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# Scientific Tracks & Abstracts

## August 14, 2017

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### *Brain Injury and Dementia care 2017*



4<sup>th</sup> International Conference on

# **BRAIN DISORDERS AND DEMENTIA CARE**

August 14-16, 2017 | Holiday Inn Toronto International Airport  
Toronto, Canada

4<sup>th</sup> International Conference on

# BRAIN DISORDERS AND DEMENTIA CARE

*August 14-16, 2017 | Toronto, Canada*

## Cytotoxic brain tissue edema after traumatic brain injury - A new hypothesis to its etiology

**Hans von Holst**

Royal Institute of Technology, Sweden

Cytotoxic brain tissue edema, which is found in both grey and white matter cells, is a complicated secondary consequence to ischemic injury following cerebral diseases such as traumatic brain injury (TBI) and stroke. To some extent the pathophysiological mechanisms are known, however far from complete. A new hypothesis regarding the etiology to cytotoxic brain edema is presented. The hypothesis is that external energy due to TBI and internal energy due to mechanical forces following stroke results in the disruption of non-covalent and covalent bonds in protein and nucleotide structures. The unfolded proteins attract water molecules while the disruption of nucleotides such as adenosine-tri-phosphates causes a dysfunction in ion hemostasis and which may tentatively explain the etiology to cytotoxic edema. Our studies using computer models shows that the kinetic energy following an impact to the head has the potential to break the chemical bonds in the

protein and nucleotide structures resulting in cytotoxic brain tissue edema. Since folding of mature proteins is very much dependent on normal energy supply, the protein synthesis cannot continue during the ischemic process. Under such conditions very little of the energy rich ATP can be produced and which may result in disturbance between extra- and intra-cellular ion metabolism. The present hypothesis has the potential to develop new drugs for therapeutic use.

### Speaker Biography

Hans von Holst received his Medical Doctor's degree in 1976 and Specialist in Neurosurgery (1982) at Karolinska University Hospital. In 1985, he earned his PhD and Associate Professorship in Neurosurgery, Clinical Neuroscience at Karolinska Institute. During 1991-1996, he was appointed as Chairman of the Dept. of Neurosurgery and Division Manager of the Neuroclinics at Karolinska University Hospital, respectively. In 1995, he became Professor in Neuroengineering at the Royal Institute of Technology. He has published around 140 original papers in reputed journals, reviews and books and has been serving as an Editorial Board Member in several journals.

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## 'Live Life, don't let Life Live you'!

Wayne P Gillis

Author & Brain Injury Thriver, Canada

- Define this phrase....?!
- Starting from the beginning...
- 'Live Life'. Budgeting, adapting, living within your means is what....?
- Having Choices and options!
- Not letting 'Life Live' you, through credit cards and interest payments alone.
- Existing in a job when you could choose to OWN your own life!
- Lottery winnings, insurance settlements, inheritances, all breed excitement.
- Actually arriving at a place of GROWTH not simply a place of existence! Then actively CHOOSING to remain is this 'balanced state' by consciously exercising your thoughtful choices!

However sadly here, as seen far too often, we are on the losing team. My ex banking days proves just that with the introduction of 'debt consolidation' loans!

A story to share. When I worked for a National Bank in Canada, I worked with a lady whose social equation was factored as such the following 'social life' result was seen. Upon acceptance for this national level job, then subtracting the 2nd car payment, the needed child care, the business dressed fashion, gas and the needed parking fee down town, she worked for \$150.00 a month! At that time, that was 2 nights out and a babysitter for her and her husband. Indeed, not alone but 'Life was Living' her as well as others too!

### Speaker Biography

Wayne was a national bank trainer then went onto build a successful business in Ocala Florida. After the sale, Wayne returned to Canada to go to University, with plans to become a medical doctor. However the course, "The Psychology of Law" altered his path. Then in 2005 a car struck the motorcycle he was driving and atop his NUMEROUS injuries, was a closed head traumatic brain injury (TBI). It was that trauma that started his life all over again! From simple walking to talking, he has lived in Charlottetown PEI, Halifax Nova Scotia and most recently Celebration & Kissimmee Florida. He has developed his Keynote speech and coaching business while being a stay at home Dad, actively managing his two active sons in swimming and competitive gymnastics. Wayne has spoken to Dalhousie University school of physiotherapy, Sun Life Financial as well as CIBC. His passion is to pass his simple yet effective recovery choice to all other survivors and all people in general, dealing with life's inevitable change. Always remembering, GROWTH is an option!

