geriatric and rehabilitation service, ARNAS Civico, Di Cristina e Benfratelli, Palermo. Director of Internal Medicine DPT with Rheumatology, Dermatology, Geriatric and Rehabilitation Service, ARNAS Civico, Di Cristina e Benfratelli, Palermo. He completed degree in Medicine and surgery at University of Palermo, masters in Business Management and specialization in Internal Medicine.

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Chronic Diseases 2018 July 16-17, 2018



Mental health perception among Saudi population at Riyadh city: A cross sectional study

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Background & Aim: Mental health had been recognized as one of the elements of health definition by world health organization. In Saudi Arabia, mental health provision still limited at primary health. Moreover, a high percentage of Saudi patients have mental disorders with lower ability of primary health care center physicians to diagnose mental illness. Available knowledge and practice form society beliefs based on how things seem. This study describes the perception of Saudi society towards mentally ill people.

Methods: A cross sectional study using modified questionnaire items modified into 24 questions. A pilot study conducted using 30 participants to test reliability and validity. Total participants is 249, the questionnaires distributed using three ways: Interview with 8 persons on public, 33 distributed research questionnaire papers and 208 electronically via Google forum and distributed by WhatsApp and twitter applications. 11 questionnaires are omitted due to incomplete answer of questions. Data collection was done in Riyadh city in 2016, April 25th to May 7th.

Result: Majority of respondents is male, living in Riyadh, not married and has an education higher than secondary school. The age of participants is 27±9 years with most of them are not working. The majority of participants agrees that the mental ill person is able to work, can be treated outside of hospital, mental illness can affect anybody and they can accept the friendship of mentally ill person. On the other hand, a high percentage of participants disagree with mental illness never cured, feeling uncomfortable in the same job, avoiding contact, becoming afraid when encountered in conversation with mentally ill person.

Conclusion: The study shows that respondents are emotional towards mentally ill people in Saudi Arabia, but there are some of respondents whom labeling mentally ill as dangerous people and are not willing to marry to mentally ill person.

Biography

Khaled M Alsubiaee is a Healthcare Professional Researcher. He has interest in different research area, including risk management, community related issues, public health and medicine. Recently, Alsubiaee joins Australasian Medical Journal (AMJ) as a reviewer.

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Current Research: Integrative Medicine

Chronic Diseases 2018 July 16-17, 2018



The possible involvement of Epstein-Barr virus in the etiology of leukemia in Sudanese patients

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The research studies the etiology of leukemia. No single known cause for all of the different types of leukemia exists. Controversial hypotheses was proposed suggesting the role of physical as well as chemical and even biological factors as being responsible for leukemia incidents. The actual cause of leukemia which is a serious cancer in Sudan is still under scrutiny. We hypothesized that EBV could be involved in the etiology of leukemia. We describe here the results of our attempt to find a possible link between leukemia and EBV. It is generally accepted that the EBV is an important etiologic factor in various tumors. Virtually little was reported about the relationship between EBV genes and leukemia. However, no full-length analysis of any sub-strain of EBV in Sudan area has been reported. The main objective of this study is to assess the incidence and the significance of EBV in patients with leukemia disorder using diagnostic parameters including cell morphology, immunologic markers and molecular investigations. Our findings provided evidence of the involvement of EBV in patients with leukemia. The results suggested that EBV DNA genome encoding the non-glycosylated membrane protein BNRF1 pl43 was observed in a significant proportion of patients with ALL. We could not exclude a correlation between these viral infections and later leukemogenesis in childhood ALL in Sudan. Further investigation on the link between maternal EBV reactivation and the development of ALL in offspring needs to be explored. Neither latent infection nor congenital infection could be excluded.

Biography

Haitham E Elawad is currently an Assistant Professor of Microbiology and Immunology at Omdurman Islamic University, Faculty of Medical Laboratory. He has been appointed as the Associate Editor of *Journal of Blood Disorders, Symptoms and Treatments*, Canada. He has served as an Associate Editor of Sudan Medical Laboratory Journal (SMLJ). He has been appointed as Member in the Editorial Board of Allergy and Immunology Journal.

