P9

TWO-FOLD REGIONAL VARIATION IN INITIATION OF ANTI-OSTEOPOROSIS MEDICATION AFTER HIP FRACTURE IN THE UK

Anjali Shah[1], Daniel Prieto-Alhambra[1], Samuel Hawley[1], Antonella Delmestri[1], Janet Lippett[2], Cyrus Cooper[1], Andrew Judge[1], **Kassim Javaid[1]**
[1]University of Oxford, Oxford, UK, [2]Royal Berkshire NHS Foundation Trust, Reading, UK

Background: About 88,000 hip fractures occur annually in the UK. Anti-osteoporosis drugs and other interventions to reduce falls can halve the risk of further hip fractures.
Objective: Describe the geographic variation in prescription of anti-osteoporosis drug therapy before and after a hip fracture during 1999–2013 in the UK.
Methods: We used primary care data (Clinical Practice Research Datalink) to identify patients with a hip fracture and primary care prescriptions of any anti-osteoporosis drugs (bisphosphonates, strontium, denosumab, oestrogen therapy, selective oestrogen receptor modulators, teriparatide) prior to the index hip fracture and up to 5 years after.
Geographic variations in prescribing of generic oral bisphosphonates were analysed. Multivariable logistic regression models were adjusted for gender, age and body mass index (BMI).
Results: 13,069 patients (mean age 82 years, 76 % female) diagnosed with a hip fracture during 1999–2013 were identified. 11 % had any anti-osteoporosis drug prescription in the 6 months prior to the index hip fracture. In the 0–4 months following a hip fracture 5 % of patients were prescribed an anti-osteoporosis drug in 1999, increasing to 51 % in 2011 and decreased to 39 % in 2013. In contrast there was little difference in the proportion of patients still on treatment at 5 years between 1999 and 2013 (15.9 % vs. 15.8 %, respectively).
The independent predictors of treatment initiation included men (OR = 0.42 95 % CI: 0.36-0.49), increasing BMI (OR = 0.98 per kg/m^2 95%CI: 0.97-1.00) and geographic region (OR = 1.29 95 % CI: 0.89-1.87 North East region vs. OR = 0.56 95%CI: 0.43-0.73 South Central region of the UK). The geographic differences in prescribing persisted over the 5-year follow-up. If all patients were treated at the rate of the highest performing region, then nationally an additional 3,214 hip fracture patients would be initiated on therapy every year.
Discussion and Conclusion: Significant geographic differences exist in post-hip fracture prescribing of anti-osteoporosis drugs despite adjustment for potential confounders at the patient level. While a significant increase was observed after 2005, the rate of treatment initiation was still relatively low as was treatment rates at 5 years. Further work examining differences in health care provision may inform strategies to improve secondary fracture prevention after hip fracture.

P10

PREDICTORS OF MATERNAL 25(OH)-VITAMIN D RESPONSE TO ANTENATAL VITAMIN D SUPPLEMENTATION: RESULTS FROM THE MAVIDOS TRIAL

Nicholas Harvey[1], **Rebecca Moon[1]**, Stefania D'Angelo[1], Sarah Crozier[1], Hazel Inskip[1], Inez Schoenmakers[2], Nicholas Bishop[3], Stephen Kennedy[4], Aris Papageorghiou[4], Robert Fraser[3], Saurabh Gandhi[3], Ann Prentice[2], Kassim Javaid[4], Cyrus Cooper[1], Mavidos Trial Group[1]
[1]University of Southampton, Southampton, UK, [2]Elsie Widdowson Laboratory, Cambridge, UK, [3]University of Sheffield, Sheffield, UK, [4]University of Oxford, Oxford, UK

Background: We investigated which maternal characteristics were associated with achieved 25-hydroxyvitamin D [25(OH)D] concentration following antenatal vitamin D3 supplementation, using data from the MAVIDOS randomised double-blind placebo-controlled trial.
Methods: Women with a baseline 25(OH)D between 25 and 100 nmol/l were randomised to 1000 IU/day cholecalciferol or matched placebo from 14 weeks gestation until birth of the baby. At 14 and 34 weeks gestation, maternal height, weight and skinfold thicknesses, health and lifestyle were assessed and 25(OH)D measured (Diasorin Liaison, all samples in a single batch). Compliance with study medication was determined by pill count at delivery, and linear regression was used to investigate the associations between maternal characteristics and 25(OH)D at 34 weeks gestation for each group separately.
Results: The analysis included 829 women (422 placebo, 407 cholecalciferol). Supplementation resulted in a higher maternal plasma 25(OH)D concentration at 34 weeks gestation [mean 67.7 nmol/l (SD 21.3 nmol/l)] vs [43.1 nmol/l (SD 22.5 nmol/l), $p < 0.0001$ for the supplemented and placebo group, respectively]. Amongst women randomised to vitamin D supplementation, season of delivery (summer vs winter: $\beta = 10.4$; 95%CI: 6.3, 14.5); pregnancy weight gain (kg) from 14 to 34 weeks gestation ($\beta = -0.78$; 95%CI: −1.37, −0.20); compliance (%) with study medication ($\beta = 0.33$, 95%CI: 0.12, 0.55); and 25(OH)D at 14 weeks gestation ($\beta = 0.28$, 95%CI: 0.16, 0.39) were independently associated with achieved 25(OH)D at 34 weeks gestation (all $p \leq 0.004$).
Conclusions: We found that greater 25(OH)D in early pregnancy, lower weight during pregnancy and delivery in summer are associated with a greater 25(OH)D response to vitamin D supplementation, suggesting the

potential for personalised approaches to antenatal vitamin D repletion.
MAVIDOS Trial Group: Nigel K Arden, Andrew Carr, Elaine M Dennison, Richard Eastell, Keith M Godfrey, M Zulf Mughal, David M Reid, Sian M Robinson; NCH and RM are joint first authors; MKJ and CC are joint senior authors.