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## The dynamic role of human induced pluripotent stem cell derived-astrocyte secreted APOE4 in Alzheimer's disease

Talitha Kerrigan  
University of Bristol, UK


Alzheimer's disease (AD) is the most prevalent neurodegenerative condition worldwide. There are currently an estimated 35 million AD sufferers, and this is expected to double every 20 years so by 2050 there will be around 115 million cases. Late onset AD (>age 65) makes up the majority of cases, and the main contributing factor to the rise in AD is increasing life expectancy. It is well established that the human apolipoprotein E (*APOE*) gene is a strong genetic risk factor for AD, specifically late onset. It encodes one of 3 isoforms *APOE2*, -E3 and -E4, which vary only by 1 or 2 specific amino acids. However, this small change in peptide sequence significantly modifies the protein conformation, and results in isoform specific properties. The end result is that different *APOE* isotypes modify the risk of developing AD. Specifically *APOE4* is associated with an increased risk of AD. In the general population *APOE3* is the most common allele, and considered the 'normal' version of *APOE*; yet over 65% of AD patients carry a copy of *APOE4*. Furthermore *APOE4*, particularly when homozygous, is associated with a lower age of onset of symptoms, usually 5-10 years compared to the general population. The relationship between *APOE* and AD is mainly attributed to the ability of the *APOE* protein to bind A $\beta$ . Astrocytes, one class of glial cells, are the most abundant cells in the brain. Recent findings are implicating non-cell-autonomous mechanisms of neurodegeneration mediated by astrocytes. Astrocytes are vital for maintaining normal homeostasis for the healthy brain, which is critical for neuronal communication. How astrocyte activities integrate into complex brain functioning, how they respond to insult or injury and whether their responses promote or

inhibit repair is poorly understood. Therefore it is critical to understand how to regulate astrocyte function in order to benefit the treatment of neurodegenerative conditions. In our lab, we are addressing the role of *APOE* in AD using human induced pluripotent stem cells (iPSCs) derived from patient donor skin cells; specifically the role of *APOE* in both neurogenesis and astrocytic physiology, with particular focus on astrocytic secreted *APOE*. Primarily, we have compared the effects of the specific astrocyte secreted *APOE* isoform (E4, E3) on health, maturation and physiology of neuronal subtypes that are particularly susceptible in AD. So far, we have found significant differences in the functional properties of iPSC-derived astrocytes using whole-cell patch clamp electrophysiology and calcium imaging, with phenotypic variance amongst the different genotypes (homozygous E3 and E4). Our data revealed a significant decrease of 60% in the sustained component of potassium channel current. This in itself could have significant impact on the ability of astrocytes to efficiently balance ion homeostasis specific to *APOE* genotype. *APOE*'s role in clearance of amyloid  $\beta$  (A $\beta$ ) in AD is due in part to the physiology of astrocytes, which internalize and degrade A $\beta$ . The altered physiology in our current model could potentially provide a better understanding of *APOE* genotype in health and disease.

### Speaker Biography

Talitha Kerrigan is a senior Research associate, Faculty of University of Bristol, UK and She has completed PhD from university of Leeds, UK

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## Sequencing of the saliva of normal person and AD patients

Ki-Bong Song  
Sogang University, Korea

Recently we show that salivary beta-amyloid protein (A $\beta$ ) can be a potential biomarker to early diagnose Alzheimer's Diseases (AD). At results, the quantity of A $\beta$ 40 and A $\beta$ 42 in the saliva of normal young man (nYM) group, normal elderly (nE) group and AD patients was measured in the range from very low concentration ( $\sim$ pg/ml) to high concentration ( $\sim$ ng/ml). To find out another bio-marker in the saliva, by the use of Maldi-tof, we analyzed the size of the salivary protein below less than 20kDa. As a result, we found out that there was a specific protein which can distinguish the Np from the AD patients and the size of that was about 15kDa. In this study, we will briefly introduce that the sequencing results for the salivary protein which can distinguish between Np from the severe AD patients. Therefore, we expect these results to further increase the accuracy of the diagnosis of AD when the A $\beta$  level diagnosis


was adapted simultaneously.

### Speaker Biography

Ki-Bong Song received his Ph.D. degree, a doctorate in physics, in the department of Physics of Sogang University, Korea. After working as a postdoc in KIST (Korea Institute of Science and Technology), he is now a principal researcher in ETRI (Electronics and Telecommunications Research Institute), Korea. His main research includes diagnosing technique in AD and development of wearable technology

Yo Han Choi received his Ph.D. degree, a doctorate in virology, in the department of Life Science of POSTECH (Pohang University of Science and Technology), Korea. After working as a postdoc. in POSTECH, KAIST (Korea Advanced Institute of Science and Technology), and University of Alberta, Canada, he is now a principal researcher in ETRI (Electronics and Telecommunications Research Institute), Korea. His main research includes diagnostic chips, nanoparticles, protein engineering, and peptide library applications.

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## Innovations in Novel Formulation strategies for Post Traumatic Epilepsy

Gannu Praveen Kumar

Sahasra Institute of Pharmaceutical Sciences, India

Posttraumatic epilepsy (PTE) is a major long-term complication of traumatic brain injury (TBI). PTE usually develops within 5 years of head injury. The risk for developing PTE varies with TBI type. Antiepileptic drug (AED) prophylaxis seems to be effective in controlling the early provoked seizures. One pitfall is that AEDs tend to have a high incidence of side effects. Many of these side effects are due to actions on the central nervous system such as cognitive impairment and neurobehavioral problems. These unwanted side effects could be augmented in patients with TBI. An attempt was made to develop nanosystems of carbamazepine, a non-sedative antiepileptic to prevent side effects.