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Current Research: Integrative Medicine

Chronic Diseases 2018 July 16-17, 2018



End-users' involvement in the design and development of medical technology devices: The manufacturer's perspective

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Background & Aim: It is clear through the literature and newly implemented regulations that the involvement of end-users in the development of Medical Device Technologies (MDTs) is a matter of growing interest. Many advantages are perceived by this involvement like an easier implementation, a faster acceptance, a lower resistance to technology and an overall safer healthcare service provided. However, this involvement is often perceived by manufacturers as imposed and its application comes with a series of barriers. In this research we will try to identify manufacturers' perceptions regarding this involvement and underline their concerns and vision.

Methods: We conducted in-depths semi-structured interviews with 22 participants representing major MDT manufacturers keyplayers in the field. Each interview lasted an average of 1h and 15 minutes and participants were asked about their perception regarding end-user involvement in MDT development processes, ranging from the criteria of selection of the end-users, the forms of involvement, the potential impact of this involvement as well as the barriers, concerns and skepticism regarding it.

Results: It is clear that even though the involvement of end-users in MDT development process is often considered as a positive step towards safer healthcare services, manufacturers still show some form of skepticism towards this initiative. They question end-users' maturity and prefer to deal with lead-users, they point out several barriers in regards to project duration, costs, administrative complications, but admit advantages regarding an easier subsequent implementation of MDTs and an easier acceptance of their outcome in the market.

Conclusion: End-users' involvement in MDT Development processes is still conducted in an ad-hoc manner but its standardization can be promising and contribute towards an optimization of the development processes. Additional works have to be done mainly regarding end-users selection criteria, levels of involvement and forms of implication.

Biography

Selim Hani has received his Bachelors in Neuroscience from McGill University in Montreal, a Master's degree in Industrial Engineering and a PhD in Industrial Engineering from the École Polytechnique de Montréal and the University of Montreal. With a multidisciplinary background merging healthcare and technologies he has focused his research on the field of healthcare technologies in an aim to contribute to the development of this particular field. Assistant Professor at the American University of Beirut, he is active in the field of entrepreneurship and healthcare simulation, working to breaking barriers to the initiatives in that regard.

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Notes:

Current Research: Integrative Medicine

Chronic Diseases 2018 July 16-17, 2018



2nd International Conference on

Chronic Diseases

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Young Scientists Forum Day 02





Evaluation of self-efficacy educational interventions in patients with diabetes: A systematic review

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Background & Aim: Self-efficacy plays a central role in individuals' behavior change. Previous reviews of diabetes education conducted among participants with diabetes have shown the effectiveness of diabetes education and some studies indicated that an educational intervention supported with theory showed desirable results in blood glucose levels. However, the studies did not analyze the components of the intervention. And no studies have examined the effectiveness and characteristics of a diabetes educational intervention based on a theory. The purpose of this study is to evaluate the effectiveness of diabetes self-efficacy educational interventions in patients with diabetes and to determine the effective components of the interventions.

rogroggapp	ords identified through a ematic search (n=2533) d: 785, Web of science: BSCO: 127, CNKI: 327, 1g: 420, SinoMed: 269	Additional records identified through other sources (n= 4)
Screening	Duplicates removed (r Records screened (tit abstract) (a=1470	le and)) (n=1402)
Eligititity	Full-text articles asses eligibility (n=68	Articles excluded on reading full-text (n=52) a) Study design (n=11) b) Review (n=4) c) Not self-efficacy theory based (n=28)
Figure 2	Number of articles in (n=16)	d) Participants (n=9)

Methods: Six databases were systematically searched for studies on the metabolic controls, diabetes self-efficacy, behavior, knowledge, psychological indicators and quality of life of diabetes self-efficacy educational interventions for patients with diabetes. 16 studies published between 2006 and 2017 met the inclusion criteria.

Results: Glycosylated hemoglobin A1C, fasting blood glucose, diabetes self-efficacy, behavior and knowledge were identified as positive results in most studies. Only five studies used the complete four sources of information, and eight studies assessed both the self-efficacy and behavior of participants based on self-efficacy theory. Performance accomplishments, vicarious experience and verbal persuasion were predominantly employed. Such strategies as goal setting, practicing self-management skills, participants' return-demonstration, behavior recording, peer modeling, verbal persuasion by nurses and face to face delivery were preferred in the included studies.

Conclusion: Individuals with diabetes are likely to benefit from diabetes self-efficacy educational interventions. The four sources of information and outcome assessments based on self-efficacy theory were insufficient in most studies. Future work is required to develop an effective diabetes self-efficacy educational intervention and further determine the effects.

