

well as reduces the debilitating burden of walking disability in MS patients. Future studies are required to investigate the direct cost offsets as a result of treatment with PR-fampridine.

PND6

ECONOMIC BURDEN OF STRUCTURAL-METABOLIC EPILEPSY IN MALAYSIA

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OBJECTIVES: To estimate the costs of management of children with structural-metabolic epilepsy and to determine the cost-driving factors in the selected population. **METHODS:** This was a retrospective annual prevalence-based study that included patients who attended a paediatric neurology clinic in a tertiary referral centre in Malaysia. The total costs of epilepsy management were estimated from the provider (i.e., hospital) perspective, using a bottom-up, microcosting analysis. Medical chart/billing data (i.e., case reports) obtained from the hospital (i.e., provider) were collected to determine the resources used. Prices or cost data were standardised for the year 2010. **RESULTS:** The most expensive item in the costs list was antiepileptic drugs, whereas ultrasound examination represented the cheapest item. Hospitalisation and the use of non-antiepileptic drugs were the second and third most costly items, respectively. The cost of therapeutic drug monitoring comprised only a small proportion of the total annual expenditure. None of the demographic variables (i.e., gender, race, and age) significantly impacted the annual cost of epilepsy management. Similarly, child development and seizure type were also not associated with the cost of management. On the other hand, children who received polytherapy treatment, therapeutic drug monitoring, or adjuvant therapy with new antiepileptic drugs represented high-cost groups of patients. Moreover, the total annual cost of epilepsy management positively correlated with seizure frequency. **CONCLUSIONS:** This investigation was the first cost analysis study of epilepsy in Malaysia. The total annual cost of management for 120 patients with structural-metabolic epilepsy was RM 202,816 (i.e., RM 1690.13 per patient per year). The study findings highlight the importance of optimizing seizure control in reducing the cost of management.

PND7

ECONOMIC IMPACT OF DEMENTIA IN THE COMMUNITY-DWELLING ELDERLY POPULATION OF QUEBEC (CANADA)

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OBJECTIVES: With the ageing of the population, dementia has emerged as a major public health and economic burden in industrialized countries. Our study aimed at evaluating direct health care costs in a population of community-dwelling elderly patients with treated dementia and at comparing such costs with those among non-demented elderly. **METHODS:** A retrospective cohort study was conducted in the community-dwelling elderly population of Quebec using the RAMQ administrative claims databases (medical services and prescribed medications) and the Med-Echo hospital discharge database. Patients aged 66 and over, who received at least one dispensing for a cholinesterase inhibitor (ChI) (donepezil, rivastigmine, or galantamine) between January 1, 2000 and December 31, 2009 were included in the cohort of patients with dementia (n=37,138). The date of entry in the cohort (index date) was the date of first dispensing for a ChI during the study period. The comparison cohort included elderly patients with no diagnosis of dementia matched with a 1:1 ratio on age group, gender, and index date. Economic variables included direct costs of prescribed medications, medical services, hospitalizations and institutionalization. **RESULTS:** Overall, our study showed that, at 1 year follow-up, total health care costs are higher among patients with dementia than among non-demented elderly (CAD\$8360 compared to CAD\$5368). Costs associated with ChI treatment (\$1285) and hospitalization (\$1103) accounted for the greatest proportion of the cost difference between the two populations. Over a five-year period, total health care costs were \$38,200 (± \$62,180) in the cohort with dementia compared to \$19,042 (± \$31,346) in non-demented elderly. At this time, costs associated with institutionalization also contributed significantly to the difference. **CONCLUSIONS:** Dementia is an important socioeconomic burden. Despite the availability of treatments for dementia and the high death rate over a 5-year period, costs associated with hospitalization and institutionalization increase exponentially, resulting in a major public health burden.

