MUSCULAR-SKELETAL DISORDERS – Cost Studies

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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 assessed 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%) than in non-RA group (50.7%). RA group reported more comorbidities (insomnia 43%, hypertension 24.7%, migraine 24.1%, allergies 23.4%, arthralgia 22.8%, gynecitis 22.5%, dermatitis 18.9%, osteoporosis 16.9%, anemia 15.5%, bronchitis 13.9%, asthma 13.7%, lower mean scores of PCS (42.7 vs. 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.

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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 is calculated by adding indirect costs (wage for other staff than practitioners) to medical resource utilization in the medical setting through medical clinics and medical resource utilization supported by health-care provider, emergency room (ER) visits and hospitalization in the past 6 months. Patients were matched between responders 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%) than in non-RA group (50.7%). RA group reported more comorbidities (insomnia 43%, hypertension 24.7%, migraine 24.1%, allergies 23.4%, arthralgia 22.8%, gynecitis 22.5%, dermatitis 18.9%, osteoporosis 16.9%, anemia 15.5%, bronchitis 13.9%, asthma 13.7%, lower mean scores of PCS (42.7 vs. 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.

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HEALTH-CARE RESOURCE UTILIZATION AND OUTCOMES ANALYSIS OF OSTEOPOROTIC HIP FRATURES 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 post-menopausal 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 177.7 (72.4) 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. 0.90, 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.

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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-vertebral fracture and death. model inputs were retrieved 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 ≥1 fracture per year). RESULTS: 1) For patients with no prior fracture (primary prevention), zoledronic acid is cost-effective at ≥267 years, alendronate, risedronate and ibandronate at ≥270 years. 2) For patients with prior vertebral fracture (secondary prevention), zoledronic acid is cost-effective at ≥250 years, alendronate, risedronate and ibandronate at ≥255 years, raloxifene and strontium ranelate at ≥260 years; and 3) For patients with prior non-vertebral fractures, zoledronic acid is cost-effective at ≥260 years, alendronate at ≥265 years, and risedronate and ibandronate at ≥270 years. CONCLUSIONS: Zoledronic acid, followed by other bisphosphonates, is the most cost-effective treatment option for both primary and secondary fracture prevention in Thai post-menopausal women with osteoporosis. These findings should be implemented in the government policy for selecting appropriate anti-osteoporotic drugs and reimbursement support strategy for Thai post-menopausal women with osteoporosis.

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COST-EFFECTIVENESS OF RISREDONATE 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 risredonate, 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
of vertebral fractures and death among Australian patients with corticosteroid-induced osteoporosis. Age-specific underlying incidences of vertebral fractures and death were estimated from published data. The costs (AUS $1393 in Year 1 and AUS $34 in subsequent years) and utility (0.71) associated with a vertebral fracture were also drawn from published sources, as was the efficacy of risedronate in reducing vertebral fracture risk (relative risk 0.43; 95% CI 0.20–0.92). The model adopted a life-time horizon and an annual discount rate of 5% was applied to both costs and years of life/QALYs lived. Multiple sensitivity analyses were undertaken with reasonable variations to key data inputs. RESULTS: The base-case incremental cost-effectiveness ratio (ICER) with a life-time horizon was AUS $18,085 per QALY saved. Estimated ICERs remained below AUS $40,000 per QALY saved throughout all sensitivity analyses, except when assuming the upper limit of the 95% confidence interval for risedronate’s efficacy in reducing vertebral fracture risk (AUS $53,130 per QALY saved). CONCLUSIONS: Risedronate represents a cost-effective option for preventing vertebral fractures in Australian patients with corticosteroid-induced osteoporosis. This was confirmed by the recent recommendation by the Australian Pharmaceutical Benefits Advisory Committee (PBAC) that risedronate be reimbursed for this indication.

