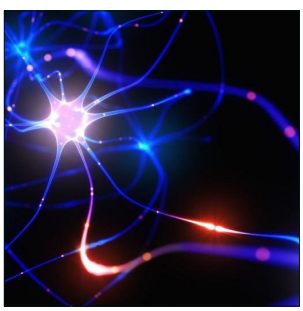
Poster

Dementia 2019

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Alzheimer's risk factors and impact on heart: Role of Propolis, Vinpocetine and Cocoa combination in enhancing the protective power of mental and physical activity in rats

Azza A Ali[1], Hosny A Elewa[2], Zeinab Alkasaby Zalat[1], Rehab Werida[3], Manal Ali Hamouda[4], Karema Abu-Elfotuh[1]

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Background: Alzheimer's disease (AD) is a progressive disorder that causes brain cells to waste away and die, memory loss is the key symptom of the disease. Protein malnutrition (PM) and Social isolation (SI) have strong correlations with cognitive decline, they precede the onset of dementia and represent risk factors in AD progression. Oxidative stress (OS) is also associated with AD progression and the deleterious effect of SI and PM on the heart, but mental and physical (M& Ph) activity can provide marked protection. Propolis (PROP) with its antioxidant ability can be an effective treatment for slowing down the damage caused by OS. Vinpocetine (VIN) can improve cerebral functions and enhance memory, it promotes cerebral utilization of oxygen and glucose. Cocoa can reduce stress, depression and promote better memory, the promising health benefits of cocoa flavonoids have been evidenced especially in cardiovascular and cerebrovascular disorders.

Objective: Study the correlation between heart-healthy and AD progression especially under the risk of PM&SI as well as, evaluate the impact of VIN, PROP and Cocoa combination in enhancing the power of M&Ph activity versus progression of AD in Rats.

Methods: Two major groups of rats were used; Normally- fed (NF) or PM (10% casein diet) group and each contain two sets; socialized or isolated set. Both sets were subdivided into 4 subgroups; two received saline (normal) and two received ALCl3, 70mg/kg IP every day (AD model) during the five weeks of the experiment. One normal and one AD model subgroups from each set were received orally combination treatment of PROP (300mg/kg), VIN (20mg/kg) and Cocoa (24mg/kg) together with weekly exposed to M&Ph activity using forced swimming and Y-maze tests. Biochemical parameters (AChE, Aβ, Tau, β-secretase, monoamines, oxidative stress and inflammatory markers) as well as DNA fragmentation and brain derived neurotrophic factor (BDNF) were estimated in the brain together with heart functions measurements (serum CKMB, PTX-3, Troponin, AST, HDL, LDL and Cholesterol). Histopathological changes in the heart and different brain regions were also examined.

Results: The deleterious effects of PM and SI on the heart were more sever with AD progression as indicated by the significant increase in serum CKMB, PTX-3, troponin, AST, LDL and Cholesterol together with the decrease in HDL. However, the protective effects of PROP, VIN and Cocoa combination enhanced the protection induced by M&Ph activity against the risk of PM and SI on heart especially in AD-associated groups. Histopathological examinations of the heart and brain confirmed the biochemical ones.

Conclusion: Marked protection against the deleterious effect of PM and SI on the heart during AD development was induced by using PROP, VIN and Cocoa combination. Moreover, they enhanced the protective power of M&Ph activity against hazards of different risk factors on the heart and brain.