**Purpose:** Carbamazepine (CBZ) is a major antiepileptic drug with clinical efficacy against post traumatic epilepsy. A novel nanosystem for CBZ was developed to have acceptable tolerability for human use. Such Nano systems of CBZ have been proposed to be suitable for administration in treatment of Posttraumatic epilepsy.

**Method:** A series of seizures in 30 min was induced by repeated trans auricular electrical stimulation in rats. In this model of epilepsy, the anticonvulsant potency of novel Nano system of CBZ was evaluated with that of reference standard.

**Results:** The rate of absorption from novel Nano systems of carbamazepine was 1.5 fold than from suspension. A very high significant improvement in half life and oral bioavailability was observed with Nano system of carbamazepine. In both groups, CBZ suppressed seizures after oral administration.

Potent anticonvulsant activity was obtained as early as 10 mins (Nano system was rapid) & 25 mins (suspension) after oral administration, peak effects were observed at 20 mins (Nano system) & 45 mins (suspension) respectively. ED50 for blockade of seizures throughout the 30-min period of repeated electrical stimulation was 5 mg/kg. The Nano system was tolerated by the animals with no pronounced behavioural or motor adverse effects, the marketed preparation (suspension) induced marked sedation and motor impairment, indicating possibly because of erratic absorption profile of carbamazepine as cited in the previous literature.

**Conclusion:** The use of antiepileptic drugs at an early stage in order to prevent Post traumatic epilepsy is beneficial. This showed a good efficacy in the prevention of early post traumatic seizures. A novel Nano system of CBZ might be suitable for future administration for its use because CBZ has the advantage of being almost free of respiratory or cardiovascular adverse effects.

**Keywords:** Trauma, Neurological, Epilepsy, Carbamazepine, Innovation

### Speaker Biography

Gannu Praveen Kumar is currently working as Professor and Principal in Sahasra Institute of Pharmaceutical Sciences. He is an external examiner for Post Graduation and PhD. He has guided M. Pharm and PhD students. He published in both National and International journals of repute. He received Gem of India award in the year 1999. He visited London, Dubai, Spain, Singapore, Malaysia and USA as invited speaker.

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## To evaluate the effectiveness of BOTOX (Botulinum Toxin Type A) in the treatment of focal spasticity among geriatric stroke survivors

Janusz A. Kaleta  
Manhattan Nursing Services PLLC, USA

**Relevance:** Spasticity is a common challenge encountered post stroke by survivors, families as well as therapists, nurses and other health care professionals get involved in treatment of stroke survivors. Dependent on the severity, spasticity can lead to serious debilitating conditions such as pain, stiffness, rigidity and inability to participate in essential activities of daily living as well as in therapy. Spasticity as well as muscular overactivity frequently has profound impact on lives of stroke survivors. Although conventional Physical Medicine and Rehabilitation offers interventions for spasticity management there is a continuous search into new ways to combat spasticity more effectively and to allow for greater recovery and independence of stroke survivors. Stroke is a leading cause for transfers into Long Term Care Homes. Geriatric stroke survivors are often confronted with greater severities of post stroke complications including spasticity and therefore need a proper approach geared towards that population.

**Methods:** Review of evidence on BOTOX (Botulinum Toxin Type A) clinical application, safety and effectiveness was conducted. Spasticity program combining evidence based guidelines for stroke rehabilitation and use of BOTOX was developed in Long Term Care Home. Twelve geriatric stroke survivors and one client with diagnosis of cerebral palsy were assessed by Physiatrist. Client, families and interdisciplinary team was involved in active collaboration. Based on comprehensive assessment four stroke survivors received BOTOX injections in addition to conventional therapy received from a Physiotherapist and Rehabilitation staff. All clients were also encouraged to participate in offered

activation therapy that combines movement, self-expression and discussions. The 4 Point Disability Assessment Scale was used to assess effectiveness of BOTOX in conjunction with traditional physiotherapy treatment.

**Results:** The spasticity program combining conventional rehabilitation practices and use of BOTOX demonstrated marked improvements in ROM, decrease in pain and rigidity, improved comfort/positioning, ability to participate in physiotherapy and basic activities of daily living. The results were measured with use of the 4 Point Disability Assessment Scale (DAS).


**Findings:** Geriatric stroke survivors with focal spasticity were able to regain greater mobility and functionality post participation in BOTOX treatment in conjunction with traditional physiotherapy. Spasticity clinics and or access to Physiatrist could effectively alleviate disabling impact of this post stroke condition on Geriatric stroke survivors.

**Discussion/Conclusion:** While stroke survivor enters acute care and spends weeks in rehabilitation setting large percentage of geriatric stroke survivors spend months, years or decades within Long Term Care. At such there is a need to heightened sector awareness for specialty services that should be available to geriatric stroke survivors.