Biography

Xinjun Jiang is a PhD candidate in Nursing School, Peking University. Her research area is about the diabetes self-management education for persons with diabetes. Now she is conducting a culturally sensitive diabetes education program in China, with the purpose of helping persons with diabetes change behaviour and keep desirable results in blood glucose levels.

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Current Research: Integrative Medicine

Chronic Diseases 2018 July 16-17, 2018



Myopathy of livestock and horses as a disease of economic significance

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Statement of the Problem: Myopathy in livestock and horses is a degenerative disease of the skeletal muscle that is characterized by muscle weakness and hyaline degeneration of muscle fibres. They are of important economic significance because this disease affects the animal's productivity and the farm's profitability. The etiologies of this disease are dependent on the type of myopathy and can be nutritional, exertional, genetic or even neurogenic in nature. The purpose of this study is to determine the most common types of myopathies that affect livestock and horses, their pathogeneses that will enable higher efficiency of prevention, different treatment methods used and how these specific types of myopathies can be models for muscular dystrophy in humans.



Methodology & Theoretical Orientation: Several separate studies were run with cattle, horses and pigs. The most commonly occurring myopathies, their clinical signs and development of the disease, methods for diagnosis, as well as the different treatment protocols that were implemented were researched in these animals. Genetically engineered pigs were also studied as a model for Duchenne Muscular Dystrophy in humans.

Findings: The commonly occurring type of myopathy in most farm animals, enzootic nutritional muscular dystrophy was a result of nutritional deficiencies, particularly of selenium and vitamin E. Exertional rhabdomyolysis and equine polysaccharide storage myopathy were found mostly in horses. Early detection, especially of animals most prone to a specific type of myopathy, and ongoing treatment & control of the disease enables effective recovery of the animal.

Conclusion & Significance: Most types of myopathies, with the exclusion of genetic or congenital can be prevented through highly efficient management systems. Additionally, myopathies in animals can serve as an effective model for human muscular dystrophy, especially pigs as they share many similarities with humans in terms of anatomical features, physiology and pathophysiology.

Biography

Kirsty Tan is pursuing her Masters of Agrigenomics from University of Kiel in Germany. She is specializing in animal breeding, genetics and nutrition of farm animals. She is currently studying the effects of genetics on important economic traits in farm animals and how these traits can be improved through the application of the latest genetic techniques.

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Notes:

Current Research: Integrative Medicine

Chronic Diseases 2018 July 16-17, 2018



2nd International Conference on

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Designing indirect ELISA test for detection of antibodies against serotype A2013 of Foot and Mouth Disease (FMD) virus in cattle

Fatemeh Malekdar

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F including Iran where the disease is native to. Among the ways to combat FMD is vaccination and slaughter. Because of the specific situation of Iran, it is rather not possible to kill infected animals. Therefore, vaccination seems to be the most important way to fight the disease. The methods used to evaluate the safety and determine the titer of antibody in a serum are mainly Serum Neutralization Test (SNT) and Enzyme Linked Immune-Sorbent Assay (ELISA). In this research, designing an indirect ELISA test based on coating of 140S complete viral particles makes it possible to determine antibody and following the fact that determining serotype and viral type does not require time-consuming and complex molecular tasks, including gene expression. In addition, in the event of a new epidemic, a new epidemic condition can be detected by using serum antibody testing of the same animal. In this study, SNT test was used as a Gold Test to determine the serum antibody level and its results was compared with indirect ELISA method to determine the sensitivity and specificity of the indirect ELISA test for measuring the anti-virus antibody rate of type (A2013) FMD through ROC analysis, with 100% sensitivity and the specificity of 90% sensitivity, using routine formulas with 100 sensitivity and specificity of 82%. In this study, considering a cut off OD=0.3, there was a significant difference between the vaccinated animals and the unvaccinated animals in terms of antibody level against the A2013 type. This indicates the correctness of the test and the accurate and proportional antibody detection against the under study viral types of FMD.

Biography

Fatemeh Malekdar is a Research Assistant at the Razi Vaccine and Serum Research Institute. Her main research interests are in FMD virus. She is currently working on MSc thesis on the Designing Indirect ELISA Test for Detection of Antibodies against Serotype A2013 and O2010 of Foot and Mouth Disease (FMD) virus in cattle. The research is supervised by Professor Homayoon Mahravani in FMD department.

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Current Research: Integrative Medicine

Chronic Diseases 2018 July 16-17, 2018