MUSCULAR-SKELETAL DISORDERS – Health Care Use & Policy Studies

HEALTH-RELATED QUALITY OF LIFE IN INDIAN PATIENTS WITH RHEUMATOID ARTHRITIS
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OBJECTIVES: Rheumatoid arthritis (RA) is a multisystem disease with various extra-articular manifestations (EAMs). Health-related quality of life (HRQOL) is assumed assuming increasing importance in chronic rheumatic diseases like RA. Very less data on QOL in RA is available from the Indian subcontinent. There is also a paucity of literature on the impact of EAMs on HRQOL in RA. The objective of this study was to address these lacunae. METHODS: The study group comprised 166 patients with RA from a rheumatology clinic in India. Quality of life was estimated by the generic HRQOL measure: World Health Organization quality of life instrument (WHOQOL-Bref). Disease activity in RA was measured by calculating Disease Activity Score-28 (DAS28) and functional disability by the Health Assessment Questionnaire (HAQ). Extra-articular manifestations (EAMs) were diagnosed clinically. RESULTS: The mean duration of rheumatoid arthritis (RA) was 10 ± 3.1 years. The mean DAS28 and HAQ were 4.21 ± 1.1 and 1.01 ± 1.2, respectively. At least one EVA was present in 46 patients. The mean HRQOL scores of the patients were 11.5 ± 2.6, 13.4 ± 2.5, and 12.3 ± 2.4 in the physical, psychological, social, and environmental domains of the WHOQOL-Bref respectively. Age, gender, disease duration, educational status, constitutional symptoms, rheumatoid factor positivity, erosions and deformities did not influence HRQOL. Disease activity had a negative influence on the psychological and psychological domains. Patients with EAMs had significantly higher DAS28 scores compared to patients without EAMs. Even after adjustment for disease activity, patients with EAMs had lower HRQOL scores than patients without EAMs, which was statistically significant for physical domain. CONCLUSIONS: The physical domain of HRQOL is most affected in Indian patients with RA. Increasing disease activity and presence of EAMs worsen the quality of life.

MUSCULAR-SKELETAL DISORDERS – Patient-Reported Outcomes Studies

HEALTH-CARE UTILIZATION OF PATIENTS WITH LOW BACK PAIN IN SOUTH KOREA (2006–2008)
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OBJECTIVES: The objectives of this study were 1) to identify the pattern of health-care use; and 2) to estimate the pattern change of health-care use for low back pain in each year of 2006, 2007, and 2008. METHODS: This study is based on the Korean National Health Insurance (NHI) claim data. Study subjects included those who 1) used medical service as a patient with low back pain from January 1 to December 31; and 2) received at least one lumbosacral spine simple x-ray each year. The identified number of the patients was 1,981,427 in 2006, 2,069,995 in 2007, and 2,119,408 in 2008. RESULTS: Patients with low back pain used the clinic most and orthopedics was the most visited department in each year of 2006, 2007, and 2008. The rate of outpatient service use declined and that of inpatient service use increased in compared 3 years. The medical cost (paid by insurers) showed increasing trend estimated as $569 million in 2006, $626 million in 2007, and $654 million in 2008. However, if the inflation rate of consumer price was considered (2.4% going up between 2006 and 2007, and 7.3% between 2006 and 2008), the cost in 2007 was estimated as $611 million still showing increase, but, in 2008, $610 million was estimated showing decrease. Medical cost per patient was $287.2 in 2006, $295.2 in 2007, and $287.7 in 2008. Average days including medication days and days of visit per patient was 9.4 days in 2006, 9.1 days in 2007, and 8.8 days in 2008 as declining. CONCLUSIONS: Efforts are needed to reduce prevalence and incidence of low back pain. And analysis on factors influential on the medical use of the patients needs to be conducted in future studies.

