OSTEPOROSIS

OSTEOPOROSIS—Health Policy

POS7

PERSISTENCE AND COMPLIANCE WITH BISPHOSPHONATE THERAPY AMONG POST-MENOPAUSAL OSTEOPOROTIC WOMEN

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OBJECTIVES: To compare persistence and compliance of weekly and daily bisphosphonate regimens among post-menopausal osteoporotic women. **METHODS:** Post-menopausal osteoporotic women (>45 years) prescribed a once-weekly (QW) bisphosphonate (alendronate 35 or 70 mg) or once-daily (QD) bisphosphonate (alendronate 5 or 10 mg or risedronate 5 mg) were identified from an administrative claims database comprising 30 health plans. The QW and QD study cohorts were followed for 12 months after the index prescription. Medication possession ratio (MPR) was used to estimate compliance while persistence was calculated as the number of days from the initial prescription to a lapse of >30 days after completion of the previous refill. **RESULTS:** Between 1997 and 2002, a total of 2741 post-menopausal osteoporotic women who were prescribed a bisphosphonate (alendronate QW = 731; alendronate or risedronate QD = 2010) were identified (mean age = 63.7 years). Average MPR for the combined study cohorts was 60.6%. However, QW users had a significantly higher MPR than QD users (69.2% QW vs 57.6% QD, $t = -7.51$ $p < 0.0001$). Treatment persistence was significantly longer among the QW users than QD users (227 vs 185 days to discontinuation, respectively, log rank, $p < 0.0001$). Also, approximately 44% of weekly bisphosphonate users and 32% of daily bisphosphonate users persisted with their therapy at the end of 12 months. **CONCLUSIONS:** Post-menopausal women prescribed a weekly bisphosphonate regimen had significantly higher rates of compliance and longer persistence compared with those taking a more frequent, daily dosing regimen. However, rates for both regimens were less than desirable. These data demonstrate that less frequent dosing increases persistency, which is needed to obtain maximal long-term therapeutic benefits.

POS8

PERSISTENCE WITH BISPHOSPHONATE THERAPY AND THE IMPACT OF DOSING FREQUENCY IN PATIENTS WITH POST-MENOPAUSAL OSTEOPOROSIS

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OBJECTIVES: The aim of this study was to compare the persistence of use of daily and weekly administered bisphosphonates. **METHODS:** Data were obtained from the PHARMO database, which includes linked drug-dispensing records and hospital records of more than one million subjects in defined areas in The Netherlands. New female users of alendronate, etidronate or risedronate aged 55 years and older in the period January, 2000–September, 2003, were included in the study cohort. One-year persistence of treatment was determined by using episodes of bisphosphonate treatment based on the method of Catalan. The effect of the dosing regimen and other determinants including age, co-medication and fractures, on persistence was assessed. **RESULTS:** The study cohort included 2124 new users of bisphosphonates. Overall, 1-year persistence of bisphosphonates was low; only 911 (43%) users were persistent. Etidronate users were less persistent (30%) than alendronate and risedronate users (46% and 42%, respectively). Among alendronate users, patients on the weekly regimen were more persistent (52%) than those on the daily regimen (35%). A multivariate analysis including age, co-medication and fractures, showed that patients using alendronate weekly were 2.26 times more likely to be persistent (95%CI 1.66–3.09) compared to patients using alendronate daily. **CONCLUSIONS:** Our results indicate that persistence of bisphosphonate use is higher with a less frequent dosing regimen. The improved persistence of the weekly administered alendronate may theoretically be explained by a reduced frequency to experience drug-related acute adverse effects. However, persistence for both regimens can be considered to be suboptimal and leaves room for improvement.