### Speaker Biography

Janusz Kaleta works at Patient's safety and risk management as a specialist at Human Restauro in New York City, USA

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## Synthetic steps towards reversible chalcogen-based sensing of essential neurodegenerative disease

David G. Churchill

Korea Advanced Institute of Science and Technology, Korea

The chemical etiology of neurodegenerative diseases, is multifactorial and relates to proteins, biomolecules, as well as small soluble analytes including metal ions and ROS. The over-abundance of ROS/RNS could be an indication of Alzheimer's and/or Parkinson's disease (PD).<sup>1</sup> Recent articles by us and other researchers have begun connecting the dots of this small molecule chemistry. There is an incredible interest in preparing next-generation (e.g. ROS) probes that are reversible, sensitive, and also robust. Hypotheses involve also discrepancies in metal ion concentrations in various regions the brain; some metals are redox active. Concentrations and the innate chemistry of selenium for example may connect to proposed/tentative etiology of dementia. <sup>2</sup> For all of these reasons and more, we feel that the pursuit of studying, e.g., organoselenium chemistry in this context will be fruitful for years to come.<sup>3</sup> In this oral presentation and discussion, selenium, a key element in the redox chemistry of life and for its ability to engage in catalysis, is presented and debated in terms of diagnosis (probing), as well as potentially in therapy. To-date, the role of fluorescence and fluorescent molecules in diagnosis, treatment, as well as in biomedical research, has great current medicinal significance; this is the focus of concentrated effort across the scientific research spectrum. In particular, organoselenium and/or organosulfur molecules show great promise in the detection of reactive oxygen/nitrogen species

(ROS/RNS) - key factors in ageing/neurodegenerative disease in living systems.<sup>4</sup> The boron dipyrromethene (BODIPY) system is a versatile class of fluorescent dye; it is commonly used in labelling, chemosensing, light-harvesting, and solar cell applications due to the many compelling characteristics, including an intense absorption profile, a sharp fluorescence emission spectrum, and high fluorescence quantum yield. As part of our ongoing effort to study chalcogenide systems, dithiomaleimide- and phenylselenide probes (among many others) have been designed, synthesized and characterized. Commonly, fluorescence is quenched by photoinduced electron transfer (PeT) mechanism. These probes show a "turn-on" fluorescence response upon reaction with ONOO- (BDP-NGM) and HOCl (Mes-BOD-SePh) with significant increase in emission intensity with fast response to ROS/RNS. Related studies with superoxide have also been published. Live cell imaging showed that the current probes can be used for the selective detection of ROS and RNS in living systems.<sup>5</sup> Time-permitting, we should also like to briefly showcase related fluorescent probes and studies.

### Speaker Biography

David G. Churchill currently working in the Molecular Logic Gate Laboratory, He is a professor for the department of chemistry in Korea Advanced Institute of Science and Technology

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## Relationship between mental disorder and productivity: An empirical study on Ethiopian community –based population aged between 16 and 64 years

Tamirat Worku Wolassa<sup>1,2,3</sup>

<sup>1</sup>University of Gloucestershire, UK

<sup>2</sup>Addis Ababa University, Ethiopia

<sup>3</sup>CareEpilepsy Ethiopia, Ethiopia


The aim of this study is to investigate the factors affecting the mental disorder person from productivity in working area and in the community by analyzing Ethiopian mental health association data of eight years from 2003 to 2011. The study applied qualitative and quantitative research approaches to answer the statement of the problem. The study covers capital adequacy, health coverage quality, productivity efficiency, work area protection, and personal income as the main factors to investigate the research question. The relationship between the capital adequacy

variables, personal income and productivity efficiency (PE) was interpreted using the correlation method. In addition, the research used primary data from Ethiopian mental health association towards relationship between mental disorder and productivity.

### Speaker Biography

Mr Tamirat Worku, Department of Accounting and Finance, University of Gloucestershire, Addis Ababa University, CareEpilepsy Ethiopia Senior Country Adviser

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## The concept of NIBIE in clinical Neuroscience

Hans von Holst

Royal Institute of Technology, Sweden


The significant development of computer capacity during the last two decades has made it possible to implement various software programs having the capacity to better understand the mechanical consequences following an accident to the central nervous tissue. The next generation of innovative images supporting clinical neuroscience is the introduction of simulation technology. Among those should be mentioned the finite element (FE) method or modeling which goes back more than a hundred years. However, the name finite element was initiated about 60 years ago. The concept of NIBIE, a Non-Invasive Brain Injury Evaluation, is a new technology for measuring and evaluating parameters such as intracranial pressure and strain from CT and MRI scans. The primary purpose of NIBIE is as a diagnostic tool for screening of patients with TBI and observation of intensive care patients with neurosurgical disorders such as hematoma, edema or tumors. Stroke patients may as well benefit from the method. By using numerical models of the human brain it is possible to further optimize the

present treatments of diseases such as TBI. Finally, using NIBIE in education of health care staffs all categories in the new field of neuroengineering is of substantial importance to better understand the consequences of diseases in the central nervous system. NIBIE was created as a result of an interdisciplinary collaborative research project between engineers at the KTH Royal Institute of Technology and neurosurgeons at the Karolinska University Hospital in Stockholm, Sweden.

### Speaker Biography

Hans von Holst received his Medical Doctor's degree in 1976 and Specialist in Neurosurgery (1982) at Karolinska University Hospital. In 1985, he earned his PhD and Associate Professorship in Neurosurgery, Clinical Neuroscience at Karolinska Institute. During 1991-1996, he was appointed as Chairman of the Dept. of Neurosurgery and Division Manager of the Neuroclinics at Karolinska University Hospital, respectively. In 1995, he became Professor in Neuroengineering at the Royal Institute of Technology. He has published around 140 original papers in reputed journals, reviews and books and has been serving as an Editorial Board Member in several journals.

