Sleep problem in person with intellectual disability

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**Objective**

- To have an snapshot of sleeping behaviours in persons (age over 18 years old) with background history of intellectual disability.
- To explore the correlation of sleeping disturbance, behavioural problems, seizure and psychotropic medications.
Background

- Sleep disturbance - common concerns
- Prevalence varies from studies (15, 36 - 80%)
- One study by Brylewski et al: 205 adults living in community:
  - 27% settling problem
  - 55.6% night waking
  - 15% sleep related breathing problems
Is there any link between behavioural problems and sleeping disturbance?

Studies in paediatric population with DD suggested possible association

Similar association found in Brylewski and Wiggs’ study of adults population with intellectual disability
Data collection

- Retrospective medical record review of adult clients in DSU
- Randomly selected adult clients
- Clients assessed at DSU from 2007-2009
- Information mostly carer reported
Sleep is assessed routinely as part of the structured assessment.

- Wide spectrum of sleep problems
  - Not settling into sleep at bedtime
  - Waking up at night disruptive
  - Early waking
Method

- Demographics:
  - Gender
  - Mean age
  - Level of disability
  - Lives in home
  - Psychotropic or CNS medication used

- Statistical analysis: Chi square and PRE (proportional reduction of error) measures
### Results

- **Sleep problem**
  - Yes: 21
  - No: 33

- **Number of clients**
  - 21
  - 33

- **Male: female ratio**
  - 4:3
  - 4:3

- **Mean age**
  - 33.3
  - 30.6

- **Moderate/severe level of disability**
  - 76%
  - 85%

- **Lives in home**
  - 62%
  - 36%

- **Epilepsy**
  - 52%
  - 61%

- **Behavioural disturbance**
  - 81%
  - 21%

- **Psychotropic**
  - 71%
  - 27%
Statistical analysis for association between sleep problems and behaviors

- $X^2 = 18.59, P = 0.001$
- Odds ratio : 16
- Cramer V : 0.59
- Lambda PRE measure : 0.54
Statistical analysis

- Statistical analysis for association between sleep problems and taking CNS medications
  - $X^2 : 10.16$
  - $P=0.005$
  - Odds ration 6
  - Cramer V :0.43
  - Lambda PRE 0.38
Discussion

- Sleeping problems are infrequent complaints on the referral.
- 30% in our cohort which is similar to other studies.
- Direct questioning of sleeping pattern and related problems is part of the clinical systemic injuries.
Discussion

- The correlations between sleep problem and daytime behaviors and taking CNS medication are strong.
- These findings of strong correlation are in keeping with previous studies on sleep and behaviors problem.
Most of the studies of sleeping problems are subjective, caregiver report—standardized questionnaire.

- Few objective data

Beth Malow’s study using polysomnography combined with standardized questionnaire suggested that individuals with ASD with problem sleep have prolonged sleep latency and decreased sleep efficiency (Sleep 2006).
Discussion

- A review by Kennedy (2002) found greater the level of intellectual disability, the less time spent in rapid eye movement sleep and total sleep duration.

- Greater level of undifferentiated sleep are found in individual with autism and in Down Syndrome

- Raised question of the patho-physiology of sleep problem may be the function of intellectual disability
Discussion

- Not able to demonstrate direct causal relationship
- The nature of the link remain unclear - problem sleep may contribute day time behavioral dysfunction or vice versa or treatment of day time behavioral problem aggravate to nighttime sleep problem
- Adults with background history of intellectual disability on antidepressant medications were found to have less hour of sleep (Luiselli 2005)
- Evidences of specific treatment target problem sleep improve subsequently behaviors is eagerly awaited
Discussion

- Mindful of potential bias (i.e. reporting bias)
- But emphasis a common management issue which could impact on general health, behaviors, function and caregiver stress
- Some of the recommendation from our clinic review were referral to formal sleep study.
Case study

- Mr. GT. 36 years old man with moderate level of intellectual disability, tubular sclerosis and features of autism
- Lives with aging parents with dysfunctional family dynamic
- Not participating day activities
- Referred for review for decline function and worsening aggressive behaviors to children and neighbors and general public especially certain ethnic group.
- Currently on Mood stabilizer and Rispeirdone
Case study

- Physical examination:
  - Mild hypertensive
  - Morbid obesity BMI >36.
  - Psychomotor slowness
Case study

Direct questioning his sleep pattern:
- Long standing loud snoring at night
- Had been diagnosed OAS
- Recommended CPAP previously and able to use during trial period
- Remains untreated due to cost of mask

Additional management plan
- Financial assistance
- Caregiver education
- Review of behavioral intervention
- Life style change – weight reduction
Case study

- Would be interesting to see any significant change in his day time behaviors and improve of function once he is back on CPAP treatment


- Luiselli JK. MageeC., Sperry JM. Parker S (2005)” Descriptive assessment of sleep patterns among community-living adults with mental retardation, Mental Retardation 43(6) 414-420