HEALTH-CARE UTILIZATION OF NEW PATIENTS WITH LOW BACK PAIN IN SOUTH KOREA (2006–2008)
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OBJECTIVES: The purposes of this study were 1) to analyze the pattern of injection therapy use for low back pain, and 2) to estimate the health-care use of low back pain patient who received injection therapy in 2006, 2007, and 2008. METHODS: This study is based on the Korean National Health Insurance (NHI) claim data. Study subjects included those who 1) used medical service as a patients with low back pain from January 1 to December 31; 2) received at least one lumbosacral spine simple x-ray; and 3) took more than one injection therapy each year. RESULTS: The percentage of patients with low back pain who received injection therapy was increasing as followed: 10.8% in 2006 (213,796 among total 1,981,427 patients with low back pain), 11.0% in 2007 (227,432 among 2,069,995 patients with low back pain), and 11.5% (244,640 among 2,119,408) in 2008. Number of patients with low back pain treated with injections per 100,000 low back pain patients was 10,790 in 2006, 10,978 in 2007, and 11,543 in 2008. The rate of patients who received one injection in a year was 58.9% in 2006, 52.5% in 2007, and 48.1% in 2008 showing tendency of decrease, while more than two injections was increasing. The most conducted procedure was Epidural Nerve Blocks consistently for 3 years. The most department visited for service was anesthesia in 2006 and orthopedics in 2007 and 2008. CONCLUSIONS: The injection therapy on patients with low back pain is increasing. But the efficacy of it has not reached to consensus so far, which means more careful conducting is needed. Also, the efficacy of injection therapy specifically in South Korea should be investigated in future studies.

INCREASE OF INJECTION THERAPY ON PATIENTS WITH LOW BACK PAIN IN SOUTH KOREA (2006–2008)
Kim JH, Lee SM, Cheong C, Jang B, Son HJ
National Evidence-based Healthcare Collaborating Agency (NECA), Seoul, South Korea
OBJECTIVES: The injection therapy on patients with low back pain is increasing. But the efficacy of it has not reached to consensus so far, which means more careful conducting is needed. Also, the efficacy of injection therapy specifically in South Korea should be investigated in future studies.

FACtORS INFluEnced ORAL Oxicam and CoxibS’ ExPuRNEd at a ThAI teAChiNg hoSpiTal, FISCAL YEAR 2006–2009
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OBJECTIVES: Oral Oxicam and Coxibs’ expenditure at a Thai teaching hospital was rapidly increased in recent years. We examined price and quantity factors that influenced the rising expenditure by deterministic method. METHODS: This study was a retrospective database analysis at a Thai teaching hospital in Bangkok. Prescription utilization data of one oral Oxicam and two Coxibs (Meloxicam, Celecoxib, and Etoricoxib) during fiscal year 2006 to 2009 were retrieved. In the model, changes in annual expenditure were attributed to two factors: cost per patient per year (P) and number of patients per year (Q). By measuring quantity as Defined Daily Dose (DDD), changes in cost per patient (P) comprised of two parts: cost per DDD (p) and DDD per patient (q). RESULTS: Overall expenditure of the three drugs was risen from 49.9 million Baht in 2006 to 64.9 million Baht in 2009 (adjusted for inflation). Thirty percent of total increase in expenditure was mainly the result of Meloxicam (percent change, +44%) to Etoricoxib (119%). When decomposed into price and quantity factors, quantity had more effect than price, especially number of patients who moved from Meloxicam (percent change of Q, –35%) to Etoricoxib (112%) and Celecoxib (8%). DDD per patient for Celecoxib was a little increase (44%) to Etoricoxib (119%). DDD per patient for Celecoxib was a little increase (44%) to Etoricoxib (119%). When decomposed into price and quantity factors, quantity had more effect than price, especially number of patients who moved from Meloxicam (percent change of Q, –35%) to Etoricoxib (112%) and Celecoxib (8%). DDD per patient for Celecoxib was a little increase (44%) to Etoricoxib (119%)

CONCLUSIONS: The major increase of drug expenditure from 2006 to 2009 was from