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## Depression and Dementia

Timothy Lau  
University of Ottawa, Canada


**D**ementia and depression are common problems for older patients. An increasing body of literature suggests that depression is a risk factor for both Alzheimer's disease and Vascular Dementia. The relationship between depression and dementia complicated by overlapping symptoms and confusion over cause and effect. This review will focus on the complex relationship between the two conditions including a discussion of the studies that demonstrate a

causal association, the epidemiology of the two and some of the brain changes that occur with both conditions.

### Speaker Biography

Timothy Lau is a distinguished teacher, faculty of medicine and associate professor for the department of psychiatry in the University of Ottawa.

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## 'More, Better, Best' – Competing with the Jones'

Wayne P Gillis

Author and Brain Injury Thriver, Canada

To begin with, antagonizing 'Living Life' and supporting 'Societal Pressure' following the evolutionary status quo, we develop our respect system by the environment we grow up in. This is proven fact as children sadly learn to hate!

Like I wrote in my book remove 'Competing with the Jones', I feel Chauvinism drew in Feminism. An attraction that should NEVER have been! Instead of competing, it should always be cooperation. Like Oprah herself says, connecting with or developing a 'comradery' as such with people of similar mindsets "lifts you higher".

Like exercise in a gym or in group fitness classes, 'like attracts like' and that groupthink mentality will indeed run the show. If you choose to let it! Indeed, this forte has showed its face several times in my life journey and the past decade + is no different!

Again, everything indeed happens for a reason!

Noted Publications:

The Brain that Changes Itself. Dr. Norman Doidge, Viking Penguin Group. USA, 2007.

Excuses be Gone, Dr. Wayne Dyer. Hay House, USA, 2009.

The Vortex, Esther and Jerry Hicks. Hay House, USA, 2009

### Speaker Biography

Wayne was a national bank trainer then went onto build a successful business in Ocala Florida. After the sale, Wayne returned to Canada to go to University, with plans to become a medical doctor. However the course, "The Psychology of Law" altered his path. Then in 2005 a car struck the motorcycle he was driving and atop his NUMEROUS injuries, was a closed head traumatic brain injury (TBI). It was that trauma that started his life all over again! From simple walking to talking, he has lived in Charlottetown PEI, Halifax Nova Scotia and most recently Celebration & Kissimmee Florida. He has developed his Keynote speech and coaching business while being a stay at home Dad, actively managing his two active sons in swimming and competitive gymnastics. Wayne has spoken to Dalhousie University school of physiotherapy, Sun Life Financial as well as CIBC. His passion is to pass his simple yet effective recovery choice to all other survivors and all people in general, dealing with life's inevitable change. Always remembering, GROWTH is an option!

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## “The Do’s & Don’ts in Acute Stroke Management”-Clinical case analysis

Janusz A Kaleta

Manhattan Nursing Services, PLLC New York City, USA

**Statement of the Problem:** Stroke is the leading cause of serious, long-term disability in the United States. Each year, approximately 795,000 people suffer a stroke. About 600,000 of these are first attacks, and 185,000 are recurrent attacks. Nearly three-quarters of all strokes occur in people over the age of 65. Prompt and Accurate Management with respect to Prevention, Evaluation and Treatment of Acute Stroke becomes indispensable in Cerebral Cortex protection and mitigation of Cortical Damage.

**Methods:** Clinical Case Analysis of stroke incidences where Clinical Interventions or lack of thereof played a critical impact on patient’s recovery outcomes and subsequent rehabilitation. Differentiation between types of Strokes: Acute Ischemic versus Hemorrhagic and application of the


rtPA in a timely manner will be reviewed with attendees who will be encouraged to actively participate in this Clinical Case Review.

**Outcomes:** The Do’s and Don’ts in Acute Stroke Management play Critical Role in patient’s recovery and outcomes of the delivered interventions. Clinicians should be encouraged to stay up-to-date with Stroke Treatment Best Practice Guidelines and Protocols.

### Speaker Biography

Janusz Kaleta works at Patient's safety and risk management as a specialist at Human Restauro in New York City, USA

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## 'Societal Pressure' – Divorce Society!?

Wayne P Gillis

Author and Brain Injury Thriver, Canada

- In 2013 about 2.8 million TBI-related emergency room (ER) or hospitalizations occurred in the United States alone.
- TBI contributed to the deaths of nearly 50,000 people. The leading cause of TBI-related death varied by age.
- Falls were the leading cause of death for persons 65 years or older.
- Among all age groups, motor vehicle crashes were the third overall leading cause of TBI-related ER visits, hospitalizations, and deaths (14%).
- Unintentional self-harm was the second leading cause of TBI-related deaths (33%) in 2013.
- In 2012, an estimated 329,290 children (age 19 or younger) were treated in U.S. ERs for sports and recreation-related injuries that included a diagnosis of concussion or TBI.


