ISSN 2397-5628

GERIATRIC OF CARE AND RESEARCH



2019, Volume 6, No 1

GERIATRIC AND RESEARCH

ISSN 2397-5628 Journal of Geriatric Care and Research 2019, Vol 6, No 1

Editor

Nilamadhab Kar, Black Country Partnership NHS Foundation Trust, Wolverhampton, UK

Editorial Board

Ankur Barua, School of Medicine, International Medical University, Kuala Lampur, Malaysia Srikala Bharath, National Institute of Mental Health and Neurosciences, Bangalore, India Sarmishtha Bhattacharyya, Betsi Cadwaladr University Health Board, Wales Sudeshna Chakraborty, Geriatrics Community Healthcare, Toronto, Canada Ramalingam Chithiramohan, Birmingham and Solihull Mental Health Trust, Birmingham, UK Michael Clark, London School of Economics and Political Science, London, UK David Jolley, University of Manchester, Manchester, UK Zubair Kabir, University College Cork, Ireland Paul Kingston, University of Chester, Chester, UK Yohko Maki, National Center for Geriatrics and Gerontology, Obu, Japan Maju Mathew Koola, George Washington University, Washington DC, USA KB Kumar, Amity University, Noida, India Umasankar Mohanty, Manual Therapy Foundation of India, Mangalore, India Yasha Muthane, National Institute of Mental Health and Neurosciences, Bangalore, India N. Sreekumaran Nair, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry, India Tarik Qassem, University of Warwick, Warwickshire, UK Raghavakurup Radhakrishnan, Northland District Health Board, Whangarei, New Zealand Anand Ramakrishnan, Nottinghamshire Healthcare NHS Trust, Nottinghamshire, UK Murali Reddy, Australian National University, Canberra, Australia Jacob Roy, Malankara Medical Mission Hospital, Thrissur, India Shovan Saha, Manipal University, Manipal, India Ravi Samuel, The Psychotherapy Clinic, Chennai, India Sujata Sethi, Post Graduate Institute of Medical Sciences, Rohtak, India Lochana Shrestha, Nepalese Army Institute of Health Sciences, Kathmandu, Nepal Surendra P Singh, University of Wolverhampton, UK P T Sivakumar, National Institute of Mental Health and Neurosciences, Bangalore, India Sarvada C. Tiwari, King George's Medical University, Lucknow, India

Publisher

Geriatric Care and Research Organisation (GeriCaRe)

Sponsors

Quality of Life Research and Development Foundation (QoLReF) The Institute of Insight (MetaInsight)

Creative Support

Karak Visuals, Shreyan Kar, Gabrielle Johnson

Correspondence

Steps to Health, Showell Circus, Wolverhampton, WV10 9TH, UK jgcr.gericare@gmail.com

Copyright of all published material in this journal is held by the authors unless specifically stated otherwise. The views and opinions expressed by the authors are their own. They do not necessarily reflect the views of their employers, the journal, the editorial board or GeriCaRe. The publisher and editors are not responsible for any error of omission or fact. Permission is required for commercial use of the articles. For permissions please apply to GeriCaRe through email org.gericare@gmail.com.

- Description The Journal of Geriatric Care and Research (ISSN 2397-5628) is a multidisciplinary, peerreviewed, international journal covering all areas related to the care of the elderly. It is affiliated to Geriatric Care and Research Organisation (GeriCaRe). It publishes articles from all fields relevant to old age such as geriatric medicine, psychiatry, neurology, nursing, end of life care, public health and related fields like gerontology, sociology, psychology, culture and law. Besides the professionals, the journal intends to reach older persons and their carers as its readers. The key feature of the articles is their contribution towards the care of elderly through reporting, discussing and debating current issues of importance.
- Aim and scope The Journal of Geriatric Care and Research intends to share evidence based knowledge improving care of the older persons. It is dedicated to showcase recent advances in various fields from basic sciences to medicine and social sciences to cultural and legal issues in the field of geriatric care. It takes a holistic view highlighting interrelationship of various disciplines contributing to general well-being and quality of life of the older persons throughout the world.
- Abstracting and The Journal of Geriatric Care and Research is registered with PubMed (selected citations indexing only), Index Copernicus, CiteFactor, google scholar, JournalGuide, LAWMUNION and National Union List of Journals (UK and Republic of Ireland). It is available at the British Library, UK and The Library of Congress, USA.
- Submission The Journal of Geriatric Care and Research covers a whole range of topics through authoritative articles submitted from across the globe. Manuscripts for publication should be prepared according to the 'Instruction to authors' and submitted by email at jgcr.gericare@gmail.com. All papers in this journal are peer-reviewed. No person is permitted to take any role in the peer-review process of a paper in which they have an interest.
- Subscriptions The journal is freely distributed. Individuals and organizations interested to receive the journal should contact jgcr.gericare@gmail.com for e-subscriptions.
- Sponsorship The Journal of Geriatric Care and Research is free to readers and authors. It reaches out to older persons, their carers and multidisciplinary professionals involved in care and support of older persons. The journal depends upon sponsorship rather than charging authors or readers to meet its cost of operations. There are many sponsorship options and we invite you to consider sponsoring this charitable venture.

Sponsors and contributors names will be displayed prominently in the 'Sponsors & Contributors' section of the Journal.

The journal adheres to a strict policy of keeping all editorial process of the journal independent of the financial sponsors and contributors. The sponsors and contributors do not influence material published in the journal. Assignment of any internal roles (such as reviewer, editor, etc.) depends exclusively on demonstrated competence, along with interest in the journal's aims and scholarly engagement with the journal.

Advertising Correspondence should be addressed to GeriCaRe through email at org.gericare@gmail.com. Journal does not endorse any advertised material and it reserves the right to accept or reject the advertisement proposals.

GERIATRIC AND RESEARCH

ISSN 2397-5628 Journal of Geriatric Care and Research 2019, Vol 6, No 1

Contents

- **1** Holistic care for older adults needs attention to multimorbidity *N Kar*
- 3 Proposal for the empowerment of interdependent self-management support for people with dementia Y Maki
- **9** A short report on point prevalence of delirium in hospitalised older adult patients in Auckland, New Zealand J Scott, S Jauhari, G Pilkington, B Vykopal, R Radhakrishnan
- **15** Geriatric mental health problems and services in India: a burning issue *R Girdhar, S Sethi, R P Vaid, H Khurana*
- **20** Spatial navigation: a behavioural biomarker for improved dementia diagnosis? *J Hudson*
- **23** Charles Bonnet syndrome: an important differential diagnosis in new onset hallucinations *G Madley, B Somashekar*
- **26** Nutrition in the acutely ill elderly patients *S Tripathy*
- 31 Web resources for common illnesses in old age S Kar
- 34 Retiring under a starry sky D Sahoo
 - I Instructions for authors

Cover Thirst



Copyright © 2019 Dinabandhu Sahoo, India



The Institute of Insight is a non-profit organisation with an objective to advance education, promote health and creativity to improve quality of life by providing opportunities for lifelong learning, training, appropriate services, research and publications for the benefit of general public and professionals worldwide.

The Institute is working in partnership with Quality of Life Research and Development Foundation (QoLReF) and Geriatric Care and Research organisation (GeriCaRe) which are academic and charitable organisations supported by resource persons worldwide.

The Institute of Insight is currently supporting various public education initiatives, research related works and publications. It is contributing to the Healthy Ageing Conference a public education event in India, for elderly people and their caregivers. It sponsors publication of Journal of Geriatric Care and Research, which is freely available to general public and professionals.



Editorial

Holistic care for older adults needs attention to multimorbidity

Nilamadhab Kar

Abstract

Multimorbidity is common in older persons. It is associated with higher disability, poor functional status, poor quality of life and higher mortality. This article highlights the extent of the problem and apparent inadequacy of comprehensive assessment and management strategies. Role of clinicians, patients and the systems to address multimorbidity is emphasized.

Key words

aged, health care, multimorbidity, treatment

Introduction

It is well known that older persons suffer from multiple health conditions which cumulatively affect their functioning and quality of life. Usually an index condition is assessed and treated in a department which is highly specialised and compartmentalised. The clinically relevant comorbid conditions are assessed alongside the index condition and sometimes a multidisciplinary joint treatment plan is considered. Frequently however, management of coexisting conditions is done by different departments without proper multidisciplinary interaction. That may have some overall impact on the management of the individual. It is pertinent to focus on the issues related to multimorbidity, from identification, assessment, multidisciplinary management plan and prognosis.

Definition

Multimorbidity is coexistence of two or more long term health conditions;¹ which can be physical and mental disorders, learning disability, harmful use of substances or dependence, symptom complexes like chronic pain or frailty, sensory impairments, etc. There may be commonly repeated patterns of co-existing illnesses, along with patients having their own person-specific issues e.g. related to risk factors and response to treatment, which suggest a need for a comprehensive approach.

Prevalence

Multimorbidity is not limited to old age, but it is well known that its prevalence increases with age. A study reported the increase of multimorbidity prevalence from 29.7% in the 45-49 year age group to 52% in 60-64 year age group.²

It is common in older adults and a report suggested a median prevalence of 63% and a mode of 67% for multimorbidity.³ A Swedish study reported that 88.6% older persons had multimorbidity, with 73.2% had 3 or more, and 55.8% had 4 or more conditions.⁴ A study in Canada reported that 39.6% had 3+, 24.5% had 4+ and 14.2% had 5+ chronic conditions in the elderly population.²

Implications

Multimorbidity has a range of impact on the life of the individual. It is associated with higher morbidity, disability, poor functional status, poor quality of life and mortality.³ It is obvious that multimorbidity leads to use of multiple prescription medications; which brings in issues related to drug interactions, increased side effects, adverse drug events and even polypharmacy.⁵ Multimorbidity may influence the prognosis of individual co-existing disorders and lead to poorer or adverse outcomes.⁶ It affects ability to work and employability.⁷

It may lead to increased use of services, increased hospital admissions and care-home placements. Dependence on care is a massive issue all over the world, irrespective of high, middle or low income countries. Multimorbidity has a direct effect on care dependence. A study reported that one unit increase in multimorbidity leads to a 20% increase in the cumulative risk of care dependence.⁸

Treatment

Currently, only one or a few related conditions remain in focus in a particular department of health care; whereas others are dealt at different times, by different teams or sometimes not at all. Some conditions e.g. mental illnesses are often missed from a comprehensive management plan, unless a robust system of comprehensive assessment and intervention is available.

Understandably, management approach to multimorbidity should be individualised with multidisciplinary input. This approach should be throughout the health care system, both in community and hospital; and involve nonprofessional caregivers. Designing care pathways for multimorbidity and effective delivery of such services are a challenge for clinicians and planners alike.⁷ It is especially an issue in countries with inadequate resources in terms of accessible health and social care. The situation can be dire when the persons have to pay for their costly interventions and care; and more often than not, affordability decides the treatment one gets in many parts of the world.

The importance of participation of the patients in the management of their multimorbidity cannot be overemphasized. Awareness about the existing illnesses, self-management with appropriate health actions are crucial. Some authors suggest that along with clinical interventions involving team-based strategies, care coordination, clinician-patient joint-working to prioritise care-plan, the complexities of multimorbidity management, can be eased by elements of self-care where possible by the capable patients and a robust system of care.⁹

Conclusion

There is a need to develop, comprehensive holistic assessment and multidisciplinary management approaches for patterns of multimorbidity and individualised careplan taking into account all the coexisting conditions. This may help improve services to older adults, improve their quality of life and utilise the available resources in an optimal manner.

Author information: Nilamadhab Kar, MD, DPM, DNB, MRCPsych, Consultant Psychiatrist, Black Country Partnership NHS Foundation Trust, Wolverhampton, UK

Correspondence: Nilamadhab Kar, Consultant Psychiatrist, Steps to Health, Showell Circus, Wolverhampton, WV10 9TH, UK. Email: n.kar@nhs.net

Competing interests: None.

Received: 24 May 2019; Revised: 31 May 2019; Accepted: 31 May 2019

Copyright © 2019 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Kar N. Holistic care for older adults needs attention to multimorbidity. Journal of Geriatric Care and Research 2019, 6(1): 1-2.

References

- 1. Griffith LE, Gruneir A, Fisher K, Panjwani D, Gafni A, Patterson C, et al. Insights on multimorbidity and associated health service use and costs from three population-based studies of older adults in Ontario with diabetes, dementia and stroke. BMC Health Serv Res. 2019 May 16;19(1):313.
- 2. Sakib MN, Shooshtari S, St John P, Menec V. The prevalence of multimorbidity and associations with lifestyle factors among middle-aged Canadians: an analysis of Canadian Longitudinal Study on Aging data. BMC Public Health. 2019 Feb 28;19(1):243.
- 3. Salive ME. Multimorbidity in older adults. Epidemiol Rev. 2013;35:75–83.
- Calderón-Larrañaga A, Vetrano DL, Onder G, Gimeno-Feliu LA, Coscollar-Santaliestra C, Carfí A, et al. Assessing and Measuring Chronic Multimorbidity in the Older Population: A Proposal for Its Operationalization. J Gerontol A Biol Sci Med Sci. 2017 Oct 1;72(10):1417–23.
- Schiøtz ML, Frølich A, Jensen AK, Reuther L, Perrild H, Petersen TS, et al. Polypharmacy and medication deprescribing: A survey among multimorbid older adults in Denmark. Pharmacol Res Perspect. 2018;6(6):e00431.
- Rivera-Almaraz A, Manrique-Espinoza B, Ávila-Funes JA, Chatterji S, Naidoo N, Kowal P, et al. Disability, quality of life and all-cause mortality in older Mexican adults: association with multimorbidity and frailty. BMC Geriatr. 2018 04;18(1):236.
- Boyd CM, Fortin M. Future of Multimorbidity Research: How Should Understanding of Multimorbidity Inform Health System Design? Public Health Reviews. 2010 Dec;32(2):451–74.
- Bao J, Chua K-C, Prina M, Prince M. Multimorbidity and care dependence in older adults: a longitudinal analysis of findings from the 10/66 study. BMC Public Health. 2019 May 16;19(1):585.
- 9. Kastner M, Hayden L, Wong G, Lai Y, Makarski J, Treister V, et al. Underlying mechanisms of complex interventions addressing the care of older adults with multimorbidity: a realist review. BMJ Open. 2019 Apr 1;9(4):e025009.



Insight

Proposal for the empowerment of interdependent selfmanagement support for people with dementia

Yohko Maki

Abstract

The concept of 'living well' varies among individuals, and such diversity should be valued. However, maintaining co-beneficial relationships is critical for all the persons with dementia to live well with dementia, since dementia gradually affects independence in daily living. From practical experience, there can be at least five key factors that help preserve social function: 1) focusing on individuals' preserved functions and strengths rather than their deficits; 2) providing shared decision making; 3) ensuring their initiative in decision making; 4) working towards autonomous interdependence, and 5) maintaining reciprocal, beneficial, and grateful relationships. This manuscript proposes a method of selfmanagement support called 'Self-Management of Interdependent Autonomous Life Empowerment' (SMILE). The goals of SMILE are: 1) to strengthen reciprocal relationships in people with dementia; 2) to make people with dementia feel needed, and 3) help people with dementia sense their own existence in their relationships.

Key words

dementia, self-management, autonomy, interdependence, shared decision making, gratitude

Introduction

'Living well' is prioritised as a goal of dementia support. Well-being depends on the individual, and such diversity should be valued. However, a common characteristic of dementia is the gradual deprivation of independence. Therefore, people with dementia need support and inevitably live interdependently with others from the early stages of the disease. Unfortunately, although the deterioration of independence causes people with dementia to need others' support and assistance increasingly as the disease progresses, a decline in social function, which affects interaction with others, is one of the typical symptoms of dementia. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, published by the American Psychiatric Association and revised in May 2013, mentions *social cognition* as one of six independent cognitive domains in the diagnostic criteria for major neurocognitive disorder (previously *dementia*), alongside learning and memory, language, executive function, complex attention, and perceptual-motor function.¹

Social cognition refers to cognitive function involving knowing oneself and others. The ability to know others is explained by theory of mind, a cognitive skill that considers the mental states of others (monitoring) and uses this information to predict behaviour (control).^{2,3} Inferring others' thoughts and feelings, predicting their actions, and responding accordingly are important components of smooth social interaction. Theory of mind declines in Alzheimer's disease dementia (ADD), as shown in previous meta-analyses.^{4,5} With respect to knowing oneself, self-recognition and self-monitoring begin to deteriorate from the early stages of ADD, and it becomes difficult for people with the disease to assess their cognitive deficits objectively and appropriately monitor their own behaviour (i.e. anosognosia).⁶ Inferring mental states, predicting behaviour, and reflecting on and monitoring oneself are important abilities in maintaining good relationships with others in society (Fig 1).

The decline of other cognitive functions also manifests as social difficulties. For example, one of the most common disorders associated with ADD involves the memory and manifests as an inability to recall promises, future appointments, and previous conversations. This deficit creates difficulties in individuals' social lives.

As mentioned above, people with dementia gradually lose their independence since their social function deteriorates as the disease progresses, thus, support from others is inevitable. Support to spare social cognition and/or enhance compensation for the decline of social function is fundamental for people with dementia to live well interdependently with others.

In this manuscript, *society* is considered as the totality of an individual's relationships with others, including family members and caregivers. Therefore, even in cases in which individuals' independence is deteriorated, they continue to retain some type of relationship with *society* until the terminal stage of the disease.



