Prevention of Cognitive Decline: the AUstralian-multidomain Approach to Reduce dementia Risk by prOtecting brain health With lifestyle intervention (AU-ARROW) study

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Alzheimer’s disease (AD) neuropathology develops for over 20 years before the widespread damage to the brain manifests as cognitive impairment. Genetic and epidemiological studies have led to the understanding that AD risk factors include insulin resistance, diabetes type 2, cardiovascular disease, hypertension, disrupted lipid metabolism, reduced cognitive and social activity, depression, as well as certain genetic polymorphisms which are linked to one or more of these factors. This has led to lifestyle studies which aim to reduce the level or impact of such AD risk factors. Early studies investigated individual lifestyle factors such as physical activity, diet, and cognitive stimulation, with encouraging though modest results. Multidomain interventional studies have ensued, and these have produced more convincing proof of the potential of lifestyle changes in modifying AD risk. One outstanding example of such studies is the Finnish Geriatric Intervention Study (FINGER) which reported that a multidomain lifestyle intervention could provide a cost-effective and accessible means of protecting against age-related cognitive decline. These findings have led to the global initiative for dementia risk reduction: World-Wide FINGERS (WW-FINGERS). As part of this collaboration, the AU-ARROW trial is designed to mirror the structure of the United States study (US-POINTER), also a part of the WW-FINGERS network, while allowing for Australian cultural and dietary adaptations to determine the intervention’s generalisability, adaptability and sustainability in an Australian setting.

The AU-ARROW study is expected to provide an evidence-based innovative treatment plan to reduce cognitive decline and dementia risk, and it is hoped these research outcomes will be developed into Australian health policy and clinical practice. Biomarker research is expected to provide validation of some (and discovery of other) blood, urine, retinal and other diagnostic biomarkers for faster and more cost-effective screening, that will assist in studies and eventually implementation of cognitive enhancing strategies in the ageing population.
Reminiscence therapy

Prof Sunil Bhar

Reminiscence therapy is an evidence based treatment for late life depression. However, this therapy is rarely taught in formal programs of psychology, counselling or social work. This presentation provides an overview of reminiscence therapy and storytelling approaches. It defines these approaches, and provides instructions and resources for applying these approaches with older adults living in community or residential settings. Case studies, research studies and discussion will be used: to illustrate key concepts, to show how to customise such approaches to suit client needs, and to overcome clinical and ethical obstacles in using reminiscence for improving health outcomes in older clients.

Prevalence of ageing-related tau astrogliopathy in a community-based ageing cohort

Shelley Forrest

Age-related pathologies are increasingly found in the brains of elderly individuals and are observed in a range of neurodegenerative disorders. Whether they lower an individual’s threshold for developing a neurodegenerative disorder, how they relate to clinical phenotype, neuropathological changes, and disease progression is the focus of current research. Ageing-related tau astrogliopathy (ARTAG) is a recently described age-related pathology associated with accumulation of the tau protein in astrocytes. It is characterised by thorn-shaped astrocytes and granular fuzzy astrocytes, with different ARTAG types recognised. Determining the prevalence of ARTAG is often complicated by selection bias in autopsy series and little is known about its true prevalence in unselected populations. This study determined the prevalence of cortical ARTAG in a European community-based population (n=310). Cases ranged from 76-91 years of age (83±3 years) and comprised 181 females. The frontal, parietal, and temporal cortices were assessed. ARTAG was identified in 117 cases (38%), with a similar regional prevalence. Grey matter ARTAG was the most common followed by subpial, white matter, and perivascular. The presence of any type of ARTAG was strongly associated with having another type of ARTAG in the same region (p < 0.05). In addition, this study provides reference data on the frequency of cortical tau-pathologies (<1%-47%) observed in the ageing brain, with neurofibrillary tangles in the temporal cortex found in 47% of cases. This study shows that cortical ARTAG in this population is common and careful consideration is required to differentiate astrocytic inclusions in ARTAG from those in other tau-depositing disorders.