patients is poor. In addition, the study demonstrated that the risk of refracture is associated with the compliance and persistence with bisphosphonate therapy in Taiwan. The compliance and persistence issues for osteoporosis treatment warrant much more attention.

MUSCULAR-SKELETAL DISORDERS – Cost Studies

PMS4

BURDEN OF DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS IN CHINA: RESULTS FROM 2009 NATIONAL HEALTH AND WELLNESS SURVEY

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OBJECTIVES: To assess comorbidity, quality of life (QOL), work/productivity loss, and medical resource utilization in patients with rheumatoid arthritis (RA). **METHODS:** Patients' self-reported data were collected from 2009 National Health and Wellness Survey (NHWS). Survey samples represented major urban areas in China. QOL was measured by the physical component score (PCS) and mental component score (MCS) of the Short Form-12 (SF-12) (mean score of 50 for general population). Loss of work/productivity was measured by the validated Work Productivity and Activity Impairment (WPAI) instrument. Medical resource utilization was measured by health-care provider, emergency room (ER) visits and hospitalization in the past 6 months. Comparisons were made between respondents who suffer from RA (excluding psoriasis, psoriatic arthritis, or inflammatory bowel disease) versus respondents without RA (non-RA group). **RESULTS:** Of the 13,307 survey respondents, 276 (2.1%) were diagnosed with RA, and the average age was 46.6 years. There were more females in RA group (59.5%) versus non-RA group (50.7%). RA group reported more diagnosed comorbidities (insomnia 43%, hypertension 24.7%, migraine 24.1%, allergies 23.4%, arrhythmia 22.8%, gingivitis 22.5%, dermatitis 18.9%, osteoporosis 16.9%, anemia 15.5%, bronchitis 13.9%, asthma 13.7%), lower mean scores of PCS (42.7 ` 48.5) and MCS (42.4 vs. 46.0), more patients visited health-care providers (83.3% vs. 56.3%), ER (48.5% vs. 18.9%) and hospitalized (25.0% vs. 7.0%) in the past 6 months compared to non-RA group. Also, RA group reported 37.8% work/productivity loss (absenteeism and presenteeism) and 36.6% impairment in daily activity compared to 22.7% and 22.6% in non-RA group. All comparisons between RA and non-RA groups were statistically significant at $P < 0.05$. **CONCLUSIONS:** From the China NHWS results, RA patients suffer from impairment in quality of life, work/productivity loss, more comorbidities and use of medical services. The findings indicate there is still an unmet medical need in RA patients in China.

PMS5

MICRO-COSTING OF JUDO-THERAPY CLINICS IN JAPAN—MULTI-CENTERED COST ANALYSIS

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OBJECTIVES: In the Judo-therapeutic field, their costs are partly covered by National Health Insurance System via fee-for-service reimbursement, which does not necessarily reflect actual costs. Therefore, the actual situation of medical practice in Judo-therapy Clinics (bone-setting clinics) is analyzed by comparison between the actual costs calculated by micro-costing methods and .reimbursement cost calculated by fee-for-service system. **METHODS:** The basis of this study is a bidirectional evaluation of single medical intervention in terms of actual cost and reimbursed cost for single treatment with following methods: 1) All receipts are collected from the participating bone-setting clinics for a fixed period of time; 2) Along with collection of receipts, information on the medical interventions is recorded by region with regard to "how long" and "who" performed them; 3) The tentative cost of medical intervention is calculated based on the data in 2) above and the data of wage for the engaged persons. In other words, the tentative cost is calculated as the practitioner's wage per unit time multiplied by the time consumed; 4) The cost-based amount of individual medical intervention is calculated by adding indirect costs (wage for other staff than practitioner, cost for operation/maintenance of judo-therapy clinic) to the data in 3); and 5) Standard critical paths are made for several diseases, based on which medical expense for each therapy model is calculated in terms of both receipt-based amount and cost-based amount, and a comparison of amount is made between them. **RESULTS:** Therapies in a total of 1646 regions were recorded, based on which a comparison was made using four diseases (lumbar sprain, neck sprain, femoral contusion, back contusion) as models. The receipt-based medical expense was JPY9030 (US$100) for all diseases, while the cost-based medical expense widely varied from JPY22,057 to JPY22,950 (US$245 to US$255). **CONCLUSIONS:** There was a significant difference between the insurance benefit amount and the actual cost of medical intervention in judo-therapy.