Social reserve

The concept of *social reserve* was proposed recently.⁷ Within the concept of *cognitive reserve*, which refers to the ability to overcome cerebral atrophy and decreased cognitive function, a hypothesis defines reserves of social cognition as social reserves.7 Based on the author's practical experience, there are considerable individual differences in the decline of social cognition. Some individuals display a high degree of social adaptation until the advanced stages of dementia. In some cases, social function can be spared through compensation, which may involve the use of memories of life experiences. Moreover, in other cases, the motivation to maintain interactive relationships with others could contribute to the retention of social function. Therefore, support that increases an individual's social reserves is one of the key factors in living well with dementia in social interactions.

Based on the author's practical experience, there are at least five key factors in the preservation of social function:

- 1) Focusing on individuals' spared function and strengths rather than their deficits
- 2) Shared decision making
- 3) Ensuring that people with dementia take the initiative in decision making,
- 4) Autonomous interdependence
- 5) Maintaining reciprocal-beneficial and grateful relationships

Focusing on individuals' spared function and strengths rather than their deficits

Conventional support considers areas in which people dementia experience difficulties, such with as maladaptive behaviour, and focuses on techniques to manage these symptoms. This perspective is a medical concept emphasizing deficits, rather than the whole person, with the goal of regaining a normal state. However, there is no cure for dementia, and the disease is progressive in nature; therefore, people with dementia inevitably continue to live with declining functions, which makes it impossible to regain a normal state. In contrast, the care concept should focus on the whole person, who lives autonomously with dementia. Also, support should focus on individuals' strengths and residual function rather than their deficits. This is the fundamental concept of the International Classification of Functioning, Disability and Participation.⁸ Furthermore, regaining a normal state is not always a goal in medical care. In 1986, the Ottawa Charter of the World Health Organization stated that 'Health is seen as a resource for everyday life, not the objective of living'.9 In addition, rather than living each day only to overcome deficits, it is desirable that people with dementia live each day with a purpose, and support may be required to utilize their strength and prevent being with dementia from becoming a hindrance to meaningful daily life.

Shared decision making

Because of their declining cognitive function, people with dementia need support in decision making. In addition, their lives involve continuous collaboration with others, as they need increasing support as the disease progresses. Therefore, decision making by those with dementia is inevitably shared decision making in collaboration with others.

Conventional thinking tends to focus on the debate of *how to provide care*; consequently, it considers people with dementia as passive *care recipients*. However, the focus on areas such as end-of-life care has recently shifted to the importance of supporting the decision-making process for people with dementia. Decision making is no longer restricted to choices as to how medical treatment and care should be provided. Rather, action and behaviour are related to individuals' free choices; therefore, daily life involves a continuous string of decisions. As long as people with dementia are alive, decision making in everyday life remains an important activity.

It is desirable for people with dementia to take the initiative, and their free choice should be respected to the maximum extent possible. Support provided during daily life should assist individuals in forming the best possible social relationships and making decisions that increase social interaction to maintain social reserve.

This support requires cognitive empathy. Empathy has both affective and cognitive aspects, and cognitive empathy involves the ability to analyse and consider the contextual factors behind people's actions¹⁰; in cases involving support for people with dementia, the factors underlying behaviour, including the decline of cognitive function, and environmental and individual factors, should be considered. Although the ability to express thoughts in words declines as dementia progresses, people with the disease can still delineate their thoughts, convince themselves, and make their own decisions with appropriate support involving cognitive empathy.

People with dementia taking the initiative in decision making

It is desirable for people with dementia to take the initiative in shared decision making; however, support should be provided to ensure that their words are heard, that the factors underlying their words are comprehended, their intentions are understood, and sufficient meaning is attached to their words when they are unable to organize vague ideas sufficiently.

It is particularly important to attach positive meaning to these words. Thoughts have both good and bad aspects. However, even if people with dementia reveal socially deviant thinking, it is desirable to wait and provide support until they notice this and change their minds, rather than managing or restricting their behaviour. Other than maintaining confidential relationships, there are no techniques via which this can be achieved. Even when people with dementia present a danger to themselves or others, it is necessary for them to change their minds themselves, and managing or restricting their behaviour may not produce favourable results. Therefore, confidential relationships are of greater importance to the maintenance of communication.

Autonomous interdependence

As mentioned above, it is desirable for people with dementia to make their own decisions with appropriate support, while all activities in everyday life involve collaboration with others as the disease progresses. Therefore, self-management (i.e. living according to one's own decisions) in dementia should be supported from disease onset, with the aim of ensuring interdependence rather than independence.

Individuals' lives always involve interdependent relationships with others, even if they are able to live independently, because it is impossible to live a life that is wholly free of providing and receiving help from others. Therefore, given that dementia onset leads to the deterioration of independence, interdependence becomes increasingly important.

The critical factor in relationships with others is autonomy (i.e. self-determination) rather than independence. Therefore, autonomous interdependence is important. As dementia leads to the deterioration of independence, even if self-management that aimed to ensure independence were possible, this self-management would be limited to only the earliest stages of the disease; eventually, the independence would become impossible.^{11,12} In dementia, the provision of support for interdependence is important from disease onset, to enable people with dementia to achieve what they are capable of achieving and receive assistance from others in accomplishing actions that cannot be achieved alone, to allow them to enjoy life. Therefore, living well with dementia is accomplished by maintaining interdependent relationships.

Maintaining reciprocal-beneficial and grateful relationships

As fundamental dysfunction in dementia involves difficulties in social relationships and interactivity, interdependency, and co-beneficial relationship-based care should be emphasized.¹³ Therefore, support should be designed to re-establish social relationships rather than improve cognitive function. As dementia is a lifechanging disease, and relationships with others inevitably change, gratitude and appreciation for support could connect people with dementia to others. Relationships with others are based on the reciprocal exchange of support, but people with dementia inevitably receive increasing support as the disease progresses. However, until just before they fall into a coma, people with ADD retain the ability to smile at others¹⁴; therefore, they could remain able to express their gratitude and appreciation to others in the advanced stages. The receipt of gratitude and appreciation is regarded as a social reward¹⁵; therefore, for those with dementia, the exchange of appreciation and gratitude could be an important factor in re-establishing co-beneficial relationships with others. For those around people with dementia, providing support is not always a burden; rather, it can be perceived as a social reward.¹⁵ Tomasello showed that altruistic behaviour could be an innate desire in human beings.¹⁶

Proposal of Self-Management of autonomous Interdependent Life Empowerment (SMILE)

'Self-Management of The author proposes the autonomous Interdependent Life Empowerment' (SMILE) as a method for self-management support (Fig. 2). SMILE is a support method designed from practical observations to enable people to identify everyday living as a goal and enjoy each day. The name SMILE is derived from Stage 7e of the Functional Assessment Staging of Alzheimer's disease, which is the stage prior to comanamely, loss of the ability to smile (i.e. the ability to smile is maintained until immediately before coma, when patients approach the terminal stage of ADD).¹⁴ SMILE is designed to allow people with dementia to lead meaningful lives each day within interdependent relationships, find enjoyment in life, and improve their own mental and social health.¹⁷

Simultaneous multi-domain interventions and reviewing one's lifestyle are recommended for the prevention of dementia and disease progression. One of the representative initiatives is the Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability,¹⁸ which involved simultaneous multi-domain interventions wherein participants were 'provided' with appropriate individualized programs (based on prior assessment) and the researchers supervised compliance with these programs. In contrast, SMILE respects selfdetermination and autonomous management, encouraging people with dementia and their family members to identify goals related to daily life and engage in autonomous consideration of how to incorporate eight items in their daily life to ensure that each day is enjoyable.

For example, if people with dementia express the desire to cook meals for the family, the goal to enjoy life is fulfilled via their making preparations for the family (doing something for others), cooking (engaging in an enjoyable activity), enjoying meals with the family (social participation/communication), laughing at the dinner table (laughing), enjoying meals (SMILE places more importance on enjoying meals than on nutrition), devising each day's menu (cognitive stimulation), going shopping in preparation for food (exercise), and sleeping well as a result of consuming a well-digested meal (high-quality sleep). This goal directs people with dementia in organizing their lives and incorporating the eight elements into everyday life. In cases in which difficulties related to dementia are obstacles to daily living, support can be provided to devise individualized strategies to cope with or manage difficulties. These strategies should be individualized, as ways of life differ between individuals.

As advocated in the Ottawa Charter, the goal should not be health itself.⁹ If one's objective in life is to prevent dementia, onset progression leads to a life ruled by dementia. Living a rich life every day by accepting the challenge of what one wants to do without using dementia as an excuse could lead to the effective prevention of dementia progression.

Therefore, even if dementia progresses, the individual could continue to live a rich life. In cases involving progressive dementia, the present is the time during which various functions remain at their highest levels. This irreplaceable time should not be saved for the future, when dementia progresses; rather, leading a rich life by enjoying the present allows people to live enjoyable lives with dementia.

The empowerment aspect of SMILE places importance on self-affirmation, reciprocity, and gratitude. As part of the support provided by SMILE, at the end of each day, people with dementia and their family members review the day's events and record instances in which they praised themselves, they were grateful to others, and others thanked them. Importance is attached to how time was spent enjoyably with others rather than achievements. The specific goals of SMILE are as follows:

(1) People with dementia experience strengthened reciprocal relationships as a benefit of mutual appreciation.

(2) People with dementia feel that others need them.

(3) People with dementia sense their own existence in their relationships with others.

Others' acceptance is experienced as a social reward that increases the will to live.^{19,20} Therefore, SMILE supports the efforts of people with dementia who endeavour to live their lives through their relationships with others, allows them to confirm those relationships to themselves, and enables them to find ways of expressing appreciation for others.

Although dementia support does consider a person's *identity* important, this type of self-reflection, in which individuals see themselves in an abstract psychological manner, is difficult even for people without dementia. Psychological reflection is considerably more difficult in dementia, as social cognition, including the ability to engage in self-monitoring, has declined.

In SMILE, instead of engaging in abstract reflection, individuals are required to reflect on their daily lives within the context of their relationships with others. Daily life consists of one's relationships with others; therefore, observing the details of one's actual everyday life, rather than observing oneself, leads naturally to the observation of one's current relationships. Currently, interventions are increasingly emphasizing the relevance of daily living, given that it helps people with dementia to maintain motivation to live well.²¹⁻²³

Various hindrances to daily life, which are not experienced by those without dementia, occur for those with dementia. However, SMILE does not attach importance to methods of solving difficulties that arise during everyday life; rather, it is concerned with the sense of trust between people with dementia and those around them. Both persons with dementia and their caregivers, including their families, might think: 'No matter what happens in the future, I can ask the people around me for support and social support to resolve any issue; therefore, I don't have to do it on my own. I can overcome anything with others around me'. When difficulties arise, people with dementia take the initiative to request assistance. It is also desirable for caregivers to proactively ask for the necessary support, which helps them avoid unnecessary worry or burden and increasing isolation from society. The circle of support should begin with the person with dementia and expand outwards, and such expansion of circle of support starting from one specific person is the essence of dementia friendly society. Although it is impossible to prepare for all potential hindrances to daily life, as long as this trust exists, people with dementia, caregivers and family members are well-equipped to actively seek methods of resolving problems that arise. This support may increase quality of life for people with dementia and those around them including their family members.

Conclusions

Because of the gradual decrease in independence in people with dementia, maintaining co-beneficial relationships is critical for people to live well with the disease. Others close to them should be expected to accept them for who they really are, even including their declining functions, instead of hoping that they will become as others wish them to be. If people with dementia feel that others need them just as they are, they may regain their peace of mind, and they may sense their own existence in their relationships with others. SMILE can have the potential to enhance well-being (particularly social well-being) through its focus on establishing cobeneficial interdependent relationships.

Acknowledgement

The author is grateful for the people with dementia and their family members who have inspired me. This research was supported by the National Center for Geriatrics and Gerontology (Research Project Number 30-26).

Author information: Yohko Maki, PhD, National Center for Geriatrics and Gerontology, 7-430, Morioka, Obu, Aichi 474-8522 Japan; Email: makiyk@ncgg.go.jp

Correspondence: Yohko Maki, PhD, National Center for Geriatrics and Gerontology, 7-430, Morioka, Obu, Aichi 474-8522 Japan; Email: makiyk@ncgg.go.jp

Competing interests: None.

Received: 1 November 2018; Revised: 7 January 2019; Accepted: 12 February 2019

Copyright © 2019 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Maki Y. Proposal for the empowerment of interdependent selfmanagement support for people with dementia. Journal of Geriatric Care and Research 2019, 6(1): 3-8.

References

- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 5th ed. (DSM-5). Arlington, VA: APA Publishing; 2013.
- Frith CD. The role of metacognition in human social interactions. Philos Trans R Soc Lond B Biol Sci. 2012; 367(1599):2213-2223.
- 3. Frith CD, Frith U. Interacting minds: a biological basis. Science. 1999;286:1692–1695
- Bora E, Walterfang M, Velakoulis D. Theory of mind in behavioural-variant frontotemporal dementia and Alzheimer's disease: a meta-analysis. J Neurol Neurosurg Psychiatry. 2015;86(7):714-9.
- Sandoz M, Demonet JF, Fossard M. Theory of mind and cognitive processes in aging and Alzheimer type dementia: a systematic review. Aging Ment Health. 2014; 18(7):815-27.
- Maki Y, Ymaguchi T, Yamaguchi H. Anosognosia in Alzheimer's disease dementia. In: Howell B, editors. Alzheimer's disease: Risk factors, diagnosis, coping and support. New York: Nova Science Publishers, Inc; 2015. p. 1-18
- Fliss R, Le Gall D, Etcharry-Bouyx F, Chauviré V, Desgranges B, Allain P. Theory of Mind and social reserve: Alternative hypothesis of progressive Theory of Mind decay during different stages of Alzheimer's disease. Soc Neurosci. 2016;11(4):409-23.
- World Health Organization. International Classification of Functioning, Disability and Health [Internet]. Geneva: World Health Organization; 2018 [Cited 2018 Nov 1]. Available from: http://www.who.int/classifications/icf/en/.
- 9. World Health Organization. The Ottawa Charter for Health Promotion [Internet]. Geneva: World Health Organization; 1986 [Cited 2018 Nov 1]. Available from: http://www.who.int/healthpromotion/conferences/previo us/ottawa/en/.
- 10. Decety J, Yoder KJ. Empathy and motivation for justice: Cognitive empathy and concern, but not emotional empathy, predict sensitivity to injustice for others. Soc Neurosci. 2016; 11(1):1-14.
- 11. Mountain GA, Craig CL. What should be in a selfmanagement programme for people with early dementia? Aging Ment Health. 2012; 16(5):576-83.

- 12. Sprange K, Mountain GA, Shortland K, Craig C, Blackburn D, Bowie P, et al. Journeying through Dementia, a communitybased self-management intervention for people aged 65 years and over: a feasibility study to inform a future trial. Pilot Feasibility Stud. 2015; 1:42.
- Maki Y, Sakurai T, Toba K. A new model of care for patients with dementia: Japanese Initiative for Dementia Care. In Michel JP, Lynn Beattie B, Martin FC, Walston JD, editors. Oxford textbook of geriatric medicine. 3rd ed. Oxford: Oxford University Press; 2018.
- 14. Reisberg B. Functional assessment staging (FAST). Psychopharmacol Bull. 1988;24(4):653-9.
- 15. Rademacher L, Schulte-Rüther M, Hanewald B, Lammertz S. Reward: from basic reinforcers to anticipation of social cues. Curr Top Behav Neurosci. 2017; 30:207-21.
- 16. Tomasello M. Why we cooperate. Boston: The MIT Press; 2002.
- World Health Organization. World Report on Ageing and Health. [Internet]. Geneva: World Health Organization; 2015 [Cited 2018 Nov 1]. Available from: http://apps.who.int/iris/bitstream/handle/10665/186463/9 789240694811_eng.pdf;jsessionid=3F47893318BF9CA272F C0ECCB753778A?sequence=1
- Ngandu T, Lehtisalo J, Solomon A, Levälahti E, Ahtiluoto S, Antikainen R, et al. A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in atrisk elderly people (FINGER): a randomised controlled trial. Lancet. 2015;385(9984):2255-2263.
- 19. Foulkes L, Viding E, McCrory E, Neumann CS. Social Reward Questionnaire (SRQ): development and validation. Front Psychol. 2014; 5:201.
- 20. Perry DC, Sturm VE, Wood KA, Miller BL, Kramer JH. Divergent processing of monetary and social reward in behavioral variant frontotemporal dementia and Alzheimer disease. Alzheimer Dis Assoc Disord. 2015; 29:161-4.
- 21. Clare L, Bayer A, Burns A, Corbett A, Jones R, Knapp M, et al. Goal-oriented cognitive rehabilitation in early-stage dementia: study protocol for a multi-centre single-blind randomised controlled trial (GREAT). Trials. 2013; 14:152.
- 22. Clare L. Rehabilitation for people living with dementia: A practical framework of positive support. PLoS Med 2017; 14:e1002245.
- 23. Maki Y, Sakurai T, Okochi J, Yamaguchi H, Toba K. Rehabilitation to live better with dementia. Geriatr Gerontol Int. 2018; 18(11):1529-36.