Brain Injuries represent a staggering percentage of personal

injury and disability causes in today's society! Directly in this study of recovery, his recommendations to timing, availability of therapy, to one's cognitive level or dissonance, all play an active part in the retrieval of one's inner self. During this journey of rebuilding & learning, one thing became crystal clear to him. Setting and attaining a realistic goal, feeling proud then adapting to another. "Moving Forward" no less!

### Speaker Biography

Wayne was a national bank trainer then went onto build a successful business in Ocala Florida. After the sale, Wayne returned to Canada to go to University, with plans to become a medical doctor. However the course, "The Psychology of Law" altered his path. Then in 2005 a car struck the motorcycle he was driving and atop his NUMEROUS injuries, was a closed head traumatic brain injury (TBI). It was that trauma that started his life all over again! From simple walking to talking, he has lived in Charlottetown PEI, Halifax Nova Scotia and most recently Celebration & Kissimmee Florida. He has developed his Keynote speech and coaching business while being a stay at home Dad, actively managing his two active sons in swimming and competitive gymnastics. Wayne has spoken to Dalhousie University school of physiotherapy, Sun Life Financial as well as CIBC. His passion is to pass his simple yet effective recovery choice to all other survivors and all people in general, dealing with life's inevitable change. Always remembering, GROWTH is an option!

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## Aluminum Induced Alzheimer's disease: Induction, Progression, Risk Factors and Protection

Azza A Ali

Al-Azhar University, Egypt

**A**lzheimer's disease (AD) is the most common cause of dementia. It is a progressive neurodegenerative disorder that leads to nerve cell death throughout the brain. It is a growing public health problem with major socioeconomic burden. The progression of AD is time dependent, it spread spontaneously but there is a lack of data in understanding its progression. By identifying the stage of the disease, prediction is possible, symptoms can be expected and the power to find real treatment will be enhanced.

**Modeling stages of Alzheimer's disease in rats:** Aluminum (Al) has been implicated in aging related changes. It crosses the blood brain barrier and has been found in both senile plaques and neurofibrillary tangles-bearing neurons in the brains of AD patients. Its neurotoxicity in animals has been clearly established and shown to be involved in the etiology of AD. To establish a model mimics AD in rats and for modeling stages of the disease as well as to determine its progression in the brain in response to time, different doses of aluminum can be used for different periods. It was found that 70 mg/kg of aluminum for 6 weeks represents the ideal model that mimics AD in rats. The progression of the disease is time dependent and just starts spread spontaneously without more aluminum exposure.


**Risk Factors and Protection of Alzheimer's disease:** Major attention has been paid to AD risk factors; some risk factors can be changed while others cannot. Modifiable risk factors include stress, heavy smoking, excessive alcohol drinking, depression, low education, cognitive and physical inactivity as well as malnutrition. Exposure to stress represents a risk factor in both induction and progression of AD especially in

the developed countries, while protein malnutrition increases both severity as well as progression of AD and represents a socioeconomic problem especially in the developing countries. There are many medical conditions that increase the chance of developing dementia especially Parkinson's disease and diseases related to learning disabilities. For the complexity of the mechanisms involved in AD, multi-target directed strategies by using combined therapies together with physical and mental activities represent new promising strategies for reduction of AD prevalence and for providing marked symptomatic and disease modifying benefits especially with risk factors. However, further researches are needed to improve the quality of evidence associated with reduction of AD prevalence and incidence.

### Speaker Biography

Azza A Ali has completed her PhD specialized in Pharmacology and Toxicology from Faculty of Pharmacy, Cairo University. Her postdoctoral studies included different scientific aspects related to her specialization field with giving especial interest to researches of neuropharmacology and psychopharmacology; she also developed research line of behavioral pharmacology in Egypt. She is member of many scientific societies in Egypt as well as of (AAPS) American Association of Pharmaceutical Scientists (2002) and (ISTAART) The Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (2016). She published more than 50 papers in reputed journals, supervised and discussed more than 80 PhD, MSc thesis and actively participated by oral and posters presentations at many international conferences especially on Alzheimer's disease & Dementia as Dementia 2015, 2016 and Alzheimer's Association International Conference (AAIC 2016). She has many appreciation certificates and certificate of best presentation award at 19th International Conference on Environmental Pollution and Pollution Control (ICEPPC 2017). Now she is a Head of Pharmacology and Toxicology Department at Al-Azhar University and she sacrifices great effort hoping to find real treatment that can prevent or delay the progression of Alzheimer's disease especially in the high-risk individuals focusing on depression, stress and malnutrition.

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# Scientific Tracks & Abstracts

## August 16, 2017

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### *Brain Injury and Dementia care 2017*



4<sup>th</sup> International Conference on

# **BRAIN DISORDERS AND DEMENTIA CARE**

August 14-16, 2017 | Holiday Inn Toronto International Airport  
Toronto, Canada

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# BRAIN DISORDERS AND DEMENTIA CARE

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## Finding your inner space !

Wayne P Gillis

Author and Brain Injury Thriver, Canada

Inner space or willful enlightenment or being 'balanced' as I call it, attracts a greater sense of fulfillment and purpose then can ever be verbalized!

In a decade plus journey, relearning my physical movement was first and then Khundalini Yoga was added to my equation of development!

This discipline offered rigorous physical physical activity yet ended with a deep relaxation/meditation and a gong vibration.