P11
PUBLIC PRIORITY SETTING FOR RESEARCH IN OSTEOPOROSIS AND FRACTURE: RESULTS FROM A NATIONAL E-SURVEY

Zoe Paskins[1], Clare Jinks[1], Waheed Mahmood[1], Prakash Jayakumar[2], Caroline Sangan[3], John Belcher[1], Stephen Gwilym[2]
[1]Keele University,Keele, UK, [2]University of Oxford, Oxford, UK, [3]National Osteoporosis Society, Camerton, UK

Background: Involving members of the public, patients and clinicians in identifying topics for research ensures relevant, impactful research questions and is expected by research funders.
Objective: To report the second of a two-stage national priority setting exercise to identify public views on topics for research in osteoporosis.
Methods: An e-survey to identify topics for research was co-designed with patient and public representatives. The content of the e-survey was derived from 4 focus groups with members of the public, organised under four topics (understanding more about and preventing osteoporosis, living with osteoporosis, services for osteoporosis and treating fracture), each containing 10 items. Responders were asked to indicate their top priority area for research across the four topics and their top three items within each topic. A link to the e-survey was disseminated to approximately 16000 supporters of the UK National Osteoporosis Society (NOS). Descriptive statistics were used to describe demographics and item ranking. A latent class analysis was applied in order to identify clusters with different combinations of binary responses.
Results: 1188 respondents completed the e-survey. Of responders, 1038 (87.4 %) were female, 295 (24.8 %) aged under 60, 537 (45.2 %) aged 60–69 and 356 (30 %) aged 70 or over. The top 3 items overall were 'having easy access to advice and information from health professionals' (758, 63.8 %), 'understanding further the safety and benefit of osteoporosis drug treatments' (593, 49.9 %) and 'identifying the condition early by screening' (585, 49.2 %). The highest ranking topic was 'understanding more about and preventing osteoporosis' (470, 39.6 %). Latent class analysis of this topic revealed 4 clusters: promoting early diagnosis and public awareness; self-management; scientific knowledge and identifying causes. Respondents with a previous fracture had a higher probability of rating items in the cluster 'promoting early diagnosis and public awareness' as important (35.9 %).
Discussion: This study has identified research areas of importance to members of the public including early detection and diagnosis, access to information and safety and benefit of drugs.
Conclusion: These results have informed research strategies of funders including the NOS.

P12
TRENDS IN ORAL ANTI-OSTEOPOROTIC DRUG PRESRIPTION IN THE UNITED KINGDOM BETWEEN 1990 and 2012

Robert Y van der Velde[1], Caroline E Wyers[2], Piet Geusens[2], Joop PW van den Bergh[1], Frank de Vries[2], Cyrus Cooper[3], Tjeerd TP van Staa[4], Nicholas Harvey[5]
[1]VieCuri Medical Centre, Venlo, The Netherlands, [2]Maastricht University Medical Centre, Maastricht, The Netherlands, [3]University of Oxford, Oxford, UK, [4]University of Manchester, Manchester, UK, [5]University of Southampton, Southampton, UK

Background and objective: In view of the expected increase in the number of patients with osteoporosis and fragility fractures it is important to have concise information on trends in prescription rates of anti-osteoporotic drugs (AOD).
Methods: A retrospective observational study using the CPRD datalink in the UK between 1990 and 2012 in subjects aged 50 + years and in subgroups according to gender, geographic location and ethnicity. Yearly prescription rates of any first AOD (FAOD) and of each specific AOD were calculated as the number of patients prescribed AODs per 10,000 person-years (py).
Results: In women, yearly prescription rates of FAOD increased from 1990 to 2006 (from 2.3 to 169.7 per 10,000 py), followed by a plateau and a 12 % decrease in the last 4 years. In men, a less steep increase from 1990 to 2007 (from 1.4 to 45.3 per 10,000 py) was followed by a plateau. Bisphosphonates were the most prescribed AODs, till 2000 etidronate, from then on alendronate. FOAD prescription rates increased with age up to the group of 85–89 years (248.9 in women and 119.3 per 10,000 py in men). There were marked differences between ethnic groups, especially in women, were the incidence in black women was only 46 % of that in white and Asian women. The incidences in different regions also showed marked variation. In women the lowest incidence was seen in the East Midlands and the highest incidence in Northern Ireland, were also in men the highest incidence was observed. The lowest incidence in men was seen in the Yorkshire/ Humber region.
Conclusion: Yearly prescription rates of FOAD increased steeply in women from 1990 to 2009, followed by a decrease,