PND8

COST REDUCTIONS ASSOCIATED WITH THE USE OF BOTULINUM TOXIN TYPE A FOR THE TREATMENT OF URINARY INCONTINENCE IN PATIENTS WITH NEUROGENIC DETRUSOR OVERACTIVITY

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OBJECTIVES: Patients with neurological conditions such as multiple sclerosis or spinal cord injury may experience urinary incontinence resulting from neurogenic detrusor overactivity (NDO). In addition to reduced quality of life, uncontrolled NDO can have pathophysiological consequences including urological disorders and renal failure. Studies have shown that a substantial proportion of NDO patients are inadequately managed by conservative treatments, which include lifestyle modifications and oral anticholinergic medication. Recent clinical trials have demonstrated that botulinum toxin type A injections significantly reduce incontinence

frequency. The objective of this study is to examine the cost reductions following treatment with botulinum toxin type A in NDO patients, in the context of the Australian health care system. **METHODS:** Based on data from two Phase III double-blinded randomised placebo-controlled trials in NDO patients, a semi-Markov model was developed to compare treatment with 200U of botulinum toxin type A versus best supportive care (BSC: pads, catheters, and the option of anticholinergics). Systematic literature searches and a survey of continence nurse practitioners were conducted to source additional information (eg, natural history or resource utilisation of NDO patients). The costs considered in the model include drug costs, incontinence-related costs (eg, pads, catheterisation), and downstream health care costs (eg, bladder augmentation surgery). **RESULTS:** Over a time horizon of 5-years, compared to BSC, botulinum toxin type A treatment results in a reduction in cost of incontinence pads (-\$2,445), catheterisation (-\$592), and a modest reduction in general practitioner visits (-\$141) and the likelihood of undergoing bladder augmentation surgery (-\$235). **CONCLUSIONS:** Botulinum toxin type A treatment is associated with cost reductions in NDO patients and represents a viable treatment option for NDO patients who are inadequately managed by oral anticholinergics, and who may otherwise have to consider invasive surgical interventions.

PND9

BURDEN OF MULTIPLE SCLEROSIS (MS) IN CHINA

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The costs of multiple sclerosis (MS) in China are not well known because of comparatively low prevalence rate and treatment complexity. **OBJECTIVES:** To assess the treatments and costs of MS in China from social perspective by surveying both patients and physicians. **METHODS:** Multi-center, questionnaire-based survey was conducted in major cities of China to collect health resource utilization, direct and indirect costs related to MS. An Excel-based model was developed to estimate the annual cost of MS in China by combining prevalence rate from systematic literature review, data from surveys and other published information. The costs of MS in China were estimated from patient and physician surveys separately and compared with each other. **RESULTS:** A total of 110 relapsing-remitting multiple sclerosis (RRMS) patients and 5 physicians participated the survey. Patients (12.7% age ≤30; 55.4% age 30-50; and 31.9% age ≥50 years old) were assessed by Expanded Disability Status Scale (EDSS) (36% mild; 51% moderate, and 13% severe). The total cost from patient survey was USD 18,566 (1 USD= 6.56 RMB, 2010-2011) (USD 13,265 direct cost and USD 5301 indirect cost) per person year. Total direct cost from physician survey was USD 10,307 per year (USD 7,137 for medications). Annually total cost of MS in China, using prevalence data from an epidemiology study, was estimated to be USD 331.7 million (USD 245.2 million direct costs and USD 86.5 million indirect costs). **CONCLUSIONS:** The study shows that MS imposes a considerable burden on Chinese patients, especially during disease diagnosis and relapse periods. Unlike western countries, few patients in China take Disease Modified Treatments (DMTs) because of the high out of pocket costs. The indirect costs of MS are significant and may increase in the near future, which will exacerbate the burden on individual patients.