The 'Mindfulness of Breath' also plays an important role in the rehabilitative power of one's recovery.

Daily rituals need to be ACTIVELY chosen and invested in to build a stronger body and healthier mind!

As quoted from the back of my book:

"Gratefully, I not only survived this intense injury but have recovered remarkably well and am now thriving against all odds. It has become my goal to share this story of recovery in order to assist others in keeping the one thing that changed my life, the choice of always moving forward. Choosing to adapt to the change instead of simply reacting is a very powerful tool."

**Visit:** [www.always--adapt.com](http://www.always--adapt.com) to recharge your Moving Forward drive.

'Inner Space' again is easily attained, the tough part is consciously choosing to follow the basic path! Don't I know it!! "As a belief is simply a thought we keep thinking" Esther

Hicks puts it very well. "When we change our Thoughts we change our FEELINGS. When we change our feelings we change our ATTITUDE. When we change our attitude we change our BEHAVIOUR and when we change our behaviour we change our PERFORMANCE. Then check it out, when we change our performance, we change OUR LIFE!! "Choose don't Excuse" my friends. Always Believe!

### Noted Publications

The Brain that Changes Itself. Dr. Norman Doidge, Viking Penguin Group. USA, 2007.

Excuses be Gone, Dr. Wayne Dyer. Hay House, USA, 2009.

The Vortex, Esther and Jerry Hicks. Hay House, USA, 2009

The Mindful Way Through Depression, Mark Williams, John Teasdale, Zindel Segal and Jon Kombat Zinn. Guilford Press, USA, 2007

### Speaker Biography

Wayne was a national bank trainer then went onto build a successful business in Ocala Florida. After the sale, Wayne returned to Canada to go to University, with plans to become a medical doctor. However the course, "The Psychology of Law" altered his path. Then in 2005 a car struck the motorcycle he was driving and atop his NUMEROUS injuries, was a closed head traumatic brain injury (TBI). It was that trauma that started his life all over again! From simple walking to talking, he has lived in Charlottetown PEI, Halifax Nova Scotia and most recently Celebration & Kissimmee Florida. He has developed his Keynote speech and coaching business while being a stay at home Dad, actively managing his two active sons in swimming and competitive gymnastics. Wayne has spoken to Dalhousie University school of physiotherapy, Sun Life Financial as well as CIBC. His passion is to pass his simple yet effective recovery choice to all other survivors and all people in general, dealing with life's inevitable change. Always remembering, GROWTH is an option!

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## Grading system for cranial suture closure in craniosynostosis

Ramadan Galal Kamal Shamseldien  
Shebin Al Kom Teaching Hospital, Mansoura

**Background:** Craniosynostosis is the premature closure of calvarial sutures. Nearly affect 0.4 of 1000 persons. There is a chance of increased intracranial pressure with one suture synostosis and the risk increased when multiple suture is involved. So early diagnosis is crucial to help in early management to avoid expected secondary neural insult.

**Aim:** to get an early and precise method for diagnosis of craniosynostosis and so early and rapid treatment with prevention of secondary neural insult.

**Methodology:** This is a retrospective study of 3D CT volume rendering technique of thirty patients, diagnosed as non-syndromic primary craniosynostosis Ectocranial skull suture closure grading system applied to 3D skull volume rendering technique of the studied group as it stimulate real time one. By this mean together with other clinical evidence early and precise diagnosis of craniosynostosis can be elicited.

**Results:** The studied group are 30 patients were operated by early suture release surgery endoscopic assisted suturectomy in neurosurgery department in Shebin Elkom Teaching hospital (2011-2016). 16 females 14 males all have primary craniosynostosis. 9 Brachycephaly,7


scaphocephally,4 anterior plagiocephaly,4 trigonocephaly,2 posterior plagiocephaly and 4 oxycephaly. Of all patients 38 sutures was affected. After application of proposed grading 10 sutures G1, 16 sutures G2 and 12 sutures G3.

**Conclusion:** Application of ectocranial skull suture closure grading system to 3D skull in early cases of primary craniosynostosis will help in precise diagnosis and surgical decision, as it demonstrate the degree of affected suture from single bony bridge that restrict or arrest suture growth in mild cases to completely obliterated one.

### Speaker Biography

Ramadan Galal Kamal Shamseldien, Neurosurgery MD. Lecturer of neurosurgery, Shebin Elkom Teaching Hospital, Egypt. He is a member of Egyptian Society of Neurological Surgeons (ESNS), Egyptian Spine Association (ESA), and Middle East Spine Society (MESS). He was born on 1977 in Egypt. He was graduated from Faculty of Medicine, Alazhar University in 2001. He underwent neurosurgery residency training in Mansoura international Hospital. He has completed his MD neurosurgery at Alazhar University, Egypt in 2013. He is well trained to perform all the standard brain, spinal, and peripheral nerve surgeries with special interest in pediatric surgery and spinal fixation. He published numerous national and international papers concerning Metastatic brain tumors, Endoscopic suturectomy, Posterior craniocervical fixation, Spontaneous ICH (STICH II study), and Grading system for cranial suture closure.

