NEURO-DEGENERATIVE DISEASES (PARKINSON, ALZHEIMER, SENILE DEMENTIA ...): THE CASE OF CHINA

October 22, 2016 – Workshop at 4th health policy decision maker forum
Outline

1. Neurodegenerative Diseases in China – Why matter?
   Dominique Milea, Director Health Economics & Epidemiology
   Lundbeck

2. The burden of Parkinson’s disease and Alzheimer’s disease in China & the Shanghai model for the elderly population
   Professor Hu Shanlian, Fudan University, Shanghai Health Research Development Center, Shanghai

3. Discussion
Dominique MILEA - Lundbeck

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A rapidly growing number of patients explained by…

Rapid increase in the elderly population

Age-related prevalence

Example of dementia

+ Change in lifestyle habits with increase in cardiovascular risk factors

Resulting in a more rapid forecasted increase than in other countries

Parkinson’s disease

Alzheimer’s disease

What are the consequences of neurodegenerative disorders?

**AFFECTED PATIENTS**
- Impaired quality of life, increased DALY
- Deteriorating physical & mental health, increased vulnerability to co-morbidities
- Gradual development of dependency down to the basic activities of daily living

**HEALTHCARE SYSTEM**
- Increasing use of healthcare resources (medication, consultations, hospitalisation) due to the conditions
- More severe comorbidities resulting in more complex (& expensive) management of patients eg. hospital

**SOCIAL CARE**
- Increasing needs to rely on care, unformal care first (family and relatives) and later on formal care with paid caregivers, long-term care solutions (day-care, institution)
High Burden for the Unformal Caregivers

- Provided by family
  - > 1/2 caregivers are spouse & ~40% caregivers are children
  - > 1/2 family caregivers are sole caregivers

- Extensive care provided
  - Up to 127 hrs/week

- High physical burden, impact on caregiver health
  - Physical burden driven by unemployment, duration of disease and severity of patient behavioral symptoms
  - 1/2 caregivers have chronic diseases co-morbidities

- Impact on caregivers work
  - 1/4 caregivers reduced work (for 43hrs/month & 8 times/month)
  - 3/4 caregiver unemployed; among them 60% retired and 40% unemployed specifically because of their caregiving role

- Long-term care required as diseases span is around 8-10 years
Currently Limited Support from Formal Care

**HOME CARE**
- Paid caregivers
  - More frequent in urban areas (30-40%) than in rural areas (<10%)

**COMMUNITY SERVICES**
- Eg. Day care, Respite care
- Established in some urban areas but still lacking

**INSTITUTIONAL CARE**
- Used by less than 10% patients
- Elderly with dementia or dependence are usually not admitted
- Scarce or non-existing medical staff
- Limited care staff, with limited or no training, low salary, often rural migrants in their 60s

Resulting in many patients ending in hospitals

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Li M et al. Rural urban differences in the long-term care of the disabled elderly in China, Plos One 2013; 8(11):e79955
Yang et al, Impact of AD in 9 Asian countries, Gerontology 2016
Tang B et al Clinical characterisation and the caregiver burden of dementia in China, Value in health 2013(2): 118-126
A High Financial Burden

for Patients & Their Families

for the Whole Society

- When integrating mortality, morbidity and caregiver time & workloss, the impact of AD on China GDP increase from USD 15 billion (2010) to USD 1 trillion (2050).
- Eliminating AD between 2010 and 2050 would increase China GDP by USD 8 trillion (= China 2012 GDP)

Example for Alzheimer’s Disease
The Epidemiological Study of Alzheimer’s Disease in China

- Peking Union Univ. and other 10 centers surveyed 42,890 elderly aged over 65 years old in 6 cities in China, the prevalence of dementia was showed as follows

<table>
<thead>
<tr>
<th>Region of China</th>
<th>Total Prevalence rate (%)</th>
<th>Alzheimer disease (%)</th>
<th>Vascular dementia (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>6.9</td>
<td>4.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Southern</td>
<td>3.9</td>
<td>2.8</td>
<td>0.9</td>
</tr>
</tbody>
</table>

A Meta-analysis on 10 Chinese Studies involved 23,787 people aged over 60 years old

The prevalence rate of dementia was 4.2% (95% CI 3.0% - 5.8%)

## 5-Year Longitudinal Prevalence Study

### Dementia

<table>
<thead>
<tr>
<th>Age group</th>
<th>1987 (n=3083)</th>
<th>1992 (n=3024)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-</td>
<td>3.46</td>
<td>3.09</td>
</tr>
<tr>
<td>65-</td>
<td>4.61</td>
<td>4.84</td>
</tr>
<tr>
<td>70-</td>
<td>7.23</td>
<td>6.98</td>
</tr>
</tbody>
</table>

### Alzheimer’s Disease

<table>
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<tr>
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<tbody>
<tr>
<td>60-</td>
<td>2.05</td>
<td>2.21</td>
</tr>
<tr>
<td>65-</td>
<td>2.90</td>
<td>3.00</td>
</tr>
<tr>
<td>70-</td>
<td>4.66</td>
<td>4.69</td>
</tr>
</tbody>
</table>

- Shanghai Mental Health Center collaborated with University of California, San Diego, Alzheimer Disease Research Center, conducted a 5-year longitudinal prevalence study on dementia in Jing An District, Shanghai.

- The results showed that the prevalence rate of dementia and Alzheimer’s disease are stable, logistic regression analysis showed that prevalence is related to age group and education background.