PND10

ECONOMIC EVALUATION OF INTERFERON ÆETA-1A VERSUS INTERFERON ÆETA-1B IN THE TREATMENT OF RELAPSING-REMITTING MULTIPLE SCLEROSIS (RRMS) IN IRAN

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OBJECTIVES: To evaluate the cost-effectiveness analysis of two Disease-modifying drugs (DMD) used as first-line treatment of Relapsing Remitting Multiple Sclerosis (RRMS): interferon IFNβ-1a IM injection (Avonex®) and IFN β-1b SC injection (Betaferon®) from Iranian Ministry of Health perspective. **METHODS:** A cost-effectiveness analysis (CEA) was performed from Ministry of Health (MoH). The outcome of interest was number of relapses avoided. Costs were reported in 2011 USD. Costs and outcomes were discounted at 5%. The time horizon was two years. All uncertainties were tested via one-way sensitivity analyses. **RESULTS:** Total costs per patient over the time horizon of a study were estimated at 39923, 47670 and 52045 USD for symptom management, IM IFNβ-1a and SC IFNβ-1b, respectively. The incremental cost per relapse avoided was 25823 and 14965 USD for IM IFNβ-1a and SC IFNβ-1b, respectively, compared with no active treatment (symptom management). Results were sensitive to the discount rate, frequency of relapse and cost of DMDs. **CONCLUSIONS:** The cost-effectiveness analysis determined that INFβ-1b SC (Betaferon®) was the best strategy of the two immunomodulatory therapies used to treatment of patients experiencing an relapsing-remitting multiple sclerosis (RRMS) and resulted in better outcomes than symptom management alone. Sensitivity analyses indicated that the model was sensitive to changes in a number of key parameters, and thus changes in these key parameters would likely influence the estimated cost-effectiveness results.

PND11

LACOSAMIDE FOR THE TREATMENT OF PARTIAL ONSET SEIZURES WITH OR WITHOUT SECONDARY GENERALISATION: COST-EFFECTIVENESS ANALYSIS ON TREATING PATIENTS WITH LACOSAMIDE IN COMBINATION WITH A NON-SODIUM ANTI-EPILEPTIC MEDICATION

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OBJECTIVES: A post-hoc sub-group analysis provides evidence that lacosamide when used in conjunction with a non-sodium-channel blocking AED is more effective than when used in combination with another sodium-channel blocking AED. In order to allow patients earlier subsidised access to lacosamide (via the Pharmaceutical Benefits Scheme), a cost-effectiveness analysis was conducted. **METHODS:** Three large randomised, placebo controlled trials (SP667, SP754 and SP755) were meta-analysed. More specifically, the analysis examined lacosamide used in conjunction with a non-sodium channel AED (*the sub-group*) vs. lacosamide used in conjunction with at least one sodium channel AED (*the complement group*). A decision tree (TreeAge) economic model reported the “cost per incremental 50% responder”. Lacosamide was utilised in the complement group as a proxy for other (similarly priced) adjunctive AED treatment. **RESULTS:** The meta-analysis, compared those trial patients meeting the proposed PBS indication (*the sub-group*) to its complement. More patients in the subgroup achieved a $\geq 50\%$ reduction in seizure frequency compared to the complement (51.1% vs. 34.7% respectively). Based on the test of effect modification, there is a statistically meaningful effect modification within the proposed subgroup ($p=0.03$). The modelled incremental cost effectiveness ICER, lacosamide (sub-group) costs \$3064 per additional patient who achieves at least a 50% reduction in seizures compared to the complement. **CONCLUSIONS:** A reimbursed listing on the PBS was sought which would limit the use of lacosamide to a refractory group and then only in combination with non-sodium AEDs. Probabilistic sensitivity analysis was undertaken which showed that the PBAC could be confident in that 68% of the outcomes are below \$4000/responder. This supported the robustness of the ICER. The analysis could have been strengthened had it been based on a pre-specified analysis (and therefore randomised accordingly), rather than on a post-hoc analysis.