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## Endoscopic versus microscopic approach for management of pituitary tumors

Mahmoud Farid

Al-Azhar University, Egypt


Pituitary tumors are most commonly approached through the trans sphenoidal approach, and tumor resection is most often performed using the operating microscope. More recently the endoscope has been introduced for use either as an adjunct to or in lieu of the microscope. Both the microscopic and endoscopic transsphenoidal approaches to pituitary tumors allow safe and effective tumor resection. This study showed the advantages and disadvantages of the pure transsphenoidal endoscopic approach compared with the standard microscopic approach. Patients and methods: This is a retrospective study of forty patients presented with pituitary macroadenoma including both sexes, with ranging age from 20-50 years. These patients presented to the neurosurgery department of Al-Azhar university hospitals during the period from October 2010 to October 2013. The Patients were divided into two groups: The 1st group; included 20 patients, who subjected to endoscopic endonasal transsphenoidal pituitary surgery. The 2nd group; included 20 patients, were subjected to classic microscopic sublabial transsphenoidal pituitary surgery. Results: This comparative study was including two groups; the first group representing twenty patients with pituitary tumors who operated using endoscopic transsphenoidal technique; and the second group showed twenty patients with pituitary tumors were operated using the microscopic sublabial transsphenoidal technique. The patients in the first group included 5 males (25%) and 15 females (75%) and in the second group included 8 males (40%) and 12 females (60%) with age ranging from (20-50) years (median: 35 years). They are presented by one or more symptoms. The commonest symptoms were headache (92.5%), followed by endocrinal

symptoms (80%), then visual symptoms (75%). In the first group total removal of the lesion was achieved in 10 cases (50%), while subtotal removal was achieved in 8 cases (40%), and partial removal was achieved in 2 cases (10%). While in the second group total removal was achieved in 5 cases (25%), subtotal removal was achieved in 7 cases (35%) and partial removal was achieved in 8 cases (40%). Conclusion: The pure endoscopic approach is a safe, effective approach to sellar region tumors that offers several advantages over the microscopic approach. It provides an excellent wide-angle and magnified view of the operative anatomy, and although it requires more anatomical exposure it remains within the group of minimally invasive approaches to the sella. High disease control rates and low rates of complications are some of the most important points related to the technique. Some of the factors related to the success of endoscopic surgery are lesion size, suprasellar/ parasellar extension, and the degree of sella floor erosion.

### Speaker Biography

Mahmoud Farid Neurosurgery MD, Ph.D. associate professor of Neurosurgery faculty of medicine Al Azhar University. Has completed his Ph.D. of Neurological surgery at Al Azhar University, Cairo, Egypt in 2004. His specialist training involved intense study, research and teaching of both non operative and operative care and treatment of spine and brain surgery. He has authored numerous public international and national works and provides presentations on topics related to the brain and spinal lesions. Expertise in all neurological field and special interest in skull base surgery and microscopic minimal invasive spine surgery. He has experience of work in the Neurosurgery field in Gulf area from 2010 until present were cranial and spinal cases has been managed as well as the peripheral nerves lesions.

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## An Interventional study to promote appropriate use of psychotropic drugs in care homes in people with dementia

Debjani Banerjee Gangopadhyay  
University of the West Scotland, UK


An estimated 90,000 people have dementia in Scotland in 2016. The term stress and distress in dementia refer to the non-cognitive behavioural and psychological symptoms presented in people with dementia. 90% of people with dementia experiences these symptoms at some point. Psychotropic drugs are often inappropriately used to control these symptoms despite documented side effects of these drugs. The aim of this study is to explore the prescribing dynamics in care homes and assess the reason for prescribing psychotropic drugs in stress and distress; followed by the development of an intervention to promote appropriate use of these drugs. The primary objectives are to explore staff awareness of stress and distress in dementia, their knowledge about the indications and side effects of psychotropic drugs. Secondary objective is to develop a staff training/education package. The research is mixed - methods pre- and post-test study method. In this study nurse's attitude towards psychotropic drugs is explored in depth and a targeted intervention to change attitude and behaviour of care staff to use of psychotropic drugs is developed based on The Theory of Planned Behaviour. Quantitative data looked at the prescription rates of psychotropic drugs in care homes and measured the knowledge and attitude

of care staff towards stress and distress. Qualitative data was collected by semi-structured interviews to explore the objectives. An educational intervention to promote the use of alternative non-pharmacological interventions was developed according to the themes identified in the survey questionnaire and interviews. The intervention consisted of teaching sessions around the reasons for stress and distress and non-pharmacological methods of dealing with residents with stress and distress followed by interactive discussion related to a case study. The UReACT model of care was developed and the teaching sessions were supplemented by information cards, posters and DVD. The outcome of the intervention will be evaluated by monitoring prescriptions trends and conducting focus groups among care staff.

### Speaker Biography

I am an international medical graduate from India who came to the UK in 2004. I have worked in public health especially with people with dementia in India; in the UK I worked in NHS as a trainee psychiatrist. I became interested in academics and changed my career to pursue an academic career. I completed Master of Public Health from the University of Edinburgh and am currently a PhD student at the University of West of Scotland. I am an associate member of the Higher Education Academy.

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