PMS6

HEALTH-CARE RESOURCE UTILIZATION AND OUTCOMES ANALYSIS OF OSTEOPOROTIC HIP FRACTURES AMONG THAI POST-MENOPAUSAL WOMEN: A PILOT INVESTIGATION

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OBJECTIVES: Facing scarce data in Thailand on hospital costs of osteoporotic fractures, we examined repeated fractures and hospital costs incurred over 1 year from a primary osteoporotic hip fracture hospitalization occurred in postmenopausal women with or without comorbidities at Bumrungrad International Hospital in Bangkok. **METHODS:** Hospital admissions for primary hip fracture coded ICD-10 S 72.1 in post-menopausal women, aged 55 or older, were collected from January 2007 to January 2009. The hip fracture comorbidities considered were hypertension, type 2 diabetes, cardiovascular disease and their combinations. The repeated fractures within 6 or 12 months after first admission were documented. All direct medical costs were retrieved from the hospital database looking at 1-year follow-up period. Statistical analysis employed unpaired t-test, Mann–Whitney U test and multivariate analysis for comparison of outcomes, costs and correlations to comorbidities. **RESULTS:** A total of 59 hospital admissions for diagnosed osteoporotic primary hip fracture in post-menopausal women were screened. Patients' mean age (SD) was 74.6 (7.7) years old, the mean hospital follow-up (SD) was 246.7 (77.5) days and the mean hospitalization duration (SD) was 17.0 (12.2) days. Patients at screening with and without comorbidities had similar characteristics including the types of fractures. The group with comorbidities was at higher relative risks of repeated fractures at 6 and 12 months follow-up compared to the group without comorbidities (1.13 vs. 0.91, $P = 0.016$; 1.10 vs. 0.94, $P = 0.273$, respectively) with consequently higher health-care utilization cost with 564,300 THB/patient/year versus 374,200 THB/patient/year, $P = 0.043$. The cost of all type drugs for both groups was only 8–10% of the total illness cost. **CONCLUSIONS:** In osteoporotic post-menopausal women admitted at hospital for primary hip fracture, comorbidities increased risks of repeated fractures hospitalization as well as hospital costs. The cost of drugs was marginal among hospital costs of osteoporosis.

PMS7

A COST-EFFECTIVENESS ANALYSIS OF OSTEOPOROSIS TREATMENT FOR FRACTURE PREVENTION IN POSTMENOPAUSAL THAI WOMEN: A COMPARISON OF SEVEN TREATMENT OPTIONS

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OBJECTIVES: To evaluate the cost-effectiveness of bisphosphonates (alendronate, risedronate, ibandronate, zoledronic acid), raloxifene, calcitonin and strontium ranelate, with a combination of calcium and Vitamin D as comparator, for the prevention of osteoporosis-related fractures in Thai post-menopausal women. **METHODS:** A Markov state transition model with 1-year cycle length was designed to simulate the cost-effectiveness of seven osteoporosis treatment interventions, compared with calcium and vitamin D, in Thai post-menopausal women aged 50–70 years. The model health states were categorized as osteopenia/no fracture, hip fracture, vertebral fracture, post-hip fracture, post-vertebral fracture and death. Treatment effects were obtained from published literature. The analysis was conducted using a societal perspective and included direct medical, direct nonmedical and indirect costs. Uncertainty was investigated by a probabilistic Monte Carlo simulation. Treatment outcomes were measured in terms of number of fractures avoided, number of life-years gained and quality-adjusted life-years (QALY) gained. Cost-effectiveness was defined as an ICER of less than 300,000 Baht (an incremental cost of ≤300,000 Baht for an outcome of no fracture for 1 year). **RESULTS:** 1) For patients with no prior fracture (primary prevention), zoledronic acid is cost-effective at ≥65 years, alendronate, risedronate and ibandronate at ≥70 years. 2) For patients with prior vertebral fracture (secondary prevention), zoledronic acid is cost-effective at ≥50 years, alendronate, risedronate and ibandronate at ≥55 years, raloxifene and strontium ranelate at ≥60 years; and 3) For patients with prior non-vertebral fractures, zoledronic acid is cost-effective at ≥60 years, alendronate at ≥65 years, and risedronate and ibandronate at ≥70 years. **CONCLUSIONS:** Zoledronic acid, followed by other bisphosphonates, is the most cost-effective treatment option for both primary and secondary fracture prevention in Thai postmenopausal women with osteoporosis. These findings should be implemented in the government policy for selecting appropriate anti-osteoporotic drugs and reimbursement support strategy for Thai postmenopausal women with osteoporosis.

PMS8

COST-EFFECTIVENESS OF RISEDRONATE FOR CORTICOSTEROID-INDUCED OSTEOPOROSIS IN AUSTRALIA

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OBJECTIVES: We sought to determine, from the Australian health-care perspective, the cost-effectiveness of the bisphosphonate risedronate, relative to placebo, in preventing vertebral fractures among patients with corticosteroid-induced osteoporosis. **METHODS:** A decision-analytic Markov model was developed to simulate the onset