Original research

A short report on point prevalence of delirium in hospitalised older adult patients in Auckland, New Zealand

John Scott, Sachin Jauhari, Gavin Pilkington, Brett Vykopal, Raghavakurup Radhakrishnan

Abstract

Background: Delirium in hospitalised older persons is common and is correlated with adverse outcomes. Few studies of this have been done in New Zealand. This study aimed to measure prevalence of delirium in older adults indifferent specialities in two different hospitals. Objective: The aim of the study was to find out point prevalence of delirium in older adults in hospital setting. **Methods:** The subjects (n=1024) were older inpatients (>65 years; >55 years if of Maori descent) surveyed over a period of 18 months. Delirium was screened for using the Confusion Assessment Method (CAM) Diagnostic algorithm. We evaluated for delirium following a detailed review of the presenting history, Mini Mental state examination (MMSE), digit span test and CAM evaluation. Results: Overall prevalence of delirium was 7.84% in older adult patients (N 1045). There was no difference in delirium among genders (p=0.24). Prevalence of delirium in older patients from medical wards was 8.7%, surgical wards were 7.5% and in rehabilitation wards were 7.7%. The average MMSE score was 24.2 (SD 5.0), the average CAM score for positive patients was 18.8 (SD 4.6). Average Memorial Delirium Assessment Scale score indicating severity of delirium was 13.13 (SD 4.8). Conclusion: Delirium remains an important diagnosis which should be considered among hospitalized older patients. Results suggested a lower prevalence of delirium in our group of patients. Results of the study are discussed with relevance to its generalizability in various settings.

Key words

assessment method, confusion, delirium, older adults, prevalence

Introduction

Delirium is an acute disorder of attention, concentration and cognition. It is a serious health problem reportedly affecting the older adults more frequently, and is possibly most frequent complication of hospitalization. Delirium is common in hospitalized patients. Around 10 to 30% of all older people admissions to a general hospital develop delirium.^{1,2} and in general medical in-patients, occurrence rates ranging from 11 to 42% have been reported.³ Delirium has a prevalence of up to 60% in frail older patients.⁴ Delirium in hospitalized older patients has assumed particular importance because the care of such patients accounts for more than 49 percent of all hospital days.⁵ Delirium complicates hospital stays for at least 20 percent of the patients 65 years of age or older, who are hospitalized each year and increases hospital costs.^{6,7} They are important as they help delineate health status and health care delivery across entire populations or systems of care within subpopulations. Policy makers and researchers recognise the potential of epidemiological research to contribute to policy and are making significant attempts to integrate research into the policy process.⁸ Policy research is critical in the evaluation of any health care delivery system, examining how a system is functioning for patients, clinicians and hospitals and identifying problems and opportunities to improve health care delivery.8

Delirium already poses a considerable challenge to care of older adult population, particularly to New Zealand as there is an increase in older adult population expected over next two decades. Epidemiological studies are vital for estimating prevalence, incidence, morbidity and mortality where global health is a primary concern.⁹ Prevalence studies in delirium are helpful in identifying how a system is functioning and gives the opportunities to improve health care delivery. Studies in New Zealand have been infrequent. A previous New Zealand study highlighted delirium as a common and a serious health problem in hospital inpatients; noting its prognostic importance.¹⁰ This study was undertaken in a single department and may not reflect a global picture in general hospitals. A study by Holden et al¹⁰ reported data from Keneperu and the Hutt Hospitals. In the study they sampled 216 adults over age 65 in a medical inpatient setting. Delirium was assessed with the Confusion Assessment Method (CAM).¹¹ In this cohort of patients, 56 patients were CAM-positive, giving a prevalence of 23.4% and an incidence of 5.7%. Study reported an inpatient mortality of 7% in their population with delirium as opposed to 3.7% in those with no delirium. However, this did not reach statistical significance. They also looked at length of inpatient stay for patients with delirium. Results showed an inpatient stay of eight days for patients with delirium compared to four days for those without, though no significance value was given. Delirium was significantly associated with need for higher level of care on discharge.¹⁰

In a previous study¹² we intended to determine if a diagnosis of delirium in elderly inpatients (>65 years) made during a point prevalence study was associated with mortality at 6 months post diagnosis, length of stay in the hospital (total inpatient stay), and or a change in level of care from admission to discharge. Analysis of preliminary data with a smaller sample size showed 11.2% were CAM positive which was equated to delirium. But this study did not address many issues including difference in the prevalence of delirium in various hospital departments. In addition power was not sufficient to determine more accurate prevalence. Based on the above we aimed to look at the prevalence of delirium in multiple departments using an in depth assessments in older adults. This is a preliminary report of the prevalence of delirium in older adults.

Methods

The study took place in one large and one medium urban secondary care hospital in Auckland, New Zealand. The team evaluated patients above the age of 65 for Caucasian patients, and patients above the age of 55, for those of Maori or pacific islands decent, admitted to a medical inpatient unit, rehabilitation unit and orthopaedic ward. We decided for a lower age cut off for Maori and Pacific islanders to get more accurate record of that group as the median age of Māori was 21.9 years compared with 34.8 years, 13 years difference, for the total New Zealand population.¹³ In addition life expectancy at birth was 73.0 years for Māori males and 77.1 years for Māori females; it was 80.3 years for non-Māori males and 83.9 years for non-Māori females.¹⁴ Patients were excluded if they could not partake in evaluation on three occasions within a 24 hour period.

Delirium was screened for using the Confusion Assessment Method (CAM) Diagnostic algorithm. We evaluated for delirium following a detailed review of the presenting history, Mini Mental State Examination (MMSE),¹⁵ Digit Span Test,¹⁶ and CAM evaluation. Details of assessment and caseness were described elsewhere;¹² a full flow chart is described in figure 1. All patients were administered the MMSE which served as a standardised clinical interaction during which the subject was observed for signs of inattention, altered level of consciousness or disorganised thinking. If any of these were observed, further information was sought to determine whether or not the observed findings represented an acute departure from the subjects' normal state. The assessment was done by a team of doctors, specialist nurses, and occupational therapists who were trained in administration of the CAM and used the CAM training manual and coding guide. All patients assessed were administered the Mini Mental State Examination (MMSE) which served as a standardised clinical interaction during which the subject was observed for signs of inattention, altered level of consciousness or

disorganised thinking. If any of these were observed, further information was sought to determine whether or not the observed findings represented an acute departure from the subjects' normal state. When positive for CAM, MDAS (Memorial Delirium Assessment Scale)¹⁷ was also administered to determine the severity of delirium.

Admission data was obtained from the electronic data system in the hospital. The research team randomly chose a day in a two weekly cycle so as to evaluate point prevalence. This methodology was repeated on nineteen different occasions during the study period of 18 months, March 2012 to July 2013. Exclusion criteria for this study was anyone under 65 years of age and Caucasian, anyone <55 and Maori or Pacific Islander, incorrect National health index number, absent CAM scores, less than 28 questions of the MMSE attempted and inability to communicate in English. Ethical approval for the study was granted by local hospital board. Ethical approval number was NTX/12/EXP/052.

Statistical analysis

Statistical analysis was done using SPSS for windows version 22.0 (SPSS Inc., Chicago, IL). Analysis was two tailed and evaluated for significance at the 0.05 level. Power calculation was done to estimate the sample size. We estimated the power at 80% and needed a sample size of 900. Chi-square analysis and t-test were employed to compare demographics, delirium status.

Results

Data was gathered from 1411 patients were included in the study. In all 1134 assessments were completed over 18 months at 33 different points in time. We excluded 270 (19.1%) patients from the study, as they were not assessable. The mean age of the excluded patients was 78 (SD 8.2) years. Excluded patients included severe unwell patients who were to unwell to undergo an assessment. These decisions were made clinically. Some of the patients could not be assessed due to lack of man power on the day. Only first assessments amongst these patients were counted for analysis.

The mean age of the patients was 79.8 (SD 8.4) years N=1045; excluding patients below 65 years. A little over half (53%) of the patients were females. Results showed that overall 7.84% were positive for CAM. 7.7% of the patients were positive for CAM in geriatric assessment, treatment and rehabilitation wards (AT&R), 7.5% in surgical wards and 8.7% were positive for CAM in medical wards. (Table 1) The point prevalence of delirium was 7.84%. Table 2 shows the age range of patients with CAM outcome. Patients who were CAM positive were significantly older than patients who were CAM negative (83.27 vs 82.33; p=0.029). Mean age of female patients was 83.3 (SD 7.8) significantly more than that of male patients 80.9; SD 9.6 (t=3.08 p=.002). There was no difference in the rate of delirium between genders (chi-square (0.24 p=0.24). Only 13 (2%) inpatients evaluated for delirium were Maori or Pacific Islanders and no cases of delirium was diagnosed with that group.



Table 1. Prevalence of delirium in different specialities					
	Medical wards	Surgical wards	AT&R	Total	
CAM Negative	221 (73.7)	297 (77.5)	527(72.4)	1045 (74.0)	
CAM Positive	21 (7)	24 (6.3)	44 (6.0)	89 (6.3)	
CAM Negative but can't exclude delirium as informant not available	1 (0.3)	0 (0.0)	6 (0.8)	7 (0.5)	
Patient NOT assessable (excluded)	57 (19.0)	62 (16.2)	151 (20.7)	270 (19.1)	
Assessable patients	242 (80.7)	321 (83.8)	571 (78.4)	1134 (80.4)	
Total for ward	300	383	728	1411	
% Positive/(positive + negative)	8.68	7.48	7.71	7.84	
Percentages are given in brackets. AT&R: assessment, treatment and rehabilitation wards					

MMSE scores were available for most patients. The average MMSE score was 24.2 (n=1024, SD 5.0), the average CAM score for positive patients was 18.8 (SD 4.6). 139 (13.5%) patients could not complete the MMSE; the amended average score being 24.36 (SD 4.9). MDAS assessment was completed for 77 patients (indicating the severity of delirium). The average MDAS score was 13.13 (SD 4.8; Range 5-28) for patients positive for delirium.

Table 2. Results of confusion assessment method in inpatients					
Age	CAM	CAM			
Range	Negative	Positive	Total		
55-64	19 (1.8)	0 (0.0)	19 (1.6) 277		
65-74	267 (25.6)	10 (11.2)	(24.4) 470		
75-84	436 (41.7)	34 (38.2)	(41.5)		
85-94	297 (28.4)	44 (49.5)	341 (30)		
95-104	26 (2.4)	1 (1.1)	27 (2.4)		
Total	1045	89	1134		
Percentages are given in brackets.					

Discussion

The only study in New Zealand published prior to this one was completed using only a cohort of elderly general medical patients¹⁰ whereas the selection of patients in this study was undertaken in two different hospitals with its representative populations. The patients assessed were all elderly and three clinical setting were covered - medical, orthopaedic and a Geriatric assessment, treatment, and rehabilitation ward. We included rehabilitation setting to know the prevalence in less acute wards keeping in mind about allocation of health resources. Assessments were undertaken for all patients on a ward, during a specific day. Data collection was done on multiple occasions so as to increase the accuracy in point prevalence and minimise selection bias. Our results are more generalizable to acute hospitals, as patients from multiple departments and setting were assessed. In addition, patients over 55 years old of Maori and Pacific Island ethnicity were included. We included 80% of patients in the ward, at the time of assessment and the sample size has good power to estimate the point prevalence.

The prevalence of delirium in our study was 7.84%, lower than the prior study reported in New Zealand¹⁰ and elsewhere. But previous studies in New Zealand were conducted in only a segment of hospital populations, mainly involving general medical wards.¹⁰The frequency of delirium depends on multiple factors which include the study group, experience of clinicians, criteria, methods of assessments and tools used. Moreover in this study data collection was limited to office hours, on week days, leading to underestimation of prevalence. In addition, given the fluctuating nature of the condition, inability to communicate, the method might have ascertained lesser number of cases as delirium. Patients from the rehabilitation units and surgical wards also might have lowered the prevalence rate in our study. As our results show, compared to non-delirious patients, those with delirium were of higher age. This suggests higher age in the older population may be a risk factor and is consistent with other studies¹⁸.

Strength

Our study design was prospective, using validated tools, by experienced clinicians. Data collection may have captured most patients with delirium on the day of assessment. Sample included a range of surgical, medical and rehabilitation patients. The study did not compare the physician's routine diagnosis to estimate the disparity of diagnosis delineate whether there was under estimation of delirium diagnosis in hospitalized patients, with routine practice. A previous interim report on mortality showed that there is high mortality among patients with delirium and needs higher level of care.¹¹ This is an initial report of prevalence of delirium and needs further analysis, to look in details about correlation to the cognitive function, severity of delirium and mortality among these patients.

Limitations

The main limitations in our study were that we analysed only those patients who completed all assessments. We had to exclude a sizable population due to inability to communicate due to clinical reasons as well as time of assessment (between 0800 hrs and 1600 hrs) on week days, both of which limit the generalisability of the study. We excluded repeated assessments on patients who were staying longer in the wards, particularly rehabilitation wards which may lead low prevalence. We did not evaluate cognition at the end of trial. We cannot confidently say the CAM positive group represents patients with dementia and/or delirium. Patients who attempted less than 28 questions on MMSE were excluded. We did not differentiate subtypes of delirium or looked at their final diagnosis in the study.

Conclusion

Initial report of our study showed that delirium remains an important diagnosis and needs to be considered as a problem in hospital wards, particularly among older adults. Due its prognosis, it should be considered as serious problem among older adults.¹⁰ Awareness delirium should be raised, in all clinical groups as this will reduce mortality rates. This data enabled increased awareness of delirium in all hospital wards. The data obtained from such studies can be used to improve the care of patients with delirium whilst in hospital, to identify deficiencies in service delivery, and assist in the planning future care and preventive strategies, and can be used for future meta-analysis.

Acknowledgement

Authors thank the assessors: Susan Vial, Kim Ooh, Clare Thompson, Snezana Mitrovic-Tosovic, Emma Wilson, Krystle Prenter, Jerry Feng, Nirala Lucken, Felicity Mowbray, Galin Ido, Rachael Halloran, Kirsten Noakes, Louise Harben, Gavin Pilkington, Sachin Jauhari, Aik Haw Tan, Justin Kao, Angela O'Brien, Katherine Bloomfield, Helen Bowen, Annabelle Claridge, Kathy McIlwain, Janet Parker, Amanda Homewood, and Tara Hahn.

Author information: John Scott MB, ChB., FRACP, Consultant Physician, Head of Division, Specialty Medicine and Health of Older People, Waitemata DHB, Auckland, Hon. Senior Lecturer, University of Auckland, NZ, Email: John.Scott@waitematadhb.govt.nz; Sachin Jauhari MBBS, DMH. MRCPsych, RANZCP Consultant psychiatrist MHSOA; Waitemata DHB and Senior Lecturer, University of Auckland, NZ, Hon. Email: sjau002@aucklanduni.ac.nz; Gavin Pilkington BSc (Health science) MB, ChB., FRANZCP Consultant Psychiatrist, MHSOA; Waitemata DHB, Auckland Hon. Senior Lecturer, University of Auckland, NZ, Email: Gavin.Pilkington@waitematadhb.govt.nz; Brett Vykopal MBBS. Programme director Auckland District Health Board, Email: bvykopal@gmail.com; bretv@adhb.govt.nz; Raghavakurup Radhakrishnan MBBS., DPM (NIMHANS), DNB (Psych), MRCPsych Consultant psychiatrist, MHSOA; Waitemata DHB, Hon. Lecturer University of Auckland, NZ, Email: Raghavakuup.Radhakrishnan@waitematadhb.govt.nz;

Correspondence: Dr Raghavakurup Radhakrishnan, MBBS., DPM (NIMHANS), DNB (Psych), MRCPsych Consultant psychiatrist, MHSOA; Waitemata DHB, Hon. Lecturer University of Auckland, NZ, Email: Raghavakuup.Radhakrishnan@waitematadhb.govt.nz

Competing interests: None.

Received: 9 August 2018; Revised: 30 March 2019; Accepted: 31 March 2019

Copyright © 2019 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Scott J, Jauhari S, Pilkington G, Vykopal B, Radhakrishnan R. A short report on point prevalence of delirium in hospitalised older adult patients in Auckland, New Zealand. Journal of Geriatric Care and Research 2019, 6(1): 9-14.

References

- 1. Levkoff S, Cleary P, Liptzin B, Evans DA. Epidemiology of delirium: an overview of research issues and findings. *International Psychogeriatrics* 1991;3(2):149–67.
- 2. Trzepacz PT. Delirium. Advances in diagnosis, pathophysiology, and treatment. *Psychiatric Clinics of North America* 1996; 19(3):429–48.
- 3. Siddiqi N, House AO, Holmes JD. Occurrence and outcome of delirium in medical in-patients: a systematic literature review. *Age Ageing* 2006; 35:350–364.
- 4. Francis J, Kapoor WN. Delirium in hospitalized elderly. Journal of General Internal Medicine 1990;5(1):65–79.
- 5. Administration on Aging. A profile of older Americans. Washington, D.C.: Department of Health and Human Services, 2000.
- Inouye SK, Bogardus ST Jr, Charpentier PA, et al. A multicomponent intervention to prevent delirium in hospitalized older patients. N Engl J Med 1999; 340:669-76.
- Inouye SK, Schlesinger MJ, Lydon TJ. Delirium: a symptom of how hospital care is failing older persons and a window to improve quality of hospital care. Am J Med 1999; 106:565-73.
- Campbell DM, Redman S, Jorm L, Cooke M, Zwi AB, Rychetnik L: Increasing the use of evidence in health policy: practice and views of policy makers and researchers. Aust New Zealand Health policy 2009; 6:21.
- 9. Murray CJ, Ezzati M, Flaxman AD, Lim S, Louzano, R Michaud et al GBD2010 a multi-investigator collaboration of global comparative descriptive epidemiology. Lancet 2012; 380:2055-2058.
- Holden J, Jayasthisa S and Young G. Delirium among elderly general medical patients in a New Zealand hospital. Internal Medicine Journal 2008; 38: 629-634.
- Inouye SK, Van Dyck CH, Alessi CA, et al. Clarifying confusion: the Confusion Assessment Method. A new method for detection of delirium. Ann Intern Med 1990; 113:941–8.
- Tan AH, and Scott J. Association of point prevalence diagnosis of delirium on length of stay, 6 month mortality, and level of care on discharge at Waitemata District Health Board, Auckland. New Zealand Medical journal 2015; 128:68-76.
- 13. Anderson I, Crengle S, Kamaka ML, Tai-Ho Chen T Palafox N, Jackson-Pulver L. Indigenous health in Australia, New Zealand, and the Pacific; Lancet 2006, 367:1775-85.
- 14. Statistics New Zealand. 2001 Census of population and dwellings: Māori. Wellington: Statistics New Zealand, 2002.