PND12

A COST-EFFECTIVENESS ANALYSIS OF SELF-ADMINISTRATED INJECTION OF SUMATRIPTAN SUCCINATE FOR PATIENTS WITH SEVERE MIGRAINE IN JAPAN SETTING

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OBJECTIVES: To evaluate societal and economic benefits of self-administrated injection of sumatriptan succinate compared to hospital-administrated one in the treatment of acute severe migraine in Japan setting. **METHODS:** A cost-utility analysis (cost per QALY gained) by simulating with a 5-state Markov Model is conducted from the societal perspective. Parameters incorporated into the model were taken from literatures and the PMS of subcutaneous sumatriptan carried out in Japan. Cost components incorporated into the model consist of migraine-related medical costs, medicines, and transportation costs for traditional health care provider and emergency room visits, calculating with Japan insurance-based medical fee scheme for medical techniques and national health insurance price of medicines. To assess robustness of a base case, univariate sensitivity analyses using tornado diagram and probabilistic analysis using 10000-time Monte Carlo simulation were performed. TreeAge Pro 2007 was used for the data analysis. **RESULTS:** At the base case, it was deemed that use of self-administrated injection was less costly and more effectiveness than hospital-administrated one. Univariate analyses revealed that probability of onset of attack per week was identified as a cost driver. The probabilistic analysis suggested that if willingness to pay on decision-making in Japan setting was set at 5,000,000 JPY per QALY gained, approximately 100% of probability were obtained dominant consequences in a hypothetical cohort. Therefore, it was demonstrated robustness of the base case analysis, retrospectively. **CONCLUSIONS:** Thus, the aforementioned result suggested that the use of self-administrated injection dominated hospital-administrated one irrespective of a high initial price of self-administrated injection.

PND13

OLD AND NEW ANTIEPILEPTIC DRUGS UTILIZATION IN IRAN

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OBJECTIVES: To evaluate the 10 year utilization trends of antiepileptic drugs (AEDs) in Iran. **METHODS:** Annual pharmaceutical sales data were acquired from the Ministry of Health (MOH). To express data, Anatomical Therapeutic Chemical (ATC) classification and Defined Daily Dose (DDD) as described by WHO collaborating centre for drug statistics methodology were used. DDD/1000 inhabitants/Day (DID) was the main unit for measuring drug sales and N03 was considered as AEDs here. **RESULTS:** Between 2000 and 2010, the total consumption of antiepileptic drugs increased by 49.85%, and reached 8.7 DDD/1000 inhabitants/day in 2010. Within the studied ten years, the consumption of old AEDs increased by 9.6% (6.37 DDD/1000 inhabitants/day in 2010), while in the case of new AEDs the increase was 11432% (2.37 DDD/1000 inhabitants/day). **CONCLUSIONS:** A significant shift can be seen in the consumption of new AEDs. This change is partly due to the improved efficacy of these drugs compared to the older types and referable to new indications to some extent.

PND14

CHARACTERISTICS OF MULTIPLE SCLEROSIS PATIENTS WITH HIGH RELAPSE RATE USING A CLAIMS DATABASE

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OBJECTIVES: Multiple sclerosis (MS) is a costly disease that affects adults. There are very few studies evaluating the impact of high disease activity (HDA) on costs and resource use using real world data. This study aims to compare demographics, cost

and resource utilization of MS patients with high and low annual relapses. **METHODS:** A retrospective cross-sectional study was done using MarketScan® commercial claim and Medicare database, 2009. Patients included had at least one ICD-9 for MS (340.XX), were older than 18 years, and had continuous enrolment for one year. HDA was defined as having two relapses annually, and relapse was defined according to Chastek 2010 algorithm. Bivariate analysis were conducted to compare HDA patients and other MS patients on patient characteristics, resource utilization and costs (chi-square test for categorical variables and t-test for continuous variables). **RESULTS:** A total of 22,170 patients met the study criteria. 94.58% (N=20,969) had less than two relapses and 5.42% (N=1,201) had more than two relapses in 2009. HDA patients were younger (49 vs. 52 years) and less likely to be employed (50.54% vs. 56.12%). MS symptoms were more frequent in HDA group including pain (54.87% vs. 39.55%), balance and coordination problems (24.23% vs. 10.72%) and fatigue (24.06% vs. 12.64%). HDA patients had more all cause and MS-specific hospitalizations (26.39% vs. 12.59% and 15.24% vs. 1.62%) and ER visits (39.88% vs. 23.39% and 21.15% vs. 7.75%) compared to non-HDA patients. Mean total cost (excluding DMT drug costs) for the HDA group was US\$30,637 compared with US\$14,240 for the non-HDA group. $p < 0.0001$ for all. **CONCLUSIONS:** Patients with two or more relapses annually have high resource utilization and are more costly. Two or more relapse annually seem to be indicative of high disease activity, however, a more robust algorithm needs to be validated to study such population using claims database.