POS9

EPIDEMIOLOGY OF OSTEOPOROSIS IN THE NETHERLANDS (1993–2002)

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OBJECTIVES: To assess the prevalence and incidence of osteoporosis, determine recent and predict future time trends in the Dutch population in the period 1993–2015. **METHODS:** Data were obtained from the PHARMO database, which includes linked drug-dispensing records and hospital records of more than 865,000 subjects in defined areas in The Netherlands. Patients (>45 years) who were hospitalised for osteoporosis (ICD9-CM: 733) or osteoporotic fractures (ICD-9-CM: 820, 812.0, 813.4, 805.2 and 805.4) and treated with glucocorticoids or anti-osteoporosis drugs (bisphosphonates, vitamin D, calcium, ralixofen, HRT) between 1993 and 2002 were included. Prevalence of osteoporosis was calculated as the total number of patients having osteoporosis on a single fixed day in a year (first Wednesday of October). Incidence of osteoporosis was computed as the number of new cases that met the inclusion criteria in a certain year divided by total person-time contributed by the population at risk. **RESULTS:** A total of 32,219 patients were included in this cohort. Prevalence of osteoporosis increased from 36 in 1994 to 56 in 2002 per 1000 inhabitants. Incidence declined in the same period from 8.7 to 7.0 (per 1000 inhabitants.). Extrapolations based on demographic changes in the future indicate that prevalence of osteoporosis will increase up to more than 65 (per 1000 inhabitants) in 2015. **CONCLUSIONS:** Prevalence of osteoporosis has been continuously increasing over the past decade. Our data show that the pace of this increase slowly declines probably due to increased awareness and screening that leads to a decrease in the size of the 'pool' of undetected osteoporotic patients. Ageing of the population is becoming the predominant contributor to a further increase of the osteoporosis prevalence in the future causing great social and economic burden to the society. Prevention of osteoporosis and its consequences is critical to reducing this burden.

PAIN

PAIN—Cost Studies

PPN13

THE UNDER TREATMENT OF DEPRESSION IN CHRONIC PAIN

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OBJECTIVES: Depression has been reported to be highly associated with chronic pain. It is believed that chronic pain causes

depression. Our objective was to see if depression was present in patients undergoing treatment for chronic pain with opioids and if improving pain, improves depression. **METHODS:** A standardized depression scale was administered to chronic stable pain patients on opioids for chronic non-malignant pain. They were scored and ranked. **RESULTS:** Out of 98 patients, only 15% had minimal to no depression by standardized testing. There was good correlation with subsequent clinical evaluation. Eighty-five percent (85%) had mild to severe depression. Those with moderate to severe depression were referred for specialty consultation. **CONCLUSIONS:** Depression is common in chronic pain and the level of depression may not be predicted by level of pain, analgesic, anti-depressant useage, or mental health follow-up. Depression is easily missed and under-treated. Depression does not always respond to the concomitant treatment of pain. Patients with chronic pain should be regularly screened for depression and appropriately referred for care.

PPN1

ESTIMATING THE INCIDENCE AND COSTS OF TREATING ADVERSE EVENTS IN PATIENTS TREATED WITH STRONG OPIOIDS FOR CHRONIC NON-MALIGNANT PAIN

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OBJECTIVE: Patients receiving strong opioids for chronic non-malignant pain frequently experience adverse events, placing a considerable burden on the patient and health care system. Evidence suggests adverse event rates may vary between treatments. **METHODS:** Patients treated with strong opioids for non-malignant pain were identified using the General Practice Research Database (GPRD). Three cohorts were identified: oral oxycodone, oral modified release morphine, transdermal fentanyl. Patients were matched for age, gender, morphine equivalent dose and prior exposure to strong opioids. Adverse events of interest were constipation and nausea and vomiting. Six months of data were collected for each patient either side of their first prescription date (index date) for a strong opioid. Incidence of treated adverse events was identified by prescription of laxatives and anti-emetics during the 6-month post index, where no prescription was present during the 6-month pre-index. Treatment costs were estimated using the BNF. The chi square test was used to test for differences in adverse event rates. **RESULTS:** Incidence of constipation requiring treatment was estimated at 15% in the oxycodone cohort, 15% in the fentanyl cohort and 22% in the morphine cohort. Rates for oxycodone and fentanyl were significantly lower than morphine ($p < 0.05$). For nausea and vomiting rates were 11%, 14%, and 14% respectively with no significant differences between cohorts. Mean treatment cost, per case of constipation, was £19.34 for oxycodone, £41.71 for fentanyl and £31.79 for morphine. For nausea and vomiting costs were £13.10, £22.06 and £11.09. **CONCLUSION:** Patients treated with morphine for non-malignant pain in this study were more likely to be treated for constipation compared to oxycodone or fentanyl. Treatment for nausea and vomiting was equally likely across treatment cohorts. Differences were observed in the mean cost associated with adverse event treatment. Further research would be valuable to confirm the findings of this study.

PPN2

RESOURCE UTILISATION OF PATIENTS WITH CHRONIC PAIN CONDITIONS BEFORE AND DURING TREATMENT WITH LONG-ACTING OPIOIDS IN GERMANY

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OBJECTIVES: Although use of long-acting opiod analgesics has increased for chronic pain, little is known about treatment patterns. Purpose of this study was to compare office-based utilisation data before and after initiating treatment with different long-acting opioids. **METHODS:** Retrospective analysis of Disease Analyzer (MediPlus) data over 5 years for patients with malignant diseases and orthopaedic diseases/chronic pain. Patients have not been treated with opioids in the 18 months before prescription. Observation period for resource utilisation (outpatient consultations, referrals, dug costs) started 6 months before and ended 6 months after first index prescription for the long-acting opioid of interest. **RESULTS:** Corresponding to the course of the disease number of referrals, consultations, costs of other drugs except of analgesics increased after initial prescription of opioids. When opioids were administered, costs for other analgesics decreased slightly compared to the pre-opioid period. Drug costs differed significantly. Highest opioid costs were determined for patients with malignant diseases which were treated with fentanyl (mean 681€ in first six months), followed by oxycodone (412€) and morphine (321€). Costs for opiod treatment for patients with non-malignant chronic pain and orthopedic conditions were 589€ (fentanyl), 370€ (oxycodone) and morphine (243€) respectively. No significant differences for costs for other medication were found. Patients treated with oxycodone showed significant less consultations compared to fentanyl or morphine. **CONCLUSION:** Type of opioid is an important factor for costs of treatment of chronic pain in the office-based setting in Germany. The analysis indicates that other resource utilization like consultation of physician could also be influenced. Due to the observational and retrospective nature of the database study patient reported outcomes were not included. Thus these outcomes and direct costs from hospitals associated with long-acting opioids treatment would merit further analysis in Germany.

PPN3

AN OBSERVATIONAL STUDY OF INTRAVENOUS PATIENT-CONTROLLED ANALGESIA RESOURCE UTILIZATION AT AN ACADEMIC MEDICAL CENTER

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OBJECTIVES: Intravenous patient-controlled analgesia (IV PCA) is widely used for postoperative pain management. The objectives of this pilot observational study were to define the tasks and personnel required for IV PCA administration and to identify problems arising with use of this modality. **METHODS:** This study was conducted at a single site academic medical center in Philadelphia, PA, USA. Process flow diagrams were developed based on interviews and observations conducted in the central supply, biomedical engineering, pharmacy, and nursing departments. The diagrams mapped all steps in the process of IV PCA administration within each department. Problems related to IV PCA administration were also recorded. **RESULTS:** Forty-two patients who underwent hip replacement surgery were selected for observation. Central supply collected, cleaned, and delivered IV PCA pumps to appropriate locations, and delivered malfunctioning pumps to biomedical engineering. Biomedical engineering evaluated malfunctioning pumps and performed routine maintenance on all pumps. Pharmacy prepared IV PCA syringes and delivered them to the nursing units. Nursing staff processed IV PCA orders, obtained pumps and set them up, redressed or restarted IV lines, educated patients, discontinued PCA, and