- 15. Folstein MF, Folstein SE and McHugh PR. "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. Journal of Psychiatric Research, 1975, 12: 189–198.
- 16. WAIS-R manual: Wechsler adult intelligence scale-revised. D Wechsler Psychological Corporation, New York; 1981
- Breitbart W, Rosenfeld B, Roth A, Smith MJ, Cohen K, Passik
 S. The Memorial Delirium Assessment Scale. J Pain Symptom Manage. 1997; 13:128–137.
- 18. Vasilevskis EE, Han JH, Hughes CG, Ely EW. Epidemiology and risk factors for delirium across hospital settings. Best Pract Res Clin Anaesthesiol 2012; 26:277–287.



Review

Geriatric mental health problems and services in India: a burning issue

Ritika Girdhar, Sujata Sethi, Ravi Parkash Vaid, Hitesh Khurana

Abstract

India is in process of demographic transition. It is projected that elderly population would increase its share to more than 10% by the year 2021. With this change along with various social and cultural changes elderly are bound to face various social and psychological challenges. There has been a steep rise in depression and dementia in this special population. There is not only scarcity of mental health services and professionals but also there is lack of awareness on the part of society about the issue of elderly mental health. Government has taken various initiatives such as National Programme for the Health Care of the Elderly and Maintenance and Welfare of Parents and Senior Citizens Act, etc. This article reviews the various challenges that India is facing today for mental health of geriatric population.

Key words

aged, delivery of health care, geriatrics, mental disorders, India

Introduction

A sound mind in a sound body has been recognized as a social ideal over centuries. World Health Organization gives a comprehensive definition of health as a state of complete physical, mental and social wellbeing and not merely the absence of disease.¹ The definition acknowledges mental wellbeing as one of the important components of healthy life.

India is in a process of demographic transition. There is a downward shift from a high mortality/high fertility scenario to a low mortality/low fertility scenario. The expectancy of life at birth has almost doubled from 32 years in 1947 to 63.4 years in 2011.² The elderly population accounted for 7.1% of total population in 2001and it is projected to increase its share to more than 10% by the year 2021.³ This demographic trajectory depicts that in the years 2000-2050, the overall population in India will increase by 55% whereas the population of age group 60 years and above will increase by 326% and population of age group 80 years and above by 700%.⁴

Improved health care promises longevity, but social and economic conditions like poverty, breakup of the joint family system and poor services especially for the aged pose a potential threat to them. There are problems that arise and overshadow the joys of longevity and affect the social, economic and physical wellbeing of individual, families and the societies in which they live.

Elderly people are highly prone to psychological morbidities. As age advances there is increased physical morbidities and functional loss. This is compounded by varied life experiences such as breakdown of the family support system, decreased care and attention and economic dependence.⁵ Urbanization, nuclearisation of family, migration and career-oriented families have led to neglect of our elderly population. This greatly impacts the psychological status of the elderly making them prone to psychiatric disorders.

Method of conducting review

Articles that assessed geriatric mental health and its challenges in India were identified through searches of the PubMed, EMBASE, and Google Scholar databases for articles published in English between January 1995 and April 2019. The search combined the terms geriatric mental health, challenges, geriatric mental health India, and challenges for geriatric mental health. Additional articles were identified by a manual search of the reference lists of the identified articles and book chapters including recent review articles.

Prevalence of mental disorders in elderly

Mental illnesses in late life contribute to significant morbidity. Mental illness in late life could be due to longstanding psychiatric disorders with onset in early life or with late onset after the age of 60 years.

Dube et al^6 reported the prevalence of mental illnesses in the elderly to be 22.3% (3.3% schizophrenia, 2.4% manic depressive psychosis, 8.5% organic psychosis, 3.8% hysteria, other 4.3%) while Nandi et al^7 found it to be 33.3% (depression 24%, hysteria 3%, anxiety 5.5%) in rural India. Ramachandran et al found the prevalence as high as 35% (organic disorders 3.2% and functional disorders 31.8%).⁸ Tiwari et al reported even higher rates

in the geriatric group (43.3%) as compared to 4.7% in the non-geriatric group. In the geriatric group, depression was the most common psychiatric disorder (21.3%), with the next most common ones being anxiety (20.9%) and organic disorders (8.1%).⁹ A community survey of geriatric psychiatric morbidity by Shahji et al reported prevalence ranging from 8.9 to 61.2 %.¹⁰ The National Mental Health Survey, 2016, reported that the lifetime prevalence of mental morbidity was 15.1% (14.9%-15.3%) after 60 years.¹

Common mental disorders in elderly population

The psychiatric disorders encountered frequently in elderly in Indian population include depression, dementia and mood disorders in particular. Other disorders include anxiety disorders, drug and alcohol abuse, delirium and psychosis. Depression is the most common psychiatric disorder in the geriatric population with prevalence ranging from 22.2% to 55.2% of geriatric patients.¹²⁻¹⁵ Further depression is significantly associated with increasing age, female gender, absence of support from spouse, economic dependence and nuclear family.¹³

Community-based mental health studies have revealed that the point prevalence of depressive disorders among the geriatric population in India varies between 13 and 25 %.^{7,8,14} A systematic review reported even higher rates among the community-based studies in the elderly, the prevalence of depression ranged from 3.9% to 47.0% with higher rates among female and urban residents.¹⁵ Prakash et al reported 23% of patients having depressive symptoms and 18% having a definite depressive disorder among geriatric clinic attendees. Surprisingly, none of the geriatric physicians even from a tertiary clinic setting had made a diagnosis of depression.¹⁶

Suicide, especially due to depression, occurs frequently in the elderly. The literature on suicide in the elderly in Indian subcontinent is sparse. In a 5-year study of 6312 suicide attempters, the ratio of completed suicide to attempted suicide in India is about 1:7 in the elderly, which is double the ratio of 1:15 in lower age groups. Authors concluded that more attempts end fatally in the old people.¹⁷

Dementia is next most common psychiatric disorder in elderly population in India. The prevalence of dementia in Indian studies has been shown to vary from 0.84% to 6.7%.^{18,19} The prevalence of anxiety disorders has been reported to range from 5.34% to 21.35% for gero-psychiatric patients.²⁰

Apart from psychiatric disorders, a significant proportion of older adults face neglect, negative expressed emotions, and abuse.²¹ In the recent survey by Help Age India for older adults across 23 cities in India, one-fourth of elderly, irrespective of gender reported abuse. Elder abuse was reported maximum in Mangalore, Ahmedabad, Bhopal, Amritsar, Delhi and Kanpur while it was least a concern in Jammu, Mumbai, Vizag, Kochi and Guwahati ranging between 4.7% to 12%.²² A study conducted by Achappa et al in old age home setting elderly abuse was found as high as 34%.²³

Mental health services for elderly in India

Indian value system expects respect, reverence and physical care for elderly from their children. However, with emerging changes in the social and cultural values, the elderly are sadly neglected especially who are economically unproductive. Often the health problems of older adults are not cared for as these are attributed just to ageing. In the current era of modernization, globalization and eroding social values, there is an apparent weakening of joint family systems.⁵ The agriculture (and succession of property from one generation to next) had provided strength to bonds between generations, is declining now. Changing economic structure of newer generation has led to independence, and sense of duty and obligation of the younger generation towards their older generation is gradually getting eroded.²⁴

This has led to increased neglect of the elderly and in many cases homelessness. Scarcity of facilities for day care centres and respite care add to the problem. Home based rehabilitation measures or benefits accorded by the State to address caregiver burdens are missing.²⁵ Strict application of "mental health establishment" under Mental Health Care Act 2017 means provision of old age homes for older adults with mental disorders; but in reality these services do not exist.

There are many resources for addressing geriatric mental health issues in India. Broadly these are: i. family as caregivers, ii. State funded government psychiatric hospitals and nursing homes; iii. private psychiatric hospitals and nursing homes; and iv. Non-governmental organizations (NGOs).²⁶

NGOs like HelpAge India are helping in this direction to improve the welfare of the aged in India, especially the needy by creating an understanding of the changing situation and the needs of the elderly in India and by promoting their cause. They also establish within the younger generation an awareness about the problems of older persons in India, and raise funds for the creation of infrastructure through the medium of voluntary, social service organizations that help the elderly, regardless of caste or creed.²⁷ GeriCaRe (Geriatric Care and Research Organisation) is supporting general public through public education initiatives for areas relevant for elderly and arranging Healthy Ageing conferences. NGOs such as the Agewell Foundation, the Dignity Foundation, too are actively contributing, but still efforts are far from meeting the needs of the masses.

India has limited numbers of mental health professionals; around 4000 psychiatrists catering to the 21 million geriatric population in need of mental health services.²⁸ Where the services are available, lack of awareness among the people hinders access and utilization of those services. A study conducted to assess the unmet needs of the elderly population observed that 46.3% of the study participants were unaware of the availability of any

geriatric services near their localities; and 96% had never used any geriatric service. About 59% of them stated that the nearest government facility was at least 3 km away from their residence.²⁹

A very few Indian hospitals have geriatric units and elderly are treated in general psychiatry or medical wards. Most of the geriatric outpatient department services are available in big cities at tertiary care hospitals. Common concerns in public sector, government-run hospitals are lack of staff, drugs, equipments, inaccessibility and inequitable distribution; whereas the usual complaints in private sector are regarding the unethical practice e.g. pressure from management to overprescribe medicines, carrying out unnecessary investigations, and even surgeries, along with poor quality of care.³⁰

Major Government Initiatives

Protection under the Constitution

In the Constitution of India, entry 24 in list III of schedule VII deals with the "Welfare of Labour, including conditions of work, provident funds, liability for workmen's compensation, invalidity and old age pension and maternity benefits. Item No. 9 of the State List and items 20, 23 and 24 of Concurrent List relate to old age pension, social security and social insurance, and economic and social planning. Article 41 states: "The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want".³¹

Legal protection

The Hindu Law

As is evident from the wording of the section, the obligation to maintain parents is not confined to sons only; the daughters also have an equal duty towards parents. Only those parents who are financially unable to maintain themselves from any source, are entitled to seek maintenance under this Act.³²

Muslim Law

According to the Muslim Law, both sons and daughters have a duty to maintain their parents. The obligation, however, is dependent on their having the means to do so.³²

Christian and Parsi Laws

The Christians and Parsis have no personal laws providing for maintenance for the parents. Parents who wish to seek maintenance have to apply under provisions of the Criminal Procedure Code.³²

Criminal Procedure Code, Section 125(1) makes it incumbent for a person having sufficient means to maintain his parents; if they neglect or refuse to maintain their father or mother, they may be ordered by first class magistrate to make a monthly allowance for the maintenance. It is applicable to all irrespective of their religious faith and religious persuasions and includes adoptive parents.³²

National Policy for Older Persons 1999

This policy aims for financial security, healthcare and nutrition, shelter, education, welfare, protection of life and property etc. for the wellbeing of older persons in the country and also recognizes the role of the NGO sector in providing user friendly affordable services to complement the endeavours of the State in this direction.³²

Maintenance and Welfare of Parents and Senior Citizens Act, 2007

The objectives of this act are to provide inexpensive and speedy procedure to claim monthly maintenance for parents and senior citizens and to specify obligations on children to maintain their parents/grandparents and also the relatives of senior citizens to maintain such senior citizens. There are provisions to protect the life and property of such persons. It also gives directions regarding setting up of old age homes.³²

National Programme for the Health Care of the Elderly (NPHCE)

National Programme for the Health Care of the Elderly (NPHCE) is the most recent effort by the government. Launched in 2010-11, it strengthens social security provisions for pension, income tax benefits, provident fund gratuity, and medical assistance. Main objective of this programme is capacity building by establishing specialized geriatric training programs and research institutes, expanding infrastructure to include Regional Geriatric Centres in district hospitals and opening community-based geriatric clinics and utilizing mass media to educate the public. The program also focuses on inter-organizational linkages and referral mechanisms as well as training and support for informal caregivers.^{33,34}

The health insurance sector in India did not cover for mental illnesses until recently; but The Mental Heath Care Act, 2017, by making it compulsory for insurers to cover such disorders, took the first step to ease the financial stress. The recently introduced Mental Healthcare Act (MHCA) 2017 brought many changes compared to the Mental Health Act 1987. But most of the provisions of MHCA 2017 apply to patients with mental illness in general. There are no specific provisions that address the issues related to geriatric population.³⁵

Conclusion

Mental health in elderly is a neglected area with inadequate attention from almost all quarters. There is still lack of awareness about the extent and need of the elderly amongst general public, caregivers, health planners and administrators. Inadequate training opportunities, inequitable distribution of health resources, lack of awareness and absence of chronic care disease models are the challenges which lead to poor geriatric mental health in India. Government policies providing social services to the geriatric population are in place, but their implementation is not adequate. There is a need to raise awareness in public and other professionals about the unmet needs of geriatric mental health, develop adequate human resources, and strengthen intersectoral collaboration. There is an urgent need to implement national policies, programs and legislations targeting geriatric mental health and promoting advocacy.

Author information: Ritika Girdhar, MBBS, Junior Resident in Psychiatry, Email: ritika.medical@gmail.com; Sujata Sethi, MD, DPM, DNB, Professor of Psychiatry, Email: reachsujatasethi@gmail.com; Ravi Parkash Vaid, MBBS, Junior Resident in Psychiatry, Email: raviparkashldw@gmail.com; Hitesh Khurana, MD, Professor of Psychiatry, Email: doctorhitesh@rediffmail.com; Department of Psychiatry, Pt. B.D. Sharma PGIMS. Rohtak, Haryana, India.

Correspondence: Dr. Ravi Parkash Vaid, Department of Psychiatry, Pt. B.D. Sharma PGIMS, Rohtak, Haryana, India; Email: raviparkashldw@gmail.com

Competing interests: None.

Received: 3 June 2019; Revised: 6 June 2019; Accepted: 7 June 2019

Copyright © 2019 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Girdhar R, Sethi S, Vaid RP, Khurana H. Geriatric mental health problems and services in India: A burning issue. Journal of Geriatric Care and Research 2019, 6(1): 15-19.

References

- World Health Organisation. Mental Health. [Internet]. Geneva, Switzerland. [cited 2019 June 6]. Available from:: http://www.who.int/topics/mental_health/en/
- Government of India. Situation analysis of the elderly in India. Central Statistics Office, Ministry of Statistics & Programme Implementation, Government of India, June 2011.
- Irudaya Rajan S. In: Dey AB, editor. Ageing in India, situational analysis and planning for the future. New Delhi: Rakmo Press; 2003.
- 4. United Nations. World population ageing: 1950–2050. New York: Department of Economic and Social Affairs, Population Division, United Nations; 2002.
- 5. Lodha P, De Sousa A. Geriatric mental health: The challenges for India. J Geriatr Ment Heal. 2018;5:16–29.
- Dube KC. A Study of prevalence and biosocial variation in mental illness in a rural and urban community in Uttar Pradesh, India. Acta Psychiatr Scand. 1970; 46 (4):327-59.
- Nandi DN, Ajmani S, Ganguli A, Banerjee G, Boral GC, Ghosh A, Sankar S. Psychiatric disorders in a rural community in West Bengal. Indian J Psychiatry. 1976; 18: 79-87.