NEUROLOGICAL DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

PND16

QUALITATIVE RESEARCH DESCRIBING PATIENTS' PERSPECTIVES OF SUCCESSFUL PROPHYLACTIC TREATMENT WITH BOTULINUM TOXIN TYPE A FOR CHRONIC MIGRAINE

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OBJECTIVES: Chronic migraine (CM), defined as headache on at least 15 days per month, with at least 8 days of migraine, is a sub-type of chronic daily headache associated with significant quality of life (QoL) impairment. Clinical studies demonstrate that botulinum toxin type A (BTX-A, 155-195U injected at specific head and neck areas) results in clinically significant improvements in headache symptoms and QoL for CM patients. This study was conducted to obtain patient narratives describing how response to BTX-A has benefited them in their daily lives. **METHODS:** CM patients undergoing treatment with BTX-A were recruited via a letter from their neurologist for in-depth interviews. The participants were ten female chronic migraineurs who had suffered from migraines for 7-35 years, and had received BTX-A treatment for 6 months to 5 years. **RESULTS:** For all participants, CM was severely debilitating across all aspects of their lives including work/study, family/personal relationships and social interactions. Some patients reported prior symptoms of depression including suicidal ideation. The participants had previously trialled numerous acute and prophylactic treatments but had experienced lack of efficacy, intolerance and rebound headaches from medication overuse. Following treatment with BTX-A, participants reported reduced frequency, severity and duration of migraines and headaches, increased days without acute medication intake, and improved response to simple analgesics. Personal benefits included the ability to return to work or study, care for their children, engage in social activities and take more active roles in the community. Participants felt that public reimbursement of BTX-A for CM would have a number of positive outcomes including reduced financial stress of treatment for themselves and their families, as well as potential cost reductions to the health care system from decreased use of other medications and less hospitalisations and/or doctor visits. **CONCLUSIONS:** CM patients responding to BTX-A prophylaxis report improved symptoms and multiple QoL benefits.

SYSTEMIC DISORDERS/CONDITIONS - Clinical Outcomes Studies

PSY1

BURDENS OF PSORIASIS IN THE ASIA PACIFIC REGION: A LITERATURE REVIEW

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OBJECTIVES: Many studies as well as clinical experience indicate that moderate-to-severe psoriasis is an emotionally and socially disabling disease. The majority of these studies, however, have been conducted in western countries, including Europe and North America. This study aimed to determine the burdens of psoriasis in patients with psoriasis living in the Asia Pacific countries. **METHODS:** A systematic literature search was conducted to identify evidence published between January 1990 and February 2012 evaluating the disease burdens, quality of life, and epidemiology of psoriasis in Asia Pacific. **RESULTS:** Forty-five publications from China, Hong Kong, India, Malaysia, Singapore, South Korea, and Taiwan were identified. This literature demonstrated that psoriasis produces substantial impairments in patients' quality of life (QoL), and the level of impairment is dependent on the patients' disease severity. Across the retrieved literature, severely impaired quality of life was observed in 19-39% of patients. The Dermatology Life Quality Index (DLQI), a commonly used instrument to assess skin disease-specific QoL showed a mean score of 6-20, indicating a moderate to very large effect of psoriasis on QoL. Patients experienced difficulty in social life, daily activities, and reduced work productivity. A higher Psoriasis Area and Severity Index (PASI) score (greater disease severity) was correlated with more impaired QoL. Psoriasis patients also suf-