Speaker Biography

Azza A Ali has completed her PhD specialized in Pharmacology and Toxicology from Faculty of Pharmacy, Cairo University, Egypt. Her postdoctoral studies included different scientific aspects especially on neurodegenerative disorders; she also developed research line of behavioral pharmacology in Egypt and participated as Advisory Board Member of the Arab Association for Pharmacy Development and at the Arab International Pharmacy Conference (AIPC 2019). She is member of many scientific societies as (AAPS) and Alzheimer's Association (ISTAART). She is also Editorial Board Member of many international Journals as Brain Disorder & Therapy, Acta Psychopathologica, EC Pharmacology and Toxicology as well as Organizing Committee Member and Chairperson at many international Conferences as the International Conference on Brain Disorders & Dementia Care, Canada (2017) and International Conference on Parkinson's Disease & Movement Disorders, USA (2017, 2018). She published more than 60 papers in reputed journals, supervised and discussed more than 90 PhD and MSc thesis and actively participated by workshop, oral and posters presentations at many international conferences especially on Dementia and Parkinson's disease and in the Alzheimer's Association International Conference (AAIC 2016, 2017). She has many appreciation certificates and certificate of best presentation award at 19th International Conference on Environmental Pollution and Pollution Control, London, UK (ICEPPC 2017). Now she is a Head of Pharmacology and Toxicology Department and Member of the Committee for the Promotion of Professors at Al-Azhar University, Egypt.

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The influence of caffeine and nicotine co-administration in enhancing the power of physical activity against aluminum-induced Alzheimer's disease in rats

Azza A Ali, Hanan A Abd El-Samea, Amany Balah, Hebatalla I Ahmed, Ebtehal El-Demerdash
Al-Azhar University, Egypt

Background: Alzheimer's disease (AD) is a neurodegenerative disorder characterized clinically by impairment of cognitive ability and memory. It represents one of the most financially draining and health problem diseases worldwide. Co-administration of caffeine and nicotine can attenuate the impairment of memory and cognitive decline associated with AD. Physical activities promote neurogenesis, decrease inflammatory reaction and eliminate oxidative stress.

Objective: The aim of the study is to evaluate the influence of physical activity together with caffeine and nicotine co-administration against aluminum-induced neurotoxicity that mimics AD in rats, in addition to study their possible mechanistic neuroprotective pathway.

Methods: Eight groups of rats were used and received daily for four weeks: Saline for control, one group served as model for AD and received (70 mg/kg, IP) aluminum chloride.6H2O (AlCl3). The other six treated groups (three of AD model and three without AlCl3) received combination of caffeine (2.5mg/kg, IP) and nicotine (0.5 mg/kg, SC) or exposed to physical activity (5 min swimming) or both of them. Three behavioral experiments were performed: Forced Swimming (FS) test, Morris Water Maze (MWM) task and Conditioned-Avoidance and Learning (CAL) test. Histopathological changes in the brain as well as biochemical changes in acetyl cholinesterase (AChE), β-amyloid protein (Aβ), oxidative stress markers (TAC, SOD, MDA), monoamines (NE, DA, 5-HT), inflammatory mediators (IL-6, TNF-α, NF-κB), brain derived neurotrophic factor (BDNF), insulin-like growth factor-1 (IGF-1), glycogen synthase kinase-3 beta (GSK-3β), β-catenin and Caspase-3 were also evaluated for all groups.

Results: Behavioral tests showed that co-administration of caffeine and nicotine together with physical activity have more pronounced protecting effect from learning and memory impairment induced by AlCl3 than physical activity alone. They also prevent neuronal degeneration in the hippocampus induced by AlCl3 while physical activity alone or co-administration of caffeine and nicotine still showed mild degeneration in hippocampus. The marked protection of both physical activity and co-administration of caffeine and nicotine is confirmed also by the significant improvement in biochemical parameters in brain tissue than using each of them alone.

Conclusion: Physical activity together with co-administration of caffeine and nicotine can reduce the risk of neuronal degeneration in the hippocampus and attenuate the impairment of learning and memory associated with AD in rats.