- Ramchandran V, Menon SM, Ramamurthy B. Psychiatric disorders in subjects over fifty. Indian J Psychiatry. 1979; 22: 193-8.
- Tiwari SC. Geriatric psychiatric morbidity in rural northern India: Implications for the future. Int Psychogeriatr 2000; 12: 35-48.
- 10. Shaji KS, Jithu VP, Jyothi KS. Indian research on aging and dementia. Indian J Psychiatry. 2010; 52: 148–52.
- 11. Murthy RS. National Mental Health Survey of India 2015-2016. Indian J Psychiatry. 2017; 59(1):21–26.
- Seby K, Chaudhury S, Chakraborty R. Prevalence of psychiatric and physical morbidity in an urban geriatric population. Indian J Psychiatry. 2011; 53:121-7.
- Kundap RP, Singru S, Fernandez K. Study of depression in geriatric population of urban area of Pune, India. Al Ameen J Med Sci. 2016;9 (1):38-42.
- 14. Barua A, Kar N. Screening for depression in elderly Indian population. Indian J Psychiatry. 2010; 52(2):150–3.
- Barua A, Ghosh MK, Kar N, Basilio MA. Prevalence of depressive disorders in the elderly. Ann Saudi Med. 2011; 31:620–4.
- Prakash O, Gupta LN, Singh VB, Nagrajarao N. Applicability of 15-item geriatric depression scale to detect depression in elderly medical outpatients. Asian J Psychiatry. 2009;2(2):63–5.
- 17. Rao AV, Madhavan T. Depression and suicide behaviour in the aged. Indian J Psychiatry. 1983; 25:251–9.
- 18. Prince MJ. The 10/66 dementia research group 10 years on. Indian J Psychiatry. 2009;51 Suppl 1:S8–15.
- 19. Shaji S, Bose S, Varghese A. Prevalence of dementia in an urban population in Kerala, India. Br J Psychiatry. 2005; 186:136–40.
- 20. Prakash O, Rajkumar RP. Anxiety disorders in late-life: a clinical overview. Indian J Priv Psychiatry. 2009;3:13–8.
- 21. Skirbekk V, James KS. Abuse against elderly in India The role of education. BMC Public Health. 2014; 14:336.
- 22. Helpageindia.org. [Internet] Delhi. [cited 2019 June 1]. Available from: https://www.helpageindia.org/wpcontent/uploads/2018/06/ELDER-ABUSE-IN-INDIA-2018-A-HelpAge-India-report.pdf
- 23. Achappa S, Rao B, Holyachi S. Bringing elder abuse out of the shadows: A study from the old age homes of Davangere district, Karnataka, India. Inter J Comm Med Pub Health. 2016; 3:1617–22.
- 24. Bhat AK, Raj D. Ageing in India: drifting intergenerational relations, challenges and options. Ageing Societ. 2001; 21(5):621–40.
- 25. Gupta R. Systems perspective: understanding care giving of the elderly in India. Heal Care Women Inter. 2009; 30(12):1040–54.

- 26. Parkash O, Kukreti P. State of geriatric mental health in India. Curr Trans Geriatr Geronto Reports. 2013; 2:1–6.
- 27. Sawhney M. The Role of Non-Governmental Organizations for the Welfare of the Elderly The Role of Non-Governmental Organizations for the Welfare of the Elderly: The Case of HelpAge India. J Aging Soc Policy. 2015; 15(2-3):179–91.
- 28. Thirunavukarasu M, Thirunavukarasu P. Training and National deficit of psychiatrists in India a critical analysis. Indian J Psychiatry. 2010; 52:83–8.
- 29. Goel PK, Garg SK, Singh JV, Bhatnagar M, Chopra H, Bajpai SK. Unmet needs of the elderly in a rural population of Meerut. Indian J Comm Med. 1999; 28:165–6.
- Biswas S. Implication of population and aging. In Public health implications of aging in India: Ramachandra C, Shah B, editors. Indian Council Med Research; 1994. pp.22-35.

- 31. The Constitution of India. [Internet] [Cited 6 June 2019] Available from https://www.india.gov.in/my-government/ constitution-india/constitution-india-full-text
- 32. Marwaha S, Kaur R, Kaur I. Mental health of elderly in India: a study. Internat J Internat Law. 2015; 2(1):188-205.
- 33. Verma R, Khanna P. National program of health-care for the elderly in India: A hope for healthy ageing. Int J Prev Med. 2013; 4:1103-7.
- 34. Ministry of Health and Family Welfare. National Programme for Health Care of the Elderly (NPHCE). [Internet]. [cited 2019 June 6]. Available from:https://mohfw.gov.in/majorprogrammes/other-national-health-programmes/nationalprogramme-health-care-elderlynphce
- 35. Sivakumar PT, Mukku SS, Antony S, Harbishettar V, Kumar CN, Math SB. Implications of Mental Health Care Act 2017 for geriatric mental health care delivery: A critical appraisal. Indian J Psychiatry. 2019; 61:S763-7.



Short Review

Spatial navigation: a behavioural biomarker for improved dementia diagnosis?

John Hudson

Abstract

Spatial navigation offers a fresh approach to the identification and early diagnosis of dementia, including Alzheimer's disease in the pre-clinical phase. The Sea Hero Quest game has been developed to detect subtle impairments in navigational performance at a very early stage. It has been found to perform better than traditional dementia screening tools and memory assessment scales currently used for identifying persons genetically at-risk of developing Alzheimer's disease.

Key words

Aged, Alzheimer's disease, Big Data, Dementia, Spatial Navigation, Video Games

Introduction

There are currently 44 million people living with dementia worldwide, but the figure could triple to approximately 135 million by 2050.¹ A key component in strategies to address this epidemic, internationally, involves the drive to improve rates of early and accurate diagnosis. In the UK, the National Dementia Strategy² and Prime Minister's Challenge³ stress the importance increasing dementia diagnoses; with a view to ensuring patients obtain suitable treatment and support.

Early and accurate diagnosis of dementia is an important, if elusive, goal for other reasons; including the vital role it has to play in research aimed at discovering more effective pharmacological and non-pharmacological treatments. Trustworthy methods of diagnosis should assist researchers with the design of drug trials, better allocation of suitable pre-clinical subjects within trials, and means of assessing the effectiveness of the new treatments being tested.

There is a substantial body of research investigating various biomarkers to improve early detection of the neurodegenerative pathologies which may be active decades *before* symptoms become notable at the stage of clinical diagnosis. As a general rule of thumb, all things being equal, non-invasive biomarkers are preferable to

invasive ones; on grounds of cost, convenience and the avoidance of patient harm or discomfort.

The diagnosis of dementia is based mostly on tests for memory and cognitive symptoms, currently. This article examines new possibilities for dementia diagnosis at an early stage, before patients show signs of memory loss detectable by widely-used assessment scales.

Spatial disorientation is reported to be a fairly common symptom of Alzheimer's disease and perhaps other forms of dementia. Subtle spatial navigation problems may precede memory symptoms, and this phenomenon offers interesting diagnostic opportunities.

What is Sea Hero Quest (SHQ)?

Sea Hero Quest is an online game developed by Glitchers game developers,⁴ on behalf of Deutsche Telekom⁵ in partnership with Alzheimer's Research UK, University College London and the University of East Anglia. This software first hit the news headlines in November 2016, when it was instrumental in demonstrating how persons' sense of direction and navigational ability typically declines over their lifetime.^{6,7} A more immersive virtual reality version of the game, called Sea Hero Quest VR, further enhanced the scope to collect additional data complementary to that from Sea Hero Quest mobile.

Big Data Analysis

Over 4 million players have submitted data for researchers, merely by playing. The game has been used to generate "big data" on differing patterns of wayfinding performance internationally. Some familiar cultural and sexual stereotypes appeared to be confirmed, when it emerged that men and women employed different spatial navigation strategies. Men appeared to demonstrate a slightly better sense of direction than women, and people from the Nordic nations (Finland, Sweden, Norway and Denmark) tended to outperform players from the rest of the world.^{8,9} The purpose of these comparisons, which may appear potentially invidious and stereotyped when considered superficially, was to develop global benchmarks of healthy navigational behaviour, on a mass population level, taking into account how these may vary according to the demographics of particular players /

patients. Patients could then be tested and matched against the global population, duly adjusted for any variations between specific demographics, thereby making it easier to detect the earliest spatial navigational changes likely to be due to dementia.¹⁰ The ambition is that:

"...in the future, an adapted version of the game may be used as a screening tool for an early warning sign of dementia, as well as a means to monitor disease progress and as an outcome measure for clinical trials".¹¹

APOE e4 Carriers: At-Genetic-Risk Alzheimer's disease

Approximately one in four people carry one copy of the Apolipoprotein E4 (APOE4) gene; and such individuals are known to be roughly three times more likely to develop Alzheimer's disease at some point later in life.

It has recently been found that persons genetically at risk of developing Alzheimer's disease can be distinguished from healthy individuals, using specific features and levels of the Sea Hero Quest game. This is particularly of interest because standard memory assessment tests are unable to distinguish between people in the at risk group (carriers of the APOE4 gene) from others in non-risk groups.^{12,13}

Real-World Validation

Any new cognitive screening and assessment tool requires external validation. It has been shown that navigational ability using Sea Hero Quest is significantly correlated with real-world performance in wayfinding tasks in city streets (Paris and London). The authors claim these findings to represent a further step toward the development of a "controllable, sensitive, safe, low-cost, and easy to administer digital cognitive assessment of navigation ability".¹⁴ Such assessment tests have the potential of being administered remotely; a feature particularly suited to convenience and cost-savings, for example when used in memory clinics across distance, and with opportunities for much improved access by persons with mobility difficulties.

Considerations for the Future

It seems likely that Sea Hero Quest - and similar diagnostic tools to be developed subsequently, based on the navigational behaviour premise - will have superior ability to detect certain forms of Alzheimer's disease compared to conventional memory and thinking tests. It may have broader applicability, yet to be determined. Even if Sea Hero Quest exceeds all expectations, however, it seems unlikely that this could ever constitute a "silver bullet" to solve *all* dementia diagnostic problems. Working from first principles, such wayfinding tests are assumed to be based on physiologically distinct degeneration involving the grid cell navigation system within the entorhinal cortex.¹³ There are different types of dementia, each associated with different patterns of brain pathophysiology. Some experts go so far as to suggest

there may be over one hundred distinct types of dementia.¹⁵ In recent months it has been discovered that possibly one third of elderly people previously thought to have Alzheimer's disease may have an entirely new condition, Limbic-predominant age-related TDP-43 encephalopathy "LATE", instead.^{16,17} Sea Hero Quest, and its derivative tests, are likely to be only one category of dementia assessment test; different tools, or combinations of tests, will be better suited to different underlying pathologies. There is much we still do not know, but definitive differential diagnosis across the full spectrum of dementia sub-types seems likely to remain complex.

The use of information technology in the NHS is much in vogue, and appears to offer many opportunities for improving patient care, innovation and research.¹⁸⁻²⁰ Sea Hero Quest can be seen as falling squarely within this movement. Game playing is likely to be a rich digital source of behavioural biomarkers indicative of mental health (broadly understood), offering potential for earlier, less expensive and more accurate diagnosis.²¹

Conclusion

This narrative literature review has explored the development, validation and emerging diagnostic application of the Sea Hero Quest game. This software is able to detect subtle changes in navigational ability at an early stage, and uses these behavioural clues as means of screening persons at risk of developing Alzheimer's disease. The advantages of this diagnostic tool are claimed to include superior sensitivity, non-invasive safety, enjoyability, low-cost, ease of administration, and scope for remote use on an international scale. Potential limitations have been considered briefly. The value of such software is discussed in broad context, with respect to: (i) the need for improved screening tools suitable for tackling the global dementia epidemic and (ii) growing acceptance among healthcare leaders regarding the future importance of digital technologies in helping to deliver proactive patient care, while driving further research and innovation.

Author information: John Hudson, BA (Hons), MCLIP, Bell Library, Royal Wolverhampton NHS Trust, Wolverhampton, UK, Email: John.Hudson2@nhs.net

Correspondence: John Hudson, Bell Library, Royal Wolverhampton NHS Trust, Wolverhampton, UK, Email: John.Hudson2@nhs.net

Competing interests: None.

Received: 5 June 2019; Revised: 6 June 2019; Accepted: 7 June 2019

Copyright © 2019 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Hudson J. Spatial Navigation: a Behavioural Biomarker for Improved Dementia Diagnosis? Journal of Geriatric Care and Research 2019, 6(1): 20-22.

References

- Guerchet M, Prina M, Prince M. The Global Impact of 21 Dementia 2013-2050: Policy Brief for Heads of Government. [Internet] London: Alzheimer's Disease International; December 2013 [cited 2019 June 1]. Available from: https://www.alz.co.uk/research/GlobalImpactDemen tia2013.pdf.
- Living well with dementia: A national dementia strategy. [Internet] Leeds: Department of Health; 2009 [cited 2019 June 1]. Available from: https://assets.publishing.service. gov.uk/government/uploads/system/uploads/attachment_ data/file/168220/dh_094051.pdf.
- Prime Minister's challenge on dementia 2020. [Internet] London: Department of Health February 21st 2015 [cited 2019 June 1]. Available from: https://assets.publishing. service.gov.uk/government/uploads/system/uploads/attac hment_data/file/414344/pm-dementia2020.pdf.
- Glitchers. Sea Hero Quest VR: the VR game where players help advance dementia research. [Internet] London: Glitchers; 2019 [cited 2019 May 30]. Available from: https://glitchers.com/project/sea-hero-quest-vr/.
- Sea Hero Quest Dementia Research Through Gaming Online. [Internet] Deutsche Telekom; 2019 [cited 2019 May 30]. Available from: http://www.seaheroquest.com/site/en.
- Gallagher J. Dementia game 'shows lifelong navigational decline'. [Internet] BBC Health News; November 17th 2016 [cited 2019 May 30]. Available from: https://www.bbc. co.uk/news/health-37988197.
- ARUK. First data from Sea Hero Quest game revealed. [Internet] London: Alzheimer's Research UK (ARUK); November 16th 2016 [cited 2019 June 1]. Available from: https://www.alzheimersresearchuk.org/first-data-sea-heroquest-game-revealed/.
- Gallagher J. Virtual reality game takes on dementia. [Internet] BBC Health News; August 29th 2017 [cited 2019 June 1]. Available from: https://www.bbc.co.uk/ news/health-41036751.
- Gallagher J. The unpleasant reason men navigate better than women. [Internet] BBC Health News; August 9th 2018 [cited 2019 June 1]. Available from: https://www.bbc. co.uk/news/health-45134809.
- Spiers H, Manley E, Silva R, Dalton R, Wiener J, Hoelscher C, et al. Population-level spatial navigation ability to detect and predict Alzheimer's Disease [Conference poster abstract - P4-300]. Alzheimer's & Dementia: the Journal of the Alzheimer's Association. 2017;13(7):P1404.
- 11. ARUK. Nordic nations, North Americans and Antipodeans rank top in navigation skills. [Internet] London: Alzheimer's

Research UK (ARUK); August 9th 2018 [cited 2019 June 2]. Available from: https://www.alzheimersresearchuk.org/ nordic-nations-north-americans-antipodeans-rank-topnavigation-skills/.

- ARUK. The mobile game that can detect Alzheimer's risk. [Internet] London: Alzheimer's Research UK; April 24th 2019 [cited 2019 June 1]. Available from: https://www.alzheimer sresearchuk.org/the-mobile-game-that-can-detect-alzhei mers-risk/.
- Coughlan G, Coutrot A, Khondoker M, Minihane AM, Spiers H, Hornberger M. Toward personalized cognitive diagnostics of at-genetic-risk Alzheimer's disease. Proc Natl Acad Sci U S A. 2019; 116(19):9285-92.
- 14. Coutrot A, Schmidt S, Coutrot L, Pittman J, Hong L, Wiener JM, et al. Virtual navigation tested on a mobile app is predictive of real-world wayfinding navigation performance. PLoS One. 2019; 14(3):e0213272.
- 15. Dementia-Australia. Types of dementia. [Internet] Dementia Australia; 2019 [cited 2019 June 1]. Available from: https://www.dementia.org.au/information/aboutdementia/types-of-dementia.
- Roberts M. New type of dementia identified. [Internet] BBC Health News; April 30th 2019 [cited 2019 June 2]. Available from: https://www.bbc.co.uk/news/health-48092570.
- 17. Nelson PT, Dickson DW, Trojanowski JQ, Jack CR, Boyle PA, Arfanakis K, et al. Limbic-predominant age-related TDP-43 encephalopathy (LATE): consensus working group report. Brain. 2019;142(6):1503-27.
- Keohane N, Petrie K. National Health Servers: delivering digital health for all. [Internet] London: Social Market Foundation; May 2019 [cited 2019 June 4]. Available from: http://www.smf.co.uk/wp-content/uploads/2019/05/ National-Health-Servers.pdf.
- 19. Bardsley M, Steventon A, Fothergill G. Untapped potential: Investing in health and care data analytics. [Internet] London: Health Foundation; May 2019 [cited 2019 June 4]. Available from: https://www.health.org.uk/sites/default/ files/upload/publications/2019/Untapped%20potential.pdf.
- 20. NHSX: digital experts will be part of cancer and mental health teams. [Internet] Department of Health and Social Care; April 4th 2019 [cited 2019 June 4]. Available from: https://www.gov.uk/government/news/nhsx-digital-expe rts-will-be-part-of-cancer-and-mental-health-teams.
- 21. Mandryk RL, Birk MV. The potential of game-based digital biomarkers for modeling mental health. JMIR mental health. 2019;6(4):e13485.



Case report

Charles Bonnet syndrome: an important differential diagnosis in new onset hallucinations

George Madley, Bettahalasoor Somashekar

Abstract

The onset of new visual hallucinations in a patient with a longstanding history of bipolar disorder is extremely rare and when seen is often attributed to the pre-existing condition. A case of 73 year old male is presented here who developed new onset visual hallucinations on a background of stable mental health and was treated with multiple inpatient admissions and extensive antipsychotic therapy. He was later diagnosed to have Charles Bonnet Syndrome. Had visual loss been considered and treated earlier in the diagnostic process, the patient could have avoided the distress of these admissions, side effects of medication, radiation exposure from imaging and above all would have received appropriate treatment sooner. Furthermore, the Mental Health Services would have saved the cost of inpatient stay. It is therefore better to consider Charles Bonnet Syndrome as a differential diagnosis even in patients with well-established mental illness if they develop new onset visual hallucinations. This case report examines why the diagnosis of Charles Bonnet Syndrome can be missed, and its impact on geriatric patients.