2. Ting Lei et al: Meta analysis on the present prevalence rate of dementia in China. Modern Preventive Medicine No.4..2012
Heavy Burden of Alzheimer’s Disease in Shanghai

• Hospital eMR of 760 Alzheimer patients was collected in Shanghai in 2014 (ICD-10 G30.1-9)
• Sex: female 60.7%
• Age: >70 yrs 83.2%, retired 70.1%
• 62.1% covered by urban basic employee medical insurance

Cost of Admission in Hospital

<table>
<thead>
<tr>
<th>Type of Insurance</th>
<th>Mean ± SD (¥)</th>
<th>Median (¥)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UBEMI</td>
<td>51,696 ± 74,225</td>
<td>34,558</td>
</tr>
<tr>
<td>URBMI</td>
<td>32,572 ± 46,532</td>
<td>17,961</td>
</tr>
<tr>
<td>RRBMI</td>
<td>18,706 ± 14,192</td>
<td>13,781</td>
</tr>
</tbody>
</table>

UBEMI = Urban basic employee medical insurance
URBMI = Urban resident basic medical insurance
RRBMI = Rural resident basic medical insurance

(Hu SL et al: 2015)
Decomposition of Cost in Alzheimer’s Patients at Different Level Hospitals

(Hu SL et al: 2015)
## Market Share of Main AD Drugs Between International & Domestic Pharma Co. in China

<table>
<thead>
<tr>
<th>Drug</th>
<th>Market Sharing Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memantine</td>
<td>99</td>
</tr>
<tr>
<td>Donepezil</td>
<td>89</td>
</tr>
<tr>
<td>Rivastigmine</td>
<td>100</td>
</tr>
<tr>
<td>Galantamine</td>
<td>13</td>
</tr>
</tbody>
</table>

(Liu Zai: Medicine Economic Reporter 2015 April 13)
The Burden of Parkinson’s Disease

• The world Parkinson’s day is April 11st every year
• The present number of Parkinson patient is over 2 million in China, which is half of the number of Parkinson’s patient in the world, the prevalence rate is about 1.7% in population over 65 years old
• Different kind of Parkinson Patient Association has been organized in China
• Sanofi and Servier Pharma Co. have established an Alliance to promote the access of Piribedil (吡贝地尔) (Trastal泰舒达)
Initiative of Long-Term Care in China

- Elderly >80 year old have nursing care allowance ¥200 per month
- Home care per week: Mild 1 visit, Medium 2 visits, Sevious 3 visits
- ¥50 per visit

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- 28.3% elderly >60 years old
- ¥100 per person per year, ¥40, ¥30, ¥30 paid by govt’, HI, insured, respectively

- 11.2% elderly >65 yrs
- MSA 0.2%
- HI fund 0.3%

- 8.10 million covered
- 20% HI surplus, 10% Premium, 0.5% MSA

- Pay per bed day:
  - Hospital ¥170
  - Nursing home ¥65
  - Home care ¥50
- Reimbursement:
  - HI 90%, OOP 10%

- Premier ¥20 per person
- Catastrophic HI fund ¥10 per person
- Reimbursement 80%-90%

Locations:
- Shanghai City
- Qingdao City
- Nantong City
- Jilin Province
Policy Environment of Nursing Care Allowance in Shanghai

Older elderly nursing care plan

Developing private nursing care station in community

Need assessment on ADL function

Financing sources
Municipal (50%) & District Govn’t social welfare Lotteries (50%)

Classification
Normal
Mild
Moderate
Severe

Reimbursement
HI fund 90%
Med Saving Account or OOP 10%
Government subsidies for the poor 50%

Fee schedule: ¥65- ¥80 per nurse visit
## Old Elderly Allowance for Nursing Care in Shanghai

<table>
<thead>
<tr>
<th>Categories</th>
<th>Received proportion (%)</th>
<th>Pension allowance (¥)</th>
<th>Added Special nursing care allowance (¥)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mild</td>
</tr>
<tr>
<td><strong>I type.</strong> &gt;60 year old poor elderly</td>
<td>100</td>
<td>200</td>
<td>0</td>
</tr>
<tr>
<td><strong>II type.</strong> The average income per elderly and their spouse is higher than lowest living standard and lower than low income household</td>
<td>80</td>
<td>200</td>
<td>0</td>
</tr>
<tr>
<td><strong>III type.</strong> The age is over 80 year old, the average monthly income is higher than low income household and lower than enterprise average monthly pension</td>
<td>50</td>
<td>200</td>
<td>0</td>
</tr>
<tr>
<td><strong>IV type.</strong> In categories type II and III, the elderly has no child or their age are over 90 years old</td>
<td>Add 20% more</td>
<td>200</td>
<td>0</td>
</tr>
</tbody>
</table>
Conclusion

• The economic burden of neuro-degenerative disorders, i.e., Alzheimer’s & Parkinson’s disease is being increased in China

• Shanghai is planning to conduct long-term care insurance scheme, the present nursing care allowance is to solve the cost of formal caregivers which is supported by Shanghai Bureau of Civil Affairs and Shanghai Bureau of Human Resource and Social Security

• At present, nursing care allowance scheme will release the economic burden of formal caregivers of Alzheimer’s and Parkinson’s disease patients

• Early diagnosis and early treatment are the main intervention of neuro-degenerative disorders
DISCUSSION

Neuro-degenerative diseases
(Parkinson, Alzheimer, senile dementia …):
The case of China

★ How to improve management of patients with neurodegenerative diseases?

★ What funding solutions can be found to overcome universal coverage limits?

★ How to capture the value of medicines for neurodegenerative diseases?