Speaker Biography

Azza A Ali has completed her PhD specialized in Pharmacology and Toxicology from Faculty of Pharmacy, Cairo University, Egypt. She developed research line of behavioral pharmacology in Egypt and participated as Advisory Board Member of the Arab Association for Pharmacy Development and its conference (AIPC 2019). She is member of many scientific societies as (AAPS) and Alzheimer's Association (ISTAART). She is also an Editorial Board Member of many international Journals as Brain Disorder & Therapy, Acta Psychopathologica, EC Pharmacology and Toxicology as well as Organizing Committee Member and Chairperson at many international Conferences as the International Conference on Brain Disorders & Dementia Care, Canada (2017) and International Conference on Parkinson's Disease & Movement Disorders, USA (2017, 2018). She published more than 60 papers in reputed journals, supervised and discussed more than 90 PhD and MSc thesis and actively participated by workshop, oral and posters presentations at many international conferences especially on Dementia and Parkinson's disease and in the Alzheimer's Association International Conference (AAIC 2016, 2017). She has many appreciation certificates and certificate of best presentation award at 19th International Conference on Environmental Pollution and Pollution Control, London, UK (ICEPPC 2017). Now she is a Head of Pharmacology and Toxicology Department and Member of the Committee for the Promotion of Professors at Al-Azhar University, Egypt.

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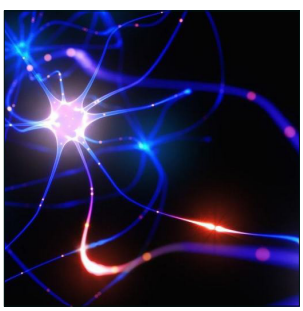


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Pictures without frames: Lexical bundles and multiword expressions in Dementia discourse

Boyd H Davis and **Margaret Maclagan**
UNC-Charlotte, USA
University of Canterbury, New Zealand

'Do you know what happened on the way to work today?' 'Have you heard the latest about Peter?' When we want to introduce a story into a conversation, we usually introduce it with a frame. This alerts the listener that the speaker wishes to tell a story and indicates either that it is a totally new topic or that it is relevant to what has gone before. As Alzheimer's Disease progresses, speakers can find it increasingly difficult to use appropriate frames to introduce their stories. Instead they often launch into stories that seemingly bear no relation to what their conversation partner has said.

In this presentation we will examine 20 conversations between "Maureen Littlejohn" and two different types of conversation partners over 6 years: the first author and 17 undergraduate students. All conversation partners (CP) had the same brief: to engage Ms. Littlejohn in conversation. No topics or time limits were specified and the CP varied in their skill in eliciting conversation. Initially, Ms. Littlejohn could tie her stories into questions asked by her CP. In her last conversation with the first author, who was close to her in age, Ms. Littlejohn was still able to hold a 'normal' conversation, telling stories appropriately. However, her conversations with the students were different. Whereas she treated the first author as a friend (even though she could not remember her name), she felt she needed to entertain the students. She did this by telling and repeating 'performance' stories and phrases without any apparent link to the previous conversational content and without any introductory frame. We explore how the phrasing and the relevance of Ms. Littlejohn's stories changed across the 6 years of recorded conversations.

Speaker Biography

Boyd H Davis (UNC-Charlotte, USA) and Margaret Maclagan (retired, University of Canterbury, NZ) are linguists who have been collaborating and publishing research on discourse in dementia for the last twenty years. Their most recent articles appear in *Journal of Pragmatics*.

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Notes:

Video Presentation

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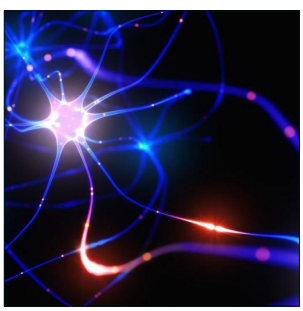


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Pupillometry reaction and its emotional relationship during bi-sensorial stimuli in University students

Santiago Restrepo

Corporación Universitaria Americana, Colombia

This research, based on a study of neuro-physiological responses generated by emotional reactions, helps advertising agencies understand how they can use consumer neuroscience to develop more effective advertising campaigns. The study makes use of biometric tools which identify how specific stimuli can influence the consumer decision making process. Our aim is to enable agencies to use these tools on a daily basis to create more persuasive campaigns. With the globalization of brands and the need to remain competitive by understanding changing consumer preferences, it is increasingly important to have the right tools and to be able to execute new ways of positioning in the market. (Santesmaes, M. 1995).

