BACKGROUND
- Dementia is a syndrome in which there is deterioration in memory, thinking, behaviour and the ability to perform everyday activities.
- Due to the rapidly ageing population in China, where 60 years and older are 194 million, dementia is becoming a great concern.
- The World Health Organisation (WHO) estimated that almost 10 million people were suffering from dementia in 2010 in China while they were just 3.68 million in 1990. This issue is going to grow in the future.
- Moreover, dementia is associated with an important economic and societal burden.

OBJECTIVE
- The objective of this study was to provide an estimation of the burden of dementia in China with and without an adequate treatment.

METHODS
- A Markov model was developed to stimulate transition between a mutually exclusive set of health states associated with dementia starting with moderate patients as presented in Figure 1.

Figure 1. Markov model structure

- Average annual economic burden was estimated between patients treated by memantine and patients not treated.
- The model was structured in two stages, from moderate to severe, representing a 6-month period over a five-year time horizon.
- For the two parts are classified into several health states, according to their independency (independent vs. dependent), the level of severity (mild vs. severe) and aggressiveness (non-aggressive vs. aggressive).
- The resource categories taken into account in the model were treatment, hospitalisations, nursing-home care, biological analyses, imaging, scale and professional caregiver costs. All the costs were in Renminbi (RMB).
- Transition probabilities were estimated from memantine clinical trials. We assume that memantine has the same efficacy in all the treated population. The resource utilisation and unit costs were provided by a Delphi panel undertaken in November 2013.
- Among dementia patients currently in the country, the China Alzheimer’s Project estimated that only 21.3% of them take medicine.

RESULTS
- Over the five years, each untreated dementia patient costs on average 40,006 RMB per year, and each treated patient costs 36,503 RMB per year which represents respectively US$ 6,441 and US$ 5,877 (based on the currency rate of 1RMB = US$ 0,161). Figure 2 shows the repartition of this costs.

Figure 2. Yearly costs repartition

- Given the current number of dementia patients of 10 million in China, and a treated probability of 21.3%, the annual total costs resulted in an economic burden of 392.6 billion RMB (US$ 63.21 billion) per year for dementia patients in China.
- In addition to an economic advantage, treated patients’ population disclosed an improvement of dementia condition diminishing the proportion of severe, dependent and aggressive patients respectively of 19, 25 and 6 percentage points as referred by Figure 3.

Figure 3. Health states improvement

- Regarding dementia management, the model revealed that caregiver time per patient per day decreased from 9.26 hours for untreated patients to 6.82 hours for treated patients.
- Because of the combination of Chinese one-child policy and the rapidly ageing population, the burden of illness of dementia is a serious issue for Chinese: one grown-up child has to take care of at least two elderly, and possibly six elderly (two parents and four grand-parents). This trend is expected to increase.
- Increasing the proportion of treated patients might be a way to limit the raise of the burden, as the treatment help to reduce the average annual healthcare costs and improve the health states.
- Furthermore, it is estimated that over 90% of dementia patients miss diagnosis in China. Room for improvement remains. Expanding treatment access and developing general practitioners’ competence and confidence in diagnosing and managing dementia will contribute to reduce the burden of dementia.

CONCLUSIONS
Burden of dementia in China is likely to grow since the expanding ageing population. Adequate disease management using available treatment may be an efficient solution to limit costs, caregiver time and improve health states of dementia population.

Acknowledgement
The authors acknowledge Lundbeck support who provided access to memantine model for the purpose of this research.

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