Key words

antipsychotics, bipolar disorder, Charles Bonnet Syndrome, geriatric psychiatry, visual hallucinations

Introduction

It is extremely rare for a patient with bipolar disorder to develop visual hallucinations in older age if they have not experienced them before. It is therefore better to consider other differential diagnoses when these symptoms develop, even in a patient with a longstanding history of mental illness. It is perhaps more common however that the new symptoms are attributed to the pre-existing condition rather than a full assessment be carried out.

In this report we present an elderly patient with a history of bipolar affective disorder who presented with visual hallucinations and had a few psychiatric admissions, before being diagnosed to have CBS in a routine ophthalmological assessment. Estimates of the prevalence of Charles Bonnet Syndrome (CBS) are variable in the literature but most are between 0.5% and 0.8%,¹ making it a far more common condition than most clinicians realise, accordingly it often goes undiagnosed. We discuss points where clinical practice could have been improved. We also consider that CBS is often under-reported which may have implications for geriatric psychiatric patients.

Case history

A 73 year old male with a 40 year history of Bipolar Affective Disorder was in remission. He had never experienced hallucinations in any modalities before. Other coexisting conditions included Type 2 diabetes mellitus and a previous head injury requiring burr-hole drainage. The patient had no history of alcohol or illicit drug use. He had been treated regularly with carbamazepine 300mg TDS, lithium 400mg ON and intermittently with benzodiazepines.

At one of his regular outpatient appointments, he described typical hypomanic symptomatology such as irritability, grandiose ideas, increased speech, arguments with his wife and decreased need for sleep, in addition to a history of new onset visual hallucinations developing over the past 4 months. The hypomanic symptoms remitted quickly with improvement in sleep by addition of nitrazepam to mood stabilisers, however the visual hallucinations persisted. These were complex and occurred mostly at night, taking the form of small men in military uniform entering the patient's house. He was able to confirm that he was awake and alert when witnessing the small men appearing in front of him and he accused his wife several times of collaborating with them. Understandably, this caused a great deal of distress and was contributing to a breakdown in his relationship. However in the mental state examination the patient was able to demonstrate insight that these hallucinations were not real.

Over the next year, he was admitted twice to psychiatric hospital for further assessment of these hallucinations and also to respite care. Respite care in this case refers to a short period of residence in a care facility in order to allow families or caregivers of patients some time off. Antipsychotic medication, aripiprazole, was added to treatment and increased over time with a final dosage of aripiprazole 25mg OD. CT scan and MRI of brain were normal as were a range of blood tests including liver function tests and thyroid stimulating hormone levels. He was also referred to a dementia team for assessment of any cognitive decline but none could be demonstrated. The hallucinations consistently resolved within 3 to 4 days of admission to hospital or respite care; and the patient was discharged home. He and his wife insisted that he took medication as prescribed at home.

Despite repeated admissions, no satisfactory diagnostic conclusion was reached about the recurring visual hallucinations until the patient underwent routine ophthalmological assessment as part of his annual diabetes management. At this point, bilateral retinal dystrophy was demonstrated, which an ophthalmologist confirmed could cause CBS.

Management was arranged under the care of ophthalmologist, which included prescription eyeglasses whilst further investigations were arranged. The patient was reassured regarding his mental health. As there is no established specific treatment for CBS the patient and his wife were psychoeducated about nature of symptoms, clarified that the symptoms were not due to bipolar disorder and advised to use brighter lighting in their home.

He has since remained stable when last reviewed and he appears to have been reassured by the diagnosis of CBS as both he and his wife were concerned about persistent visual hallucination as part of his bipolar disorder. Although the visual hallucinations did not remit completely, through accurate diagnosis the couple were able to cope better and their relationship has improved as a result.

Discussion

Charles Bonnet Syndrome has been described in the literature for over 150 years. Aetiology is uncertain but the predominant hypothesis is sensory deprivation theory.² This postulates that lack of stimulation can cause spontaneous propagation of action potentials in the visual cortex caused by an increase in pre-synaptic vesicles and up regulation of post synaptic receptors. This is similar to the mechanism proposed to be behind Musical Ear syndrome; an auditory equivalent.³ Key diagnostic factors in CBS have been laid out by Gold and Rabins who specify them as complex hallucinations with retained insight and an absence of hallucinations in other modalities.⁴

Despite being well defined, CBS is perceived by many clinicians as a rare condition when the literature suggests otherwise. In fact, in one study 54.7% of family physicians surveyed had no knowledge of the condition at all.⁵ The Canadian National Institute for the Blind (CNIB) performed a survey of 2565 patients referred with visual loss in which 18.8% admitted to some form of hallucinations.⁶ Epidemiological data varies for CBS for reasons discussed later but this is the widest study available. Estimating prevalence of visual loss is easier given the availability of the data which puts it at 3.5% in

adults over 40 in a US population.⁷ We can therefore extrapolate from these two figures that approximately 0.65% of the adult population over 40 is potentially experiencing visual hallucinations as a result of sensory loss. CBS may be under-reported which would account for its under-diagnosis.

The CNIB study data showed that hallucinations were more commonly reported in those who lived with someone rather than those who lived alone (22.4% as opposed to an 18.8% baseline). This does not appear to fit with the accepted sensory deprivation theory. The CNIB's hypothesised explanation, although understandably not yet proven, is that people living with someone are more willing to admit experiencing hallucinations than those living alone due to a fear of being detained under the Mental Health Act or the stigma associated with mental illness. This may account for the disparity between studies attempting to quantify the prevalence of CBS, some of which place it closer to 30% of those with visual loss.⁸ A further explanation for the CNIB's finding would be that those individuals living with patients experiencing visual hallucinations may notice this behaviour and bring it to the attention of clinicians. Individuals living alone may not interpret their experiences as pathological and therefore not volunteer information about them. Therefore, when viewed in its epidemiological context it should be concluded that CBS is an under-reported and therefore likely under-diagnosed cause for visual hallucinations.

In the case discussed it is highly unlikely that the patient would have sought medical advice were it not for his wife's concerns and the resulting relationship difficulties they were experiencing. He was extremely concerned that voicing such symptoms would mean he would be perceived as "going mad" or even lead to detention. Once the symptoms were brought to the clinician's attention, the differentials did not include CBS despite consultation with other colleagues and a variety of investigations. This underlines how the diagnosis can be missed unless it is explicitly sought out by an astute clinician.

Management of CBS relies on treatment of the underlying condition, education, reassurance, and relieving exercises such as eye movements and rapid blinking.⁹ Psychotropic medications (such as SSRIs, antipsychotics and benzodiazepines) have been described with some success in the literature but robust evidence from randomized controlled trial is lacking.¹⁰

It is established that visual hallucinations as a result of schizophrenia or bipolar disorder rarely first present in older age,¹¹ and therefore in the case presented this should have prompted more comprehensive investigations. Differential diagnoses would include: migraine, tumour, delirium, dementia, and substance misuse. Obviously, the management of these conditions varies greatly and prompt identification of the likely aetiology is necessary to avoid inappropriate medications and admissions as well as unnecessary stigma associated with a mental health diagnosis.

In the case presented here, the common causes for visual hallucinations in the elderly were evaluated; however CBS as a differential diagnosis could and should have been considered earlier. Visual assessment should have been performed at the same time as neuroimaging. This may have avoided multiple admissions as well as almost a year of outpatient assessment.

In addition, it can be argued that the cost of inpatient stay, respite care, imaging and medication could have been saved. Figures from 2018 estimate the cost of inpatient care at £410 per day;¹² therefore in this case approximately £20,000 could have been saved from admissions, however it is difficult to conclude that admissions or respite care could have been avoided, because his wife, the only carer needed a break as she was struggling to cope. There was no saving from imaging and medication as this was required as a part of assessment. There are similar cases reported in the literature whereby patients have been trialled on antipsychotic therapy before a diagnosis of CBS was considered showing that the case discussed is not isolated.¹³

Conclusion

If suspected, CBS can be easily investigated by appropriate examination and therefore should be considered early in the diagnostic process. Despite this, lack of awareness impacts patient care as has been highlighted by this case. Practice may be improved by including visual assessment in any formal investigation of new or developing visual hallucinations in patients over 40 years of age prior to neuroimaging. Further research is needed to clarify to what extent, if at all, psychotropic drugs are beneficial in CBS and from this effective management plans can be formulated.

Author information: George Madley, MBChB, University Hospital Coventry and Warwickshire, UK, Email: gmadley@doctors.org.uk; Bettahalasoor Somashekar, MD, Consultant Psychiatrist, Coventry and Warwickshire Partnership Trust, Swanswell point, 2 Stoney Stanton Road, Coventry, CV1 4FS, UK. Email: Bettahalasoor.Somashekar@covwarkpt.nhs.uk

Correspondence: George Madley, MBChB, University Hospital Coventry and Warwickshire, Clifford Bridge Road, CV2 2DX, Coventry, UK, Email: gmadley@doctors.org.uk

Competing interests: None.

Received: 16 May 2019; Revised: 11 June 2019; Accepted: 12 June 2019

 $\label{eq:copyright} \textcircled{Copyright} \hline{Copyright} \textcircled{Copyright} \hline{Copyright} \hline Copyright \hline{C$

Citation: Madley G, Somashekar B. Charles Bonnet syndrome: an important differential diagnosis in new onset hallucinations. Journal of Geriatric Care and Research 2019, 6(1): 23-25.

References

- Shiraishi Y, Ibi K, Terao T, Nakamura J, The rarity of Charles Bonnet syndrome. Journal of Psychiatric Research, 2004, 38 (2): 207-213.
- 2. Painter et al, Stimulus-Driven Cortical Hyperexcitability in Individuals with Charles Bonnet Hallucinations, Biology Today, 2018, 28 (21): 3475-3480.
- Van Ranst A, Keereman V, Hemelsoet D, De Herdt V. Sensory deafferentation syndromes: a case of Charles Bonnet and musical ear syndrome. Acta Neurologica Belgica. 2017, 117 (3):769–70.
- Jurišiü D, Sesar I, Cavar I, Sesar A, Zivkovic M, Curkovic M, Hallucinatory experiences in visually impaired individuals: Charles Bonnet syndrome implications for research and clinical practice. Psychiatria Danubina, 2018, 30 (2): 122-12.
- 5. Gordon KD, Family physician awareness of Charles Bonnet syndrome. Family Practice, 2018, 18; 35(5): 595-598.
- 6. Gordon KD, Prevalence of visual hallucinations in a national low vision client population. Canadian Journal of Ophthalmology, 2016, 51(1): 3-6.
- 7. The Eye Diseases Prevalence Research Group. Causes and prevalence of visual impairment among adults in the United States. Archives of Ophthalmology, 2004, 122:477-485.
- Pang L. Hallucinations experienced by visually impaired: Charles Bonnet Syndrome. Optometry and Vision Science. 2016, 93(12): 1466-1478
- 9. Royal College of Ophthalmologists. [Internet] Understanding Charles Bonnet syndrome, 2013. [cited 2019 January 31] Available from: https://www.rcophth.ac.uk/wpcontent/uploads/2015/02/RCOphth-RNIB-Understanding-Charles-Bonnet-Syndrome-2013.pdf
- 10. Eperjesi F, Akbarali N. Rehabilitation in Charles Bonnet Syndrome: a review of treatment options. Clinical and Experimental Optometry, 2004, 87:149-52.
- 11. Baethge C, Baldessarini R. J, Freudenthal K, Streeruwitz A, Bauer M and Bschor, T. Hallucinations in bipolar disorder: characteristics and comparison to unipolar depression and schizophrenia. Bipolar Disorders, 2005, 7: 136-145.
- PSSRU. [Internet] Unit Costs of Health and Social Care, 2018. [cited 2019 March 22] Available from https://www.pssru.ac.uk/pub/uc/uc2018/services.pdf
- 13. Osuagwu FC, Charles Bonnet Syndrome in a Geriatric Female Patient: A Case Report, The Primary Care Companion for CNS Disorders, 2018, 22; 20(2): doi: 10.4088/PCC.17I02166.



Review

Nutrition in the acutely ill elderly patients

Swagata Tripathy

Abstract

The physiological changes of ageing put an elderly individual at a higher risk of developing malnutrition and the consequences thereof. Acute illness increases this risk and worsens the outcomes of elderly patients who are in the hospital. A clear understanding of the risks, causes, identification and mitigation of these factors is important. This article presents a succinct overview of the steps for planning nutrition care in the hospitalised elderly patients. A multidisciplinary approach involving thorough assessment, structured management protocols, postdischarge follow up, along with education of the patients and their caregivers are essential.

Key words

Aged, Dietary Guidelines, Hospitalization, Nutrition Assessment, Nutritional Status

Introduction

With increasing life expectancy and advances in medical technology, health care services are catering to ever increasing numbers of elderly patients. Nutrition is an important determinant of health and quality of life in older persons. Data suggest that more than seventy percent of hospitalized elderly are at nutritional risk or are malnourished.¹ Malnutrition increases mortality and morbidity in the hospitalized elderly.² Two or more of: loss of weight, muscle mass, subcutaneous fat, decreased handgrip strength, decreased energy intake and fluid accumulation which may be masking weight loss have been considered as criteria for the diagnosis of malnutrition.³

Causes of nutrition disorders in the elderly

The causes and effects of malnutrition in the elderly individuals follow a vicious course- one leading to the other and perpetuating each. Increased age per se increases the risk of malnutrition and disease. Hospitalsation aggravates the preexisting malnutrition or causes new onset nutritional complications (Figure 1). The series of adverse events then continues in the post discharge period. Pre-existing malnutrition may contribute to increased mortality in patients up to 1 year after discharge from the hospital.⁴

Elderly individuals have a decreased ability to compensate for a period of undernutrition caused by illness, unavailability of food or other problems. Causes of involuntary weight loss in the elderly who are not acutely ill can be divided into inadequate dietary intake, loss of appetite, muscle weakness or chronic inflammatory processes (Figure 2). Meals on Wheels has been described as a mnemonic to remember the causes - (Medications, Emotional, Alcohol, Life bereavement, Swallowing, Oral, Nosocomial, Wandering mind/body, Hyperthyroidism, Enteral problems, Eating problems, Low salt diet, Social isolation).⁵

Cachexia and sarcopenia are two interrelated multifactorial phenomena which are commonly missed. Sarcopenia, the loss of skeletal muscle mass and strength as a result of ageing, is associated with loss of functionality, falls and frailty. It may have myriad causes such as disuse, endocrine dysfunction, chronic diseases, inflammation and nutritional deficiencies.⁵ Cachexia, weakness and wasting of the body due to severe chronic illness, on the other hand is a complex metabolic syndrome, commonly associated with underlying proinflammatory diseases. Cancer, renal or heart failure, chronic pulmonary disease, arthritis, and acquired immunodeficiency syndrome (AIDS) may be associated with cachexia. All cachexic patients will have sarcopenia, but most patients with sarcopenia will not be considered cachexic.6,7

Assessing and managing nutrition in the hospitalized elderly

Studies have found that more than 60% of newly hospitalized geriatric patients may present with proteinenergy malnutrition or be at risk of malnutrition.^{4,8}

The Mini Nutritional Assessment (MNA) is a screening tool developed and validated for older persons and recommended for initial screening of the elderly patient admitted to the hospital.¹ It includes immobility and neuropsychological problems in its assessment (apart from the commonly included variables like weight loss, disease, BMI and reduced intake) - two geriatric syndromes that commonly contribute to an increased risk of malnutrition.





Assessment of nutrition in the hospitalized elderly helps to categorize nutritional status and to serve as a baseline to monitor adequacy of supplementation in those diagnosed to be malnourished or at a risk of it. The tools available for the assessment of nutrition risk are abundant in literature.⁹⁻¹⁴ As they are more often developed and validated in outpatient or general inpatient settings, fewer scores are available for the geriatric critically ill population.¹⁵

After screening, all patients who have screened positive should be assessed thoroughly to identify the degree and cause (social, psychological or pathological) of the malnutrition. Efforts should be made to identify individual preferences and choices about types of foods and drinks in hospitalized patients.

Once screened and assessed, tailored and individualized dietary goals must be established for the patient. Once implemented these will need to be monitored and reassessed at regular predetermined intervals. In case the nutritional goals are not being achieved, a multidisciplinary review of possible causes and issues with the diet plans are needed to revise intervention.

Those patients who have screened negative for risk of malnutrition at the time of admission to the hospital also need to be kept under watch, as hospitalization itself is a risk for new onset nutritional problems. It is recommended to repeat the screening tests in these patients every three months.¹

Recommendations for nutrition care in elderly patients

Calories and Proteins

On an average, 30 kcal/kg body weight and at least 1 g/kg body weight of proteins and fibres each are recommended per day. If there are no specific deficiencies, the recommendations for micronutrients, vitamins and minerals in hospitalized elderly is the same as for the healthy elderly.¹

Liberalization of restrictions

Medically prescribed restrictions like low fat, low salt etc. are associated with a greater risk of malnutrition, as it imposes further choice limitations on the geriatric patient who may be facing issues with taste, texture and digestion.^{16,17} It is recommended that the restrictions may be made liberal in this group.