This research has involved 52 university students and establishes the relationship between contingent alteration pupillometry with the multimodal (Video & Audio) and basic emotions – fear and happiness - stimuli which were exposed to the participants of this study. The identification of the type of the emotional response can determine if people will have a positive or negative response for a product or a brand affecting in a direct way the consumer making decision process for buying or consuming a specific product. Once the stimuli have been received by the nervous system it provokes neurophysiological and neuropsychological reactions that had been activated by the reward control system or the inhibitory control system that are located in the specific regions of the brain such as: nucleo accumbens and tegmental ventral area. These reactions are able to affect consumer´s behavior related to the procurement decision process to acquire goods and services.

Measurement of the pupillary diameters after applying different stimuli can provide an explanation to the type of emotions that generates and identifies both the valence and the intensity of this perception that can be correlated with the consumer decision and buying process, as well as his attitude toward life. The research has been done on a population of university students, 52 selected subjects, 13 men and 13 women with blue/green eyes and 13 men and 13 women with browns eyes. Filters regarding some characteristics of the sample were taking into account such as: health status, age (18 to 24), education level, eyes color, among others. The visual stimuli were taken from standardized and validated worldwide test such as TAT, CAT and Baron Cohen test. In addition, the auditory stimuli were taken from soundtracks of classic films on comedy or horror. The research methodology was mixed, with correlational and descriptive approach.

The preliminary information of the study suggests that there are some correlations between the type of the stimuli and the pupil dimeter reaction. In addition, that the color of the eyes of the subjects is also a factor that should be taken into account at the moment of the evaluation of any kind of advertising. A deeper analysis of the database it's been analyzed and will provide new evidence about the time response of the pupil after the stimuli had been shown.

This work presents an opportunity for advertising agencies may have relevant information about consumer behavior when they are establishing communication strategies and the execution involves the usage of photographs or audios in their advertising material such as billboards, videos, tv commercials, posters, flyers among others.

Speaker Biography

Santiago Restrepo is working as faculty of advertising, Corporación Universitaria Americana, GISELA Research Group in Medellín-Colombia. He is a psychologist, specialized in organizational psychology. He also completed his master's in Neuropsychology, Doctor in Neuroscience and Post-doctorate in Science.

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Accepted Abstracts

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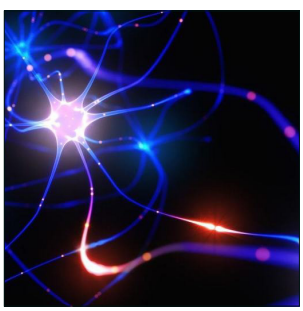


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Is Alzheimer a runaway Autoimmune disease?

Alain L Fymat

International Institute of Medicine and Science, USA

There are approximately 400 known neurological diseases, some of which classified as mental disorders. A number of these disorders are mediated by a disruption or failure of the blood brain barrier. Unfortunately, the convergence between the barrier studies and clinical investigations has historically been limited. There is evidence of inflammatory signaling at the brain barriers that may be an important part of the body's response to damage or infection. This signaling system appears to change both with normal aging and during disease. Changes may affect organic phenomena (or diapedesis) of immune cells and active molecular transfer, or cause rearrangement of the tight junctions and an increase in passive permeability across barrier interfaces. While palliative treatments are available, neurodegenerative disorders in general, and Alzheimer in particular, have generally been declared as incurable. The reason is that we have not yet been able to identify the etiology and deep biology of their root cause(s). I will posit that the disruption of the blood brain barrier is part of the etiology of the disease. I will further submit that the root cause of the disease is the brain's autoimmune system having gone rogue in its unsuccessful attempts to maintain brain homeostasis between the antagonistic synaptoblastic and synaptoclastic pressures. For a cure, I will lastly advocate balancing these pressures by regulating the autoimmune system rather than fiercely combating either the hyper-excited synaptoblastic pressures or/and suppressing the synaptoclastic ones by employing molecules that can induce an immune response (antigens) or engineered immune cells that can train the autoimmune system to tolerate the process or tissue it is on track to damage. This idea has the potential to cure a range of autoimmune disorders, including especially neurological and neurodegenerative disorders and especially Alzheimer. Caution must nonetheless be exercised as deploying the immune system to treat certain diseases can also potentially trigger other autoimmune diseases, e.g., in the case of cancer, it may additionally trigger rheumatoid arthritis and colitis.

