DEMENTIA and FALLS – Practical Considerations

September 25 2013

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What is Dementia?

- National Institute of neurological Disorders and Stroke association define as:-

- Cognitive decline from a previous higher level of functioning , manifest by impairment of memory, and 2 or more cognitive domains (orientation, attention, language, visuospatial functions, executive functions, motor control and praxis)

From social science perspective

- Hertogh (2005) " Dementia is not primarily a memory disorder but a disease of the self."

- "People experience progressive loss of control, identity, recognition and insecurity- so their experience is of being is an unsafe, foreign and frightening world."

- Dupuis et al (2011)

  Describe dementia as “ A dialectical interplay between neuropathology and social- psychological context of the individual.”

The numbers

- Alzheimer Disease International (2008) estimated 30 million people with dementia – predicted over 100 million by 2050

- Rising Tide Report (Alzheimer Canada 2008) 103,700 new Canadian cases/ year or a new case every 5 minutes. Projected for 2038 a new case every 2 minutes.

- Total economic burden of dementia 2008 – $15 billion, projected burden for 2038– $97 Billion

Falls and People with Dementia

- People with dementia have a double to three fold risk of falls compared to people with no cognitive impairment (Harlein et al 2008)
- Van Doorn et al (2003) completed a 2 year study – fall rate for PWD was twice that of non cognitively impaired- claimed it was sufficiently high to consider dementia to be an independent risk factor.

WHY ?

- PWD are subject to the same fall risk factors as people with no cognitive impairment but there some specific to having dementia as our time is limited we will explore 4:-
- Level of cognitive involvement
- Gait/ Movement disturbance
- Orthostatic / Post Prandial hypotension
- Medication/ Polypharmacy

Cognition involvement

- Discourse is ongoing – Jurgen et al (2010) state that the lower the level of cognitive functioning the more likely a person is to fall.
- Jensen et al (2003) are more specific – MMSE of more than 20 – not likely to fall, MMSE 15-19 increased risk of fall.

What can we do to help?

1. Fall prevention strategies, such as OTAGO, LiFE, TAI CHI, General fitness.
2. Multi factorial interventions linked with cognitive behavioral programs – conflicting evidence.
3. Environment and Design
4. Awareness of stage of disease, diagnosis and acceptance of ‘new life label’. May be at stage of trying to reconstruct sense of self.

Movement Disorder/ Gait Disturbance

- PWD demonstrate Paratonic rigidity, apraxia of gait and other movements and imbalance- resulting from Multi-focal or diffuse cortical dysfunction.(Kurlan et al 2000)

- **Why ?**

- Loss of Executive Function (Sheridan et al 2003) Executive function refers to a variety of higher cognitive processes which organise sensory system input to produce a movement behavior.

Movement Behavior Continued

- Includes Initiation, intention of action, planning , working memory and attention.
- Control of routine movement requires continued output from sensory systems integrated with previously learned motor programs.
- One of the early executive losses is attention

Attention

- Is a dynamic exec. function driven by sensory perception requiring the ability to select relevant information and reject irrelevant

- 3 types – Selective
  Sustained
  Divided

- Early loss of attention noted present prior to loss of language and visuospatial losses, has been noted in people with MMSE of 19.(Sheridan et al 2003)

Discussion

Hiatt (1991)" NOISE to a PWD is the equivalent of stairs to people in wheelchairs"
Test for gait and fall risk – Tinetti and BERG vs Walk and Talk also walk and turn test in change of lighting and environment.

Frontal gait disorder qualities – test walk in place in seated position vs walking in standing – look for 'glued to ground sign'.

Gait aides and acceptance.
Design related to severity of cognitive decline and regression

Hypotension

- Passant et al (1997) orthostatic hypotension is present in 39-52% of PWD when compared to 'normal' elderly
- In study found that the majority of PWD reached the max systolic decrease within 5 minutes of standing
- 20-30% reached the max drop after 5 minutes of standing
- A 40 + mgHg drop was noted in 38% participants

Hypotension continued

- Kenny (2003) –high prevalence of carotid sinus hypersensitivity in PWD, 33% of people with Alzheimer's with falls, 41% of people with Lewy Body Dementia, compared to 3% in age matched healthy subjects

- Correlation exists –severity of carotid sinus hypersensitivity induced hypotension and severity of cognitive impairment

Hypotension contin

- Post prandial hypotension- hypotension following eating usually occurs within 40minutes after eating a meal.

Medication/Polypharmacy

- Community based study (Rhee et al 2011) Found
- PWD significantly more likely to receive antipsychotic medication if they had moderate to severe dementia.
- In the study 19% were on antipsychotics, 29% on antidepressants,9% on benzodiazepines, 9% on anticonvulsants

Medication contin

- Tija et al.(2010)completed a study in Boston area NHs
- Residents were prescribed a mean of 5.9 medications
- 37.5% of residents received at least one medication considered “NEVER APPROPRIATE” in advanced dementia Acetylcholinesterase inhibitors were the most frequently prescribed inappropriate medication (15.8%) and lipid lowering agents second (12%)

Med continued

- Harlein et al (2009) and Sterke et al (2008) consensus that neuroleptic and psychotropic use increase fall risk
- Kim et al (2011) indicate cholinesterase inhibitors in increased episodes of syncope
- Tangman et al (2010) strongly indicate the presence of acute disease process or drug side effect/interaction leading to 3 out of 4 falls in PWD in NHs.

Discussion

Overall discussion of practical considerations open floor to questions if time allows.