Encouraging oral diet

Elderly patients in nursing homes or hospitals benefit from assisted feeding, best achieved by active of involvement family members trained or multidisciplinary teams. A pleasant homelike dining environment, sharing mealtimes with other elderly patients and focused education sessions of the patient and their caregivers about importance of selection and administration of adequate nutrition support is recommended to help improve oral intake. At least two sessions of individualized nutritional counselling by a dietician, fortified foods, intermittent snacks (meals on wheels) may be included in standardized operations procedures (SOPs) of institutions catering to elderly patients.

Nutrition supplements

Patients who are unable to reach their daily nutritional goals with routine interventions mentioned above are candidates for oral nutritional supplements (ONS). They are available in a variety of styles and flavours (milk, juice, savory), textures and types (powder, semisolid, juice, protein dense, energy dense, fibre rich etc.) to suit a majority of tastes and needs. ONS providing >20% of calories as proteins or >1.5 kcal/g are classified as 'high protein' or 'high calorie' respectively. These supplements, if offered to a patient, should be continued up to 1-month post discharge and constitute at least 400 kcal and 30 g of proteins per day. The elderly are prone to deficiency in vitamin D and B12 and special attention must be given to this.

Enteral and parenteral nutrition

When an elderly patient is very sick and oral diet is inadequate to meet their requirements a decision must be made regarding the patient's prognosis. In terminal cases, comfort oral feeds are preferred to initiating enteral feeds. If a decision is made to begin enteral feeds based on a favorable prognosis, a nasogastric tube is recommended if the anticipated requirement is for less than a week. For conditions warranting longer periods of enteral diet (e.g. patients with brain stroke) percutaneous gastrostomy is preferred.

In those patients who are unable to meet >50% of daily goals for >7 days orally or are expected to be off oral diet for >3 days (for examples perioperative patients, patients with gastrointestinal tract pathology etc.) it is recommended to top up the nutrition with enteral or parenteral nutrition (the former being preferred whenever possible).

Opinion and evidence for critically ill adult patients is currently divided regarding the possible harm of aggressive nutrition supplementation in the early days of critical illness. Most of these studies have been on nonmalnourished patients, therefore results may be difficult to extrapolate to the critically ill elderly population, a considerable proportion of which present with a risk for malnutrition. It is widely agreed however, that enteral and parenteral nutrition should be started gradually and built up over 3-4 days in malnourished patients to avoid the refeeding syndrome. This is a life threatening condition associated with sudden surge of insulin in the already undernourished body, resulting in severe dyselectrolytemias, lethargy, seizures, arrhythmias, heart failure and death. Special attention should be paid to the serum levels of phosphate, magnesium and potassium with thiamine supplementation as needed.¹⁸

Exercise and physical activity during nutritional rehabilitation

It is known that any period of immobility in the elderly leads to rapid loss of muscle mass (non-fat mass or lean body weight).¹⁹ Administering sedatives to improve acceptance of nutrition is therefore not recommended unless it is for a short duration for hyperactive delirium.

When nutrition as a sole intervention is compared to nutrition with exercise in elderly patients, outcomes are better in those who are more physically active.²⁰ Decline in muscle mass is at least partially reversible due to the anabolic response to the stimulus of physical activity.²¹ It is important however, that adequate calorie and protein intake is maintained during the period if increased activity and exercise.²²

Specific disease conditions with nutritional recommendations

Patients with hip fractures, delirium and those at risk for developing pressure ulcers will benefit from nutrition supplements. The supplements will help early wound healing.²³⁻²⁷ In elderly patients with diabetes, restrictive diets are discouraged; regular screening for malnutrition is recommended, with management being the same as for non-diabetic malnourished elderly.²⁸ The obese elderly patient is to be encouraged to increase physical exercise: diet restriction may be moderate at best, to achieve a slow weight reduction without loss in muscle mass. Specific weight reducing diets are to be avoided due to risk of accompanying loss in muscle mass in this group.^{29,30}

Dehydration

Malnutrition is frequently accompanied with dehydration in the elderly patient and is often more harmful in the short term. Physiological changes in the thirst reflex and ability to concentrate urine with age increase the risk of dehydration in the elderly.³¹ Low intake dehydration is more common than that due to active loss. Preventing dehydration is important, with adequate education of the care staff and availability of oral fluids of varied tastes, textures and types to suit patient tastes. It is recommended that bedside clinical signs of loss of skin turgidity, concentrated urine, dry skin/mucosa or increased thirst be discarded as routine screening tools for dehydration in the elderly. A measured serum osmolality of >300 mOsm/dl or a calculated osmolality of >295 mOsm/dl are the recommended thresholds to diagnose dehydration and begin intravenous fluid supplementation along with enhanced oral fluid intake in these patients.¹

Conclusion

An elderly patient who gets admitted to the hospital is at an increased risk of malnutrition. Both preexisting nutritional deficiency or malnutrition developing in the hospital, increase the risk of morbidity and mortality and worsen quality of life. A low threshold for suspicion and robust protocols for screening of all elderly patients is recommended. A multidisciplinary approach is required involving education of the patient and their caregivers towards identifying the cause, setting appropriate goals and monitoring the nutrition. Rehabilitation plans are essential in improving muscle mass, strength, immunity and general well-being in this group.

Author information: Swagata Tripathy, MD, DNB, IDCC, EDIC. Associate Professor Department of Anesthesia & Intensive Care, All India Institute of Medical Sciences, Bhubaneswar, India. Email: tripathyswagata@gmail.com

Correspondence: Dr Swagata Tripathy, Associate Professor Department of Anesthesia & Intensive Care, AIIMS, Bhubaneswar, Sijua, Patrapada, Odisha 751019, India. Email: tripathyswagata@gmail.com

Competing interests: None.

Received: 22 June 2019; Revised: 26 June 2019; Accepted: 30 June 2019

Copyright © 2019 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Tripathy S. Nutrition in the acutely ill elderly patients Journal of Geriatric Care and Research 2019, 6(1): 26-30.

References

- Volkert D, Beck AM, Cederholm T, Cruz-Jentoft A, Goisser S, Hooper L, Kiesswetter E, Maggio M, Raynaud-Simon A, Sieber CC, Sobotka L, van Asselt D, Wirth R, Bischoff SC. ESPEN guideline on clinical nutrition and hydration in geriatrics. Clin Nutr. 2019 Feb;38(1):10-47.
- 2. Wallace JI, Schwartz RS, LaCroix AZ, et al. Involuntary weight loss in older outpatients: incidence and clinical significance. J Am Geriatr Soc 1995; 43:329.
- 3. White JV, Guenter P, Jensen G, et al. Consensus statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). JPEN J Parenter Enteral Nutr 2012; 36:275.
- 4. Tripathy S, Mishra JC, Dash SC. Critically ill elderly patients in a developing world--mortality and functional outcome at 1 year: a prospective single-center study. J Crit Care. 2014 Jun;29(3): 474.e7-13.
- Ritchie C, Michi Y. Geriatric nutrition: Nutritional issues in older adults. Givens J ed. UpToDate. Waltham, MA: UpToDate Inc. https://www.uptodate.com (Accessed on June 03, 2019.)
- 6. Janssen I. The epidemiology of sarcopenia. Clin Geriatr Med 2011; 27:355.
- 7. Ali S, Garcia JM. Sarcopenia, cachexia and aging: diagnosis, mechanisms and therapeutic options a mini-review. Gerontology 2014; 60:294.
- Persson MD, Brismar KE, Katzarski KS, Nordenström J, Cederholm TE. Nutritional status using mini nutritional assessment and subjective global assessment predict mortality in geriatric patients. JAGS 2002; 50(12):1996– 2002.

- Detsky AS, McLaughlin JR, Baker JP, Johnston N, Whittaker S, Mendelson RA, et al. What is subjective global assessment of nutritional status? 1987. Classical article. Nutr Hosp. 2008; 23:400–7.
- 10. Malnutrition Advisory Group. A consistent and reliable tool for malnutrition screening. Nurs Times. 2003; 99:26–7.
- 11. Ferguson M, Capra S, Bauer J, Banks M. Development of a valid and reliable malnutrition screening tool for adult acute hospital patients. Nutrition. 1999; 15:458–64.
- 12. Anthony PS. Nutrition screening tools for hospitalized patients. Nutr Clin Pract. 2008; 23:373–82.
- Bouillanne O, Morineau G, Dupont C, Coulombel I, Vincent JP, Nicolis I, et al. Geriatric Nutritional Risk Index: A new index for evaluating at-risk elderly medical patients. Am J Clin Nutr. 2005; 82:777–83.
- 14. Malnutrition Universal Screening Tool. [Internet] [cited 2015 March 24]. Available from: http://www.bapen.org.uk/pdfs/must/must_full.pdf.
- 15. Tripathy S, Mishra JC. Assessing nutrition in the critically ill elderly patient: A comparison of two screening tools. Indian J Crit Care Med. 2015 Sep; 19(9):518-22.
- Darmon P, Kaiser MJ, Bauer JM, Sieber CC, Pichard C. Restrictive diets in the elderly: never say never again? Clin Nutr 2010; 29(2):170-4.
- Zeanandin G, Molato O, Le Duff F, Guérin O, Hébuterne X, Schneider SM. Impact of restrictive diets on the risk of undernutrition in a free-living elderly population. Clin Nutr. 2012 Feb;31(1):69-73.
- Pourhassan M, Cuvelier I, Gehrke I, Marburger C, Modreker MK, Volkert D, et al. Risk factors of refeeding syndrome in malnourished older hospitalized patients. Clin Nutr 2018;37(4):1354-9.
- 19. Kortebein P, Ferrando A, Lombeida J, Wolfe R, Evans WJ. Effect of 10 days of bed rest on skeletal muscle in healthy older adults. JAMA 2007;297(16): 1769-74.
- 20. Rydwik E, LammesE, Fr€andin K,Akner G.Effects of a physical and nutritional intervention program for frail elderly people over age 75. A randomized controlled pilot treatment trial. Aging Clin Exp Res 2008;20(2):159-70.
- Argil"es JM, Campos N, Lopez-Pedrosa JM, Rueda R, Rodriguez-Ma~nas L. Skeletal muscle regulates metabolism via interorgan crosstalk: roles in health and disease. J Am Med Dir Assoc 2016;17(9):789-96

- 22. Rondanelli M, Klersy C, Terracol G, Talluri J, Maugeri R, Guido D, et al. Whey protein, amino acids, and vitamin D supplementation with physical activity increases fat-free mass and strength, functionality, and quality of life and decreases inflammation in sarcopenic elderly. Am J Clin Nutr 2016;103(3): 830-40.
- 23. Goisser S, Schrader E, Singler K, Bertsch T, Gefeller O, Biber R, et al. Low postoperative dietary intake is associated with worse functional course in geriatric patients up to 6 months after hip fracture. Br J Nutr 2015;113(12): 1940-50.
- 24. Avenell A, Smith TO, Curtain JP, Mak JC, Myint PK. Nutritional supplementation for hip fracture aftercare in older people. Cochrane Database Syst Rev 2016;11:CD001880.
- 25. Siddiqi N,Harrison JK, Clegg A,Teale EA,Young J,Taylor J, etal. Interventions for preventing delirium in hospitalised non-ICU patients. Cochrane Database Syst Rev 2016, CD005563.
- 26. Langer G, Fink A. Nutritional interventions for preventing and treating pressure ulcers. Cochrane Database Syst Rev 2014 ;(6), CD003216.
- 27. Cereda E, Klersy C, Andreola M, Pisati R, Schols JM, Caccialanza R, et al. Cost effectiveness of a disease-specific oral nutritional support for pressure ulcer healing. Clin Nutr 2017;36(1):246-52.
- 28. Sinclair A, Morley JE, Rodriguez-Ma~nas L, Paolisso G, Bayer T, Zeyfang A, et al. Diabetes mellitus in older people: position statement on behalf of the International Association of Gerontology and Geriatrics (IAGG), the European Diabetes Working Party for Older People (EDWPOP), and the international task force of experts in diabetes. J Am Med Dir Assoc 2012;13(6): 497-502.
- 29. MessierSP, MihalkoSL, LegaultC, MillerGD, NicklasBJ, DeVitaP,etal.Effects of intensive diet and exercise on knee joint loads, inflammation, and clinical outcomes among overweight and obese adults with knee osteoarthritis: the IDEA randomized clinical trial. JAMA 2013;310(12):1263-73.
- 30. Chomentowski P, Dube JJ, Amati F, Stefanovic-Racic M, Zhu S, Toledo FG, et al. Moderate exercise attenuates the loss of skeletal muscle mass that occurs with intentional caloric restriction-induced weight loss in older, overweight to obese adults. J Gerontol A Biol Sci Med Sci 2009;64(5): 575-80.
- Hooper L, Bunn D, Jimoh FO, Fairweather-Tait SJ. Waterloss dehydration and aging. Mech Ageing Dev. 2014 Mar-Apr;136-137:50-8.



Health Information Capsule

Web resources for common illnesses in old age

Hypertension

- <u>https://medlineplus.gov/highbloodpressure.html</u>
- https://www.mayoclinic.org/diseases-conditions/high-blood-pressure/symptoms-causes/syc-20373410
- <u>http://www.who.int/topics/hypertension/en/</u>
- <u>https://www.nice.org.uk/guidance/cg127</u>

Obesity

- <u>https://medlineplus.gov/obesity.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/obesity/symptoms-causes/syc-20375742</u>
- <u>http://www.who.int/topics/obesity/en/</u>
- <u>https://www.nice.org.uk/guidance/cg189</u>

Diabetes

- https://www.nice.org.uk/guidance/NG17
- <u>https://www.nice.org.uk/guidance/ng28</u>
- <u>https://medlineplus.gov/diabetes.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/diabetes/symptoms-causes/syc-20371444</u>
- <u>http://www.who.int/news-room/facts-in-pictures/detail/diabetes</u>

Ischaemic heart Disease

- <u>https://medlineplus.gov/coronaryarterydisease.html?utm_expid=.3gPvYmGMQ0e2jK57JOKdoA.0&utm_re_ferrer=</u>
- <u>https://www.mayoclinic.org/diseases-conditions/coronary-artery-disease/symptoms-causes/syc-20350613</u>
- <u>http://www.heart.org/HEARTORG/Conditions/HeartAttack/TreatmentofaHeartAttack/Silent-Ischemia-and-Ischemic-Heart-Disease_UCM_434092_Article.jsp#.W0ToftJKi00</u>
- <u>https://www.nice.org.uk/guidance/ph25</u>

Parkinson's disease

- <u>https://medlineplus.gov/parkinsonsdisease.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/parkinsons-disease/symptoms-causes/syc-20376055</u>
- <u>http://www.parkinson.org/understanding-parkinsons/what-is-parkinsons</u>
- <u>http://www.who.int/mental_health/neurology/neurodiso/en/</u>
- <u>https://www.nice.org.uk/guidance/conditions-and-diseases/neurological-conditions/parkinson-s-disease</u>

Obstructive airway disease

- <u>https://medlineplus.gov/copd.html</u>
- https://www.mayoclinic.org/diseases-conditions/copd/symptoms-causes/syc-20353679
- <u>http://www.who.int/respiratory/copd/en/</u>

Kar, 2019

• <u>https://www.nice.org.uk/guidance/conditions-and-diseases/respiratory-conditions/chronic-obstructive-pulmonary-disease</u>

Osteoarthritis

- <u>https://medlineplus.gov/osteoarthritis.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/osteoarthritis/symptoms-causes/syc-20351925</u>
- http://www.who.int/chp/topics/rheumatic/en/
- <u>https://www.nice.org.uk/guidance/cg177</u>

Cataract

- <u>https://www.nice.org.uk/guidance/ng77/informationforpublic</u>
- <u>https://nei.nih.gov/health/cataract</u>
- <u>http://www.worldcataract.org/</u>
- <u>http://www.who.int/blindness/causes/priority/en/index1.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/cataracts/symptoms-causes/syc-20353790</u>
- <u>https://medlineplus.gov/cataract.html</u>

Hearing Impairment

- <u>https://www.nice.org.uk/guidance/ng98</u>
- <u>https://medlineplus.gov/indigestion.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/indigestion/symptoms-causes/syc-20352211</u>
- <u>http://www.who.int/news-room/fact-sheets/detail/deafness-and-hearing-loss</u>

Constipation

- <u>https://cks.nice.org.uk/constipation#!topicsummary</u>
- <u>https://www.niddk.nih.gov/health-information/digestive-diseases/constipation</u>
- <u>http://www.worldgastroenterology.org/guidelines/global-guidelines/constipation</u>
- <u>https://www.mayoclinic.org/diseases-conditions/constipation/symptoms-causes/syc-20354253</u>
- <u>https://medlineplus.gov/constipation.html</u>

Dyspepsia

- <u>https://www.nice.org.uk/guidance/cg184</u>
- <u>https://medlineplus.gov/indigestion.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/indigestion/symptoms-causes/syc-20352211</u>

Insomnia

- <u>https://medlineplus.gov/insomnia.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/insomnia/symptoms-causes/syc-20355167</u>
- <u>https://www.nhlbi.nih.gov/health-topics/insomnia</u>

Depression

- <u>https://www.nice.org.uk/guidance/cg90</u>
- <u>https://medlineplus.gov/depression.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/depression/symptoms-causes/syc-20356007</u>
- <u>http://www.who.int/news-room/fact-sheets/detail/depression</u>

Dementia

- <u>https://www.nice.org.uk/guidance/ng97/informationforpublic</u>
- <u>https://www.nia.nih.gov/health/what-dementia</u>

- <u>http://www.who.int/news-room/fact-sheets/detail/dementia</u>
- <u>https://www.mayoclinic.org/diseases-conditions/dementia/symptoms-causes/syc-20352013</u>
- <u>https://medlineplus.gov/dementia.html</u>

Delirium

- <u>https://www.nice.org.uk/guidance/cg103/ifp/chapter/About-this-information</u>
- https://www.ncbi.nlm.nih.gov/pubmedhealth/PMHT0027314/
- <u>http://www.idelirium.org/home.html</u>
- https://www.mayoclinic.org/diseases-conditions/delirium/symptoms-causes/syc-20371386
- <u>https://medlineplus.gov/ency/article/000740.htm</u>

Cancer

- <u>https://www.nice.org.uk/guidance/conditions-and-diseases/cancer/cancer--general-and-other#panel-pathways</u>
- <u>https://www.cancer.gov/resources-for/patients</u>
- <u>https://www.wcrf.org/</u>
- <u>http://www.who.int/cancer/en/</u>
- <u>https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588</u>
- <u>https://medlineplus.gov/cancer.html</u>

Dental Ailments

<u>https://www.webmd.com/oral-health/guide/dental-care-seniors#1</u>

Drug addiction

- <u>https://www.nice.org.uk/guidance/qs23</u>
- <u>https://medlineplus.gov/drugabuse.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/drug-addiction/symptoms-causes/syc-20365112</u>
- <u>http://www.who.int/topics/substance_abuse/en/</u>

Benign prostatic hypertrophy

- <u>https://medlineplus.gov/enlargedprostatebph.html</u>
- <u>https://www.mayoclinic.org/diseases-conditions/benign-prostatic-hyperplasia/symptoms-causes/syc-20370087</u>
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2950766/pdf/cuaj-5-310.pdf
- <u>https://patient.info/doctor/benign-prostatic-hyperplasia</u>

Prolapse (hernia, uterus)

- <u>https://medlineplus.gov/ency/article/001508.htm</u>
- <u>https://www.mayoclinic.org/diseases-conditions/pelvic-organ-prolapse/symptoms-causes/syc-20360557</u>
- <u>https://www.womenshealth.gov/a-z-topics/pelvic-organ-prolapse</u>
- https://www.nice.org.uk/guidance/conditions-and-diseases/gynaecological-conditions/uterine-prolapse

Compiled by **Shreyan Kar**, MBChB Student, Medical School, University of Birmingham, UK. Email: <u>kar.shreyan@gmail.com</u>



Creative Expressions

ISSN 2397-5628 Journal of Geriatric Care and Research 2019, Vol 6, No 1

Retiring under a starry sky

Dinabandhu Sahoo



Art is the honest language of the heart. To express one's heartfelt emotions through color and canvas is truly exhilarating yet challenging. Though I have not received any formal education from any art institute, still I have attempted to express my inner visions to the best of my ability through paintings. I have endeavored to nurture and cherish God's benevolence on me by reflecting passionately with a tender touch, the versatile affairs and issues pertaining to human life and society. If truth be told it requires immense perseverance to keep pace with both my profession and passion, the fervent pursuit of evocative creativity. Nevertheless, I feel it is my bounden duty to ascertain that the brush finds its way to the palette and then to the canvas to candidly unravel what enigmas my mind and soul conceal....

Artist information: Dinabandhu Sahoo

Correspondence: Dr Dinabandhu Sahoo, MD, Consultant Physician, District Hospital, Bhawanipatna, Odisha, India. Email: dinabandhu1970@gmail.com

Copyright © Dinabandhu Sahoo

Citation: Sahoo D. Retiring under a starry sky. Journal of Geriatric Care and Research, 2019, 6(1): 34.



Manuscript Preparation

Instructions for authors

Introduction

The Journal of Geriatric Care and Research (JGCR) is the official publication of Geriatric Care and Research Organisation (GeriCaRe). The JGCR publishes original work in all fields of geriatrics, contributing to the care of elderly. Theme based special issues focusing one aspect of care are also published periodically. Manuscripts for publication should be submitted via email <jgcr.gericare@gmail.com>.

The *JGCR* is not responsible for statements made by authors. Material in the *JGCR* does not necessarily reflect the views of the Editors or of GeriCaRe.

Editorial process

The *JGCR* follows in principle the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals by the International Committee of Medical Journal Editors (ICMJE) and the Committee on Publication Ethics (COPE).

Contributions for *JGCR* are accepted for publication on the condition that their substance (whole or part) has not been published or submitted for publication elsewhere, including internet. If there are other papers from same database, then the authors must send all details of previous or simultaneous submissions.

All submitted articles are peer reviewed. At the first step, the articles are assessed by the editorial board for its suitability for the formal review.

If found suitable, the manuscripts undergo a double-blind peer review. The suggestions received from reviewers are conveyed to the corresponding author. When appropriate, the author is requested to provide a point by point response to reviewers' comments and submit a revised version of the manuscript.

Manuscripts accepted for publication are copy-edited to improve readability and to ensure conformity with *JGCR* style.

Authorship

Authorship credit should be based only on substantial contribution to:

- Conception and design, or analysis and interpretation of data
- Drafting the article or revising it critically for important intellectual content, and
- Final approval of the version to be published

All these conditions must be met. Participation solely in the collection of data or the acquisition of funding does not justify authorship. In addition, the corresponding author must ensure that there is no one else who fulfils the criteria but has not been included as an author.

Group authorship is permitted, but in this case individual authors will not be cited personally.

If a professional medical writer was used for manuscript preparation, their name and contact details must be given in the acknowledgement and any conflicts of interest must be disclosed.

The corresponding author must sign the contributors form on behalf of all the authors, once a manuscript has been accepted. This author must take responsibility for keeping all other named authors informed of the paper's progress.

Unless otherwise stated corresponding author will be considered as the guarantor of the article. However one or more authors/contributors can be guarantor. The guarantor accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

Declaration of competing interest

All submissions to the *JGCR* (including editorials and letters to the Editor) require a declaration of competing interest. This should list fees and grants from, employment by, consultancy for, shared ownership in, or any close relationship with, at any time over the preceding three years, an organisation whose interests may be affected by the publication of the paper.

Ethics approval of research

The *JGCR* expects authors to follow the World Association's Declaration of Helsinki and base their article on researches conducted in a way that is morally and ethically acceptable. The research protocol must have

been approved by a locally appointed ethics committee or institutional review board.

Every research article must include a statement that the investigators obtained ethical approval for the study (or an explanation of why ethical approval was not needed) in the methods section of the manuscript with the name and location of the approving ethics committee(s).

Patient consent and confidentiality

A statement regarding informed consent must be included in the methodology. Studies involving humans must have written informed consent from the patients. Where the individual is not able to give informed consent for lack of mental capacity, it should be obtained from a legal representative or other authorised person. If consent cannot be obtained because the patient cannot be traced then publication will be possible only if the information can be sufficiently anonymised. Anonymisation means that neither the patient nor anyone could identify the patient with certainty. Such anonymisation might, at an extreme, involve making the authors of the article anonymous. If the patient is dead, the authors should seek permission from a legal representative or other authorised person as a matter of medical ethics.

The authors should check the specific laws in their country. Contributors should be aware of the risk of complaint by individuals in respect of breach of confidentiality and defamation; and must archive the signed informed consent form.

The process used to assess the subject's capacity to give informed consent and safeguards included in the study design for protection of human subjects should be mentioned.

Publication Ethics

Authors should consider all ethical issues relevant to publication. This includes (but not restricted to) avoiding multiple submission, plagiarism and manipulation of figures/data. Any concerns in this regard must be brought to the attention of the Editor and these will be investigated by procedures recommended by the Committee on Publication Ethics (COPE). If conclusive evidence of misconduct is found, the *JGCR* undertakes to publish a correction or retraction of article as necessary.

Clinical trial registration

All clinical trials must be registered in a public trials registry. This is a requirement for publications of the trials.

Qualitative research

The *JGCR* welcomes submissions of reports of qualitative research relevant to the scope of the care of elderly.

Type of manuscripts

Research article

The research article should normally be between 3000 and 4000 words in length (excluding references, tables and figure legends). Only the essential references should be given, preferably not more than 25 beyond those describing statistical procedures, psychometric instruments and diagnostic guidelines used in the study. Authors are encouraged to present key data within smaller tables in the appropriate places in the running text. This applies also to review articles and short reports.

A structured abstract not normally exceeding 150 words should be given at the beginning of the article, incorporating the following headings: Background, Aims, Method, Results, and Conclusions.

Key words: Up to six key words should be provided. Please use Medical Subject Headings (MeSH) as key words.

Article should have Introduction, Method, Results and Discussion sections. Authors may use relevant subheadings under these sections. Introductions should normally be no more than one paragraph; longer ones may be allowed for new and unusual subjects. The Discussion should always include limitations of the paper to ensure balance. A paragraph of practical implications of the observations is encouraged.

Short report

Short reports (brief communications) are based on original research, observational or evaluation studies, clinical audits etc. These are structured as research articles and require an unstructured abstract of one paragraph, not exceeding 100 words. The report should not exceed 1500 words (excluding references, tables and figure legends) and contain no more than one figure or table and up to 10 essential references beyond those describing statistical procedures, psychometric instruments and diagnostic guidelines used in the study.

Case report

Case reports and series require up to 100 word abstract, and the length should not exceed 1000 words (excluding references, tables and figure legends). The written informed consent of the individuals must be obtained and submitted with the manuscript. Please refer to patient consent and confidentiality paragraph for further detail. In general, case studies are published in the *JGCR* only if the authors can present evidence that the case report is of fundamental significance and it is unlikely that the scientific value of the communication could be achieved using any other methodology.

Review

Systematic and narrative review articles should be structured in the same way as research article, but the length of these may vary considerably, as will the number of references. It requires a structured abstract like that of research articles.

Short review

These articles focus on highly topical issues based on evidence. Professional perspectives, viewpoints, commentary and opinion are included here. It can also include clinical review relevant to the practitioners. These articles are usually more broad-based than editorials. They can include tables and figures. Usual length is around 1500 words (excluding references) with an unstructured abstract up to 100 words.

Editorial

Editorials require an unstructured summary of one paragraph, not exceeding 50 words. Editorials should not exceed 1000 words and may contain no more than one figure or table and up to 10 essential references.

Letters to the Editor

Letters may be submitted either as responses to published articles, to inform about particular situation or raise pertinent issues, as expert opinion or as general letters to the Editor. Letters may be up to 400 words in length with a maximum of 5 references.

Insight

These articles include variety of topics which may reflect an individual perception, involvement or contribution to geriatric care. It can include good practice examples, inspirational experiences and highlight neglected areas. Essays in descriptive prose can be submitted on any topic related to geriatric care. These are usually written by a single author but a second author may be included occasionally. The length of the articles may vary considerably depending upon the topic and may be up to 2000 words excluding references. An unstructured summary of around 100 words is preferred but not mandatory. Use of subheadings is encouraged.

First person account

In first person accounts *JGCR* publishes experiences of older persons or their care providers about the care and concerns of the elderly, that can be considered significant and provide learning points for others.

Columns

These comprise a range of materials considered to be of interest to readers of the *JGCR*. This section includes reviews on book, film or web resources as short articles up to 400 words. Some other examples include News regarding developments that can influence the care of elderly, poems, paintings, photographs, quotations, information about important internet links, etc. These articles are published individually or as fillers at the end of other articles where space allows.

Preparation of Manuscripts

Prepare article in Word, A4 size page, with 1 inch margin, double spaced throughout.

Article information page

- 1. Type of manuscript:
- 2. Title of the article: Brief and relevant
- 3. Running title: not more than 50 characters;
- 4. Name of the authors: (underline Last name)
- 5. Details of authors: academic degrees and institutional affiliations, professional address, email
- 6. Corresponding author: name, address, phone, fax, and e-mail
- 7. Contributions of each author:
- 8. Word count for abstract:
- 9. Word count for the text (excluding references):
- 10. Number of photographs/images (to be provided separately in JPEG files):
- 11. Acknowledgement:
- 12. Competing interests:

No identifiable details beyond this page.

Article Text pages

The article text pages do not contain any identifiable information, for a blind review. It should contain: Title of the article, Abstract and Key words (depending upon the article type) and the Text of the article.

References

Authors are responsible for checking all references for accuracy and relevance in advance of submission. All references should be given in superscripted number in the order they appear in the text. Place superscript reference number after commas and full stops, unless the superscript is attached to authors name or title of book/database. At the end of the article the full list of references should follow the ICMJE style. If there are more than six authors, the first six should be named, followed by 'et al'.

Example of journal articles:

The authors' names are followed by the full title of the article; the journal title abbreviated according to the PubMed; the year of publication; the volume number; (issue number in bracket); and the first and last page numbers.

1. Singh SP, Singh V, Kar N, Chan K. Efficacy of antidepressants in treating the negative symptoms of chronic schizophrenia: meta-analysis. Br J Psychiatry. 2010; 197(3): 174-9.

References to books should give the names of any editors, place of publication, editor, and year. Examples are shown below.

2. Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. Medical microbiology. 4th ed. St. Louis: Mosby; 2002.

3. Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93-113.

4. Foley KM, Gelband H, editors. Improving palliative care for cancer [Internet]. Washington: National Academy Press; 2001 [cited 2002 Jul 9]. Available from: http://www.nap.edu/books/0309074029/html/.

5. Cancer-Pain.org [Internet]. New York: Association of Cancer Online Resources, Inc.; c2000-01 [updated 2002 May 16; cited 2002 Jul 9]. Available from: http://www.cancer-pain.org/.

Personal communications need written authorisation (email is acceptable); they should not be included in the reference list. Unpublished doctoral theses may be cited (please state department or faculty, university and degree). No other citation of unpublished work, including unpublished conference presentations, is permissible. Further information about the references can be availed from http://www.nlm.nih.gov/bsd/uniform_requirements .html

Tables

Tables should be numbered and have an appropriate heading. The tables should be mentioned in the text but must not duplicate information. The heading of the table, together with any footnotes or comments, should be selfexplanatory. The table should be placed at the desired position of the manuscript. Authors must obtain permission from the original publisher if they intend to use tables from other sources, and due acknowledgement should be made in a footnote to the table.

Figures

Figures should be clearly numbered and include an explanatory legend. All figures should be mentioned in the text and the desired position of the figure in the manuscript should be indicated. Authors must obtain permission from the original publisher if they intend to use figures from other sources, and due acknowledgement should be made in the legend.

Abbreviations, units and footnotes

All abbreviations must be spelt out on first usage and only widely recognized abbreviations will be permitted. Abbreviations usage should be consistent throughout the article. Use abbreviations sparingly; consider using one if it is repeated more than three times.

The generic names of drugs should be used.

Generally, SI units should be used; where they are not, the SI equivalent should be included in parentheses.

Footnotes are not allowed, except table footnotes.

Statistics

Methods of statistical analysis should be described in language that is comprehensible to most readers. Raw data for the studies may be asked at any time up to 5 years after publication of research in the *JGCR* and the authors are suggested to keep these safe.

Proofs

A proof will be sent to the corresponding author of an article which should be sent back within 7 days.

Copyright

Copyright of all the published papers is retained by the authors.

Contributors form

On acceptance of the paper for publication, all authors should submit a contributor's form to the Geriatric Care and Research Organisation (GeriCaRe) regarding adherence to publication ethics.

Open access

There is no submission or publication fee at present for papers published in the *JGCR*. All papers published in the *JGCR* become freely available.



Donate to GeriCaRe

GeriCaRe (Geriatric Care and Research Organisation) is involved in the care of older persons, trying to improve their quality of life. Sharing knowledgebase and making the research evidence utilisable in the community is a key focus of GeriCaRe. It conducts and supports various research and development projects in various disciplines including health, psychology, sociology and other allied fields. It endeavours to provide evidence based information for caregivers and elderly about age related issues, and to support life-long-learning through educational programmes for professionals and carers. In the process, it prepares and distributes public-education materials. Journal of Geriatric Care and Research (JGCR) is one of its flagship endeavours. The JGCR is free to readers and authors and is distributed worldwide. For its activities, GeriCaRe has been received an Indian National Award in 2016 as the 'Best Institution for Research in the Field of Ageing'.

GeriCaRe is supported by its members, a number of experts and volunteers who contribute their time and expertise freely.

GeriCaRe requires financial support to carry on its activities. It depends upon the contribution from the individuals and organisations. You will be able to help by sponsorships.

You can sponsor any of the activities, e.g. Health Camps, Health Care Initiatives, Journal of Geriatric Care and Research, or Research and Development Projects.

If you are a business organisation, you can support GeriCaRe as one of your corporate social responsibility (CSR) activities. Considering the wide ranging issues that GeriCaRe addresses you will be able find many reasons to support.

GeriCaRe ensures that all the contributions are best utilized for the cause they are donated for.

As a token of appreciation of your donation, GeriCaRe will send you the e-copies of JGCR. If requested it will also provide the donors an annual review of health with action plans for a chosen older adult, if the clinical details are shared.

Preferably, please consider setting up a direct debit at least yearly (or more frequently if you wish) which will help GeriCaRe in planning its activities; however onetime payments are also welcome. For payment instructions or further information on donation, please contact org.gericare@gmail.com or jgcr.gericare@gmail.com.

Journal of Geriatric Care and Research 2019, Volume 6, No 1 Geriatric Care and Research Organisation (GeriCaRe)