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Dementia changed my life: Let me change yours

Maria Turner
Dementia Alliance International (DAI), USA

In this presentation, I will discuss the challenges of being diagnosed with a younger onset dementia mid-career, aged 48 years old, and how society needs to change the focus of fundraising for charities and research for a cure, to a more balanced one that also supports people to live more positively with dementia. Since diagnosis, the challenges faced due to the stigma and discrimination, and the many misperceptions and myths of dementia abound. Consequently, many find themselves abandoned by the health system, society, and their families and friends. The focus of this presentation will move to how society can change this, in particular how full and equal inclusion of people with dementia at conferences and other events about dementia will significantly change societal attitudes and actions. Dementia Friendly Communities have not done this; people with dementia have the greatest potential to do so, and I will tell you why.

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Implementing the WHO global Dementia action plan into policy

Jerry Wylie
Dementia Alliance International (DAI), Canada

In this presentation, I will outline the response of Dementia Alliance International members and provide a pathway for national and regional dementia plans to incorporate and embed human rights into policy. "Dementia is one of the major causes of disability and dependency among older people worldwide." It is therefore essential policy is embedded with human rights. Within the WHO Global Action Plan for a Public Health Approach to Dementia, adopted unanimously at the World Health Assembly in Geneva in May 2017, human rights, empowerment and accountability are characterized as three cross-cutting principles. Twelve years after the adoption of the CRPD by the UN General Assembly, these principles cannot be realised without full commitment to the General Principles and 33 Substantive Articles of the CRPD and its Optional Protocol. All countries who have ratified the Convention on the Rights of Persons with Disabilities (CRPD), must also consider the WHO's Global Disability and Development Action Plan, its revised Guidelines for Community-Based Rehabilitation and its new Quality Rights Indicators for Mental Health (including dementia) be considered in all plans for dementia, as well as full access to the CRPD and other Conventions. This presentation will highlight the importance of implementing human rights into policy and offer insights into how to apply them to change practice. Finally, this presentation will provide an overview of what is missing, in the implementation of all national dementia plans and strategies.

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Applying the social model of disability to Dementia

Christine Thelker
Dementia Alliance International (DAI), Canada

In this presentation, I will review the social model of disability and its relevance to dementia, as well as explore social attitudes and understanding of disability, disablism and ageism, in relation to dementia. I will discuss the impact of these on the medical model of care currently being used globally for people diagnosed with dementia, and how this model is ensuring dependence on families, communities and the health care system, as well as increasing stigma. Since the World Health Organisation Global Action Plan: A public Health Response to Dementia, it is now clear we must think outside the box, beyond the lack of health and social care, which currently is not aligned to human rights and the CRPD. The empowerment and involvement of people living with dementia in the last few years has ensured human rights in dementia have moved away from pure rhetoric, and this also means society has a legal and moral obligation to change the model of care it is currently applying to dementia care, from the time of diagnosis. Applying the social model of disability to dementia will also lead to important insights and will help explain some of the barriers many people with dementia currently face in terms of poor care. I will close by outlining a new social and disability model of support based on rights, and why I believe it will not only improve outcomes for people with dementia and their families by promoting independence and a higher quality of life, it will ensure the currently expected high economic impact on governments and health care systems by dementia will be minimised.

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Lipid oxidation and Carotenoid supplementation

Stella Ademowo, Irundika Dias[1], Silke De Spirt[2], Wilhelm Stahl[2], Helen R Griffiths[3]

University of Cambridge, UK; [1]Aston University Birmingham, UK; [2]Heinrich-Heine-Universität Düsseldorf, Germany; [3]University of Surrey, UK

Oxidative stress has been considered as important in the pathogenesis of Alzheimer's disease, AD. Post-mortem investigations of affected brain regions in AD have shown the accumulation of oxidative damage to protein, DNA and lipids. Carotenoids have the ability to quench singlet oxygen and scavenge other reactive oxygen species (ROS) without being consumed in the process. We have previously shown increased concentrations of the novel oxidized phospholipid biomarker, 1-palmitoyl-2(5-oxo-valeroyl)-sn-glycero-3-phosphocholine (POVPC) and lower carotenoid plasma concentrations in AD. POVPC was analysed using electrospray ionisation tandem mass spectrometry (MS) with multiple reaction monitoring (MRM), 8-isoprostane (IsoP) was measured by ELISA and ferric reducing antioxidant potential (FRAP) was measured by a colorimetric assay in AD patients and healthy age-matched control subjects. The developed MRM-MS method was used to analyse POVPC as a measure of peroxidative damage to phospholipids in serum. Using this method, the peroxidised phospholipid POVPC was found to be higher in AD patients and was correlated with cognitive performance but not reduced by carotenoid supplementation. We also investigated the protective role for carotenoids against mitochondrial dysfunction induced by POVPC (1-20μM) in differentiated (d)SH-SY5Y neuronal cells. POVPC, lutein (0.1-1μM) and zeaxanthin (0.05-5μM) were recovered in dSH-SY5Y cells after 24 hours of treatment. Glutathione (GSH) levels, mitosox oxidation and mitochondrial function were analysed in cells treated with POVPC (1-20μM) and co-incubation with carotenoids (lutein and zeaxanthin). We found pathophysiological concentration-induced damage can be protected with appropriate dose of carotenoid.

The talk will highlight some of our main findings on the effects of carotenoid supplementation on lipid oxidation.

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Human plasma HDL prevents the formation of α-synuclein oligomers and fibrils

Giovanni Bellomo, Sara Bologna, Linda Cerofolini, Silvia Paciotti, Leonardo Gatticchi, Enrico Ravera, Lucilla Parnetti, Marco Fragai and Claudio Luchinat

Magnetic Resonance Centre (CERM), University of Florence, Italy

High-density lipoproteins (HDL) are the smallest particles among the five major groups of lipoproteins. The most abundant protein constituents of HDL in central nervous system are apolipoprotein-A1 (apoA1) and apolipoprotein-E (apoE). The APOE-ε4 allele is strongly associated with the sporadic late-onset of Alzheimer's Disease. Conversely, no association has been found between apoE and Parkinson's Disease (PD). ApoA1 is the main component of HDL in plasma but it is also necessary for cholesterol transportation in the central nervous system. Lower levels of apoA1 were rather measured in the plasma of PD patients with respect to controls. Lower levels of apoA1 were found to be associated with the age of PD onset and severity of motor symptoms in 254 research volunteers enrolled in the Parkinson's Progression Markers Initiative (PPMI), suggesting that apoA1-rich lipoproteins may be both a protective factor and a candidate biomarker for PD. In our work we investigated the protective role of apoA1-rich HDL against alpha-synuclein (α-syn) aggregation by Thioflavin-T fluorescence, NMR and conformational antibodies. In our experiments human plasma HDL strongly inhibited the formation of fibrillary and oligomeric aggregates produced by α-syn. Conversely, we did not observe any relevant interaction between monomeric α-syn and HDL from NMR experiments. These findings suggest that the antiaggregatory effect of HDL and α-syn may involve an interaction with α-syn oligomeric intermediates, by preventing them to grow and to convert into fibrillar amyloids.

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Lessons learned from three AAL-projects in developing meaningful supportive technologies

Sandra Suijkerbuijk, Henk Herman Nap and **Mirella Minkman**
University of Technology, The Netherlands

Large national and international programs on developing supportive technologies reflect the growing interest in the potential of technologies in improving dementia care. For instance, the European Active and Assisted Living (AAL) programme had a total budget of € 700 million for research, development and implementation of supportive technologies between 2014 and 2020 ("AAL Programme," n.d.). Examples of supportive technologies that are developed in these programmes are sensor systems, smartphones with low complexity, reminiscence applications and electronic calendars. These (or combinations of) technologies can promote safety, foster communication, provide multi-sensory stimulation or act as memory aids (Evans, Brown, Coughlan, Lawson, & Craven, 2015). Earlier work emphasizes the importance of involving people with dementia in the development of meaningful supportive or assistive technologies (Holthe, Halvorsrud, Karterud, Hoel & Lund, 2018; Meiland et al., 2017; Span, Hettinga, Vernooij-Dassen, Eefsting, & Smits, 2013; Topo, 2009). However, actual co-designing supportive technologies together with people with dementia still remains challenging (Suijkerbuijk et al., 2019).

We present a synthesis of valuable lessons learned from three AAL-funded projects as a contribution to the collective understanding of co-designing supportive technologies with people with dementia. These projects (eWare, FreeWalker and MagicTable) have different aims and different consortia. The goal of the 'eWare' project is to introduce a novel eco-system of a lifestyle monitoring system and social support robotics to enhance the wellbeing of people with dementia and their informal carers. Within the project 'FreeWalker', a European consortium of eight partners is working together to develop a dynamic GPS-based safety zone for people with dementia. And in the 'MagicTable' project, we explore opportunities of technology to contribute to meaningful and fun activities in the home situation. We discuss the implications of the lessons from these different projects for improving the involvement of people with dementia in the development of supportive technologies.

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Studies on the role of DNA dynamics in Neurodegeneration: New challenges and excitements

Jagannatha Rao KS
INDICASAT AIP, Republic of Panama

DNA is a dynamic and crucial molecule whose conformation kinetics plays a major role in biological function. Reports from our lab and elsewhere indicated the presence of non-BDNA forms of conformations in neurodegenerative diseases like Fragile X-syndrome, Huntington's chorea, Alzheimer's and others. Recently, our laboratory discovered the presence of Z-DNA in the hippocampal region of severely affected Alzheimer's disease (AD) brain samples and modified B-conformation in Parkinson disease. The alternate purine–pyrimidine bases are the potential sequences adopting Z-DNA, and these are present in the promoter regions of AD specific genes like amyloid precursor protein (APP), Presenilin and ApoE. We hypothesized that Z-DNA might be involved in the expression of these pathologically important genes. In the present paper, we have developed theoretical model on the possible mechanisms/hypothetical proposition of Z-DNA transition and its implications in AD. We developed a model where we try to understand that Z-DNA is formed in the promoter region of the APP, and Presenilin genes and this conformation may absorb the negative supercoils at that region. The decrease in the supercoil density alters the native supercoiling domain and positively regulates gene expression of like APP and Presenilin. We further try to understand that Z-DNA may be involved in the down regulation of genes involved in Aβ clearance defense mechanisms in AD. The proposed model tries to understand the AD behavioral pathology like emotions, eating behavior memory loss, and coordination failure.

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Discourse analysis on aging: A case-series study after one year follow-up

Natalie Pereira, Mariana Goulart, Ana Paula Bresolin Gonçalves, Marina Tarrasconi, Renata Kochhann, Rochele Paz Fonseca

Pontifical Catholic University of Rio Grande do Sul, Brazil

Conversational abilities have been studied as an essential predictor of cognition impairment in aging, especially in regards to daily tasks such as conversational discourse (CD). Our studies had already shown that it seems to exist an "perfect moment" to the precise diagnosis of Mild Cognitive Impairment Group (MCI) or Dementia due to Alzheimer's Disease (AD). During this specific time, it is possible to monitor changes on CD and find early impaired communicative behaviors even in patients whose other cognitive skills are preserved. However, there is still a necessity for use CD assessment on neuropsychological routine. This study aimed to present a case series from 12 patients who had diagnosed as a Control Group (CG) (n=9) or MCI (n=3) in the baseline. The same subjects after a one-year follow-up appraisal converted to MCI (n=9 CG to MCI) or AD (n=3 MCI to AD). The CD analysis was not used in the diagnosis criteria. The sample had an average age of 68,83±6,88 and years of formal education of 11,58±6,21. The performance was scored according to the Complementary Procedure of Conversational Discourse Analysis (CPCDA). Data were compared using Friedman's test. We cluster the main discourse variables in seven groups, and we found differences from the baseline and follow-up in four groups (1,2,3 and 7). The first group is related to the self-monitoring and organization when access single words; the second and the seventh group are related to the self-monitoring regarding repetition of words and sentences. Finally, the third group is related to coherence and organization of the discourse as a whole. Data showed that all the 12 patients, even in the first moment of evaluation, had a lower score in variables pertaining to the quality of CD. This study could contribute to an spread point of view of communicative skills during aging.

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Optimal cutoff scores for Dementia and mild cognitive impairment in the Brazilian version of the Montreal cognitive assessment among the elderly

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The distinction between cognitive alterations compatible with normal aging and pathological processes in the early stages, such as mild cognitive impairment (MCI) and mild Alzheimer's disease (AD), is sometimes difficult. The aim of the present study was to propose cutoff scores for the Brazilian version of the Montreal Cognitive Assessment (MoCA-BR) stratified by education in order to detect MCI and mild AD in the elderly. A transversal study in health centers was performed on 159 elderly people with 4–12 years of education and 70 of their peers with over 12 years of schooling. The MCI diagnosis was defined based on the criteria of Petersen (2004). In turn, the diagnosis of AD was based on the criteria of the National Institute of Neurological and Communicative Disorders and Stroke/Alzheimer's Disease and Related Disorders Association (NINCDS/ADRA). The MoCA-BR cutoff scores for screening cognitive impairment were determined based on an ROC curve analysis. The ROC curve analysis indicated that cutoff scores under 20 were good for screening elderly people with cognitive impairment with more than 12 years of education, and scores under 21 were good for screening those with 4– 12 years of education. Therefore, MoCA-BR scores under 21 points (after adding 1 point to the elderly with ≤12 years of education) indicate a need to continue the diagnostic investigation with regular follow-ups. The cutoff points presented can be used to inform future work using the MoCA-BR to screen for MCI and AD in older Brazilian people. Future studies could focus on early detection and treatment of cognitive dysfunctions in clinical practice.

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Cognitive stimulation of autobiographic and emotional memory in a patient with Alzheimer's disease

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Alzheimer's disease (AD) is the most frequent cause of dementia for people over 65 years of age. AD is characterized by a progressive cognitive decline that generally begins with deficits in the anterograde memory and then evolves to a general cognitive deterioration. The decline of autobiographical memory in AD leads to a loss of knowledge about events that define patients' lives and, consequently, causes a degradation of self-knowledge and sense of identity. These difficulties compromise the patient's autonomy, causing a decrease in the quality of life of patients and their caregivers. To promote cognition, independence, and wellbeing in AD's patients medical and pharmacological treatments should be complemented by non-pharmacological interventions. The use of new technologies in non-pharmacological treatments is gaining importance However, there are few reports on the effectiveness of these strategies. The aim of this study is to evaluate the impact of the use of an autobiographical training software (ATS) on autobiographical and emotional memory in an AD's patient. In the case reported, the use of the application stimulated autobiographical remembering, thus serving as a scaffolding toll for the reconstruction of semantic autobiographical memory.

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