HIV and the bone

CLINICAL UPDATE FOLLOWING EXTREMELY POPULAR STUDY DAY PRESENTATION

HIV care in the community

EXPERIENCE OF A NOVEL HIV SERVICE IN NHS TAYSIDE FROM A HIVPA MEMBER

RPS FACULTY

WHAT THE FACULTY CAN OFFER YOU– FROM THE PERSPECTIVE OF TWO HOSPITAL PHARMACISTS

HIVPA News

LATEST UPDATES FROM THE COMMITTEE AND A RUN DOWN OF RECENT NEWS

HIVPA

HIV Pharmacy Association

Follow us on Twitter:
www.twitter.com/hivpa

hivpaoffice@gmail.com

HIVPA News

Hello and welcome to the HIVPA bulletin! We have some brilliant articles in this issue and I would like to sincerely thank all the authors for their contributions. I hope you enjoy reading them and perhaps find some educational inspiration for a CPD entry or two.

As always, I would welcome any contributions or suggestions for the next issue from our HIVPA members- so please do get in touch. It would be great to hear about any local initiatives, such as one in this issue from Kirsteen in Tayside, or a clinical update you would like to share, or some feedback from a conference or course you have undertaken, as well as any general news from your centre. Please send these directly to me at alexandra.lenko@uhl-tr.nhs.uk at your earliest convenience. Thank you,

Alli Lenko (HIVPA Bulletin Lead)

Website updates Check out the updates to the HIVPA website and the improvements made to both content and security. Hopefully the website is now more user-friendly and easy to navigate. This was in response to feedback from HIVPA members so please get in touch if you have any further suggestions for improvement.

PIL updates HIVPA have updated the patient information leaflets available on the website. New PILs have also been produced for anti-retrovirals such as Descovy, as well as for generic substitutes for Atripla. Be sure to take advantage of this resource to help uphold our high standards of patient education.

eHIVe The "Introduction to HIV" module is complete and has been uploaded to the electronic HIV education section of the HIVPA website. Don't miss out on this fantastic learning tool. New modules are currently under development.

CPPE HIV learning at lunch The HIV CPPE package has been updated by HIVPA. The learning at lunch package is a great way to promote education within your centre among non-HIV specialists.

Committee members HIVPA would like to welcome Ojali Negedu, Imperial College Healthcare NHS Trust as communication lead. Keep an eye out for real time news updates via our twitter account @HIVPA.

RPS HIVPA are working with the RPS on faculty accreditation, use of the eHIVe training module and the advanced pharmacy framework to help further the profession.

HPE LIVE HPE LIVE took place on 10th November 2016 at London Olympia. This event is specifically designed to address the needs of hospital pharmacy teams, updating them on latest policies, technologies and best practices. HIVPA were represented by Nadia Naous, our co-chair, who took part in a think-tank discussion in the Medicines Optimisation and Prescribing stream. This was an opportunity to talk about the latest news in relation to PrEP and for attendees to share their thoughts on the actions of NHS England in regards to commissioning.

Descovy® is indicated in combination with other antiretroviral agents for the treatment of adults and adolescents (aged 12 years and older with body weight at least 35 kg) infected with human immunodeficiency virus type-1 (HIV-1)[1]

PRESCRIBING INFORMATION
Consult the Summary of Product Characteristics (SPC) before prescribing. **Descovy®▼ emtricitabine 200mg/ tenofovir alafenamide 10mg or 25mg film coated tablets.**
Indication: In combination with other antiretroviral agents for the treatment of HIV-1 infection in adults & adolescents (aged 12 years & older weighing at least 35 kg). **Dosage:** Adults & adolescents (aged ≥ 12 years, weighing at least 35 kg): One tablet, once daily, orally with or without food. The dose of Descovy should be administered according to the third agent in the HIV treatment regimen. Please consult the SPC for further information. Children (< 12 years or weighing < 35kg): Safety & efficacy has not been established. Elderly: No dose adjustment is required. Renal: No dose adjustment is required in adult or adolescent patients (aged ≥ 12 years, weighing at least 35 kg) with estimated creatinine clearance (CrCl) ≥ 30 mL/min. In patients with CrCl < 30 mL/min: not recommended. Should be discontinued in patients whose CrCl declines to < 30 mL/min during treatment. Hepatic: Mild/moderate hepatic impairment: no dose adjustment required. Severe hepatic impairment: not recommended. **Contraindications:** Hypersensitivity to the active substances or to any excipients. **Warnings & Precautions:** Safety & efficacy in HBV/HCV co-infection has not been established. Co-infected HIV/HBV patients should be closely monitored for at least several months following discontinuation for symptoms of severe acute exacerbations of hepatitis. Descovy should be avoided in antiretroviral patients with HIV-1 harbouring the K65R mutation. Risks of mitochondrial dysfunction, immune reactivation syndrome, opportunistic infections, osteonecrosis with CART therapy. **Interactions:** Co-administration with certain anticonvulsants (eg. carbamazepine, oxcarbazepine, phenobarbital & phenytoin), antimycobacterials (eg. rifampicin, rifabutin & rifapentine), boceprevir, telaprevir, St. John's wort and HIV PIs other than atazanavir, lopinavir and darunavir is not recommended. Should not be administered concomitantly with medicines containing tenofovir disoproxil (as fumarate), lamivudine or adefovir dipivoxil. Co-administration of emtricitabine with medicinal products that are eliminated by active tubular secretion may increase concentrations of emtricitabine. Medicinal products that decrease renal function may increase concentrations of emtricitabine. Medicinal products that induce P-glycoprotein (P-gp) are expected to decrease the absorption of tenofovir alafenamide, resulting in decreased plasma concentration of tenofovir alafenamide, which may lead to loss of therapeutic effect of Descovy and development of resistance. Co-administration with medicinal products that inhibit P-gp are expected to increase the absorption and plasma concentration of tenofovir alafenamide. Tenofovir alafenamide is a substrate of OATP1B1 and OATP1B3 *in vitro*. The distribution of tenofovir alafenamide in the body may be affected by the activity of OATP1B1 and OATP1B3. **Pregnancy & lactation:** Use in pregnancy only if potential benefit justifies the potential risk to the foetus. Breast-feeding: not recommended. **Side effects:** Refer to SPC for full information regarding side effects. Very common (≥1/10): Nausea. Common (≥1/100 to <1/10): Headache, dizziness, diarrhoea, vomiting, abdominal pain, flatulence, abnormal dreams, rash & fatigue. Uncommon (≥1/1000 to <1/100): anaemia, arthralgia, dyspepsia, angioedema & pruritus. **Legal Category:** POM. **Pack:** Bottle of 30 film-coated tablets. **Price:** UK NHS List Price - £355.73; Eire/ Ireland – €587.98. **Marketing Authorisation Number:** EU/1/16/1099/001; EU/1/16/1099/003.Further information is available from Gilead Sciences Ltd, 280 High Holborn, London, WC1V 7EE, UK; Telephone: +44 (0) 8000 113700, For Ireland: +353 214 825 999. E-mail: ukmedinfo@gilead.com. Descovy is a trademark.
Date of approval: June 2016; FTAF/UK/16-03/MM/1052.

▼ This medicinal product is currently subject to additional monitoring. Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Any suspected adverse reactions to Descovy should be reported to Gilead via email to Safety_FC@gilead.com or by telephone +44 (0) 1223 897500.

Adverse events should be reported. For the UK, reporting forms and information can be found at www.yellowcard.mhra.gov.uk

For Ireland, suspected adverse reactions should be reported to the HPRA Pharmacovigilance using a Yellow Card obtained either from the HPRA, or electronically via the website at www.hpra.ie. Adverse reactions can also be reported to the HPRA by calling +353 1 6764971.

† BHIVA recommendation for treatment-naive patients.[3]

ABBREVIATIONS:
BHIVA, British HIV Association; RNA, ribonucleic acid.

REFERENCES:
1. Descovy® SmPC. Available at https://www.medicines.org.uk/emc.
2. Sax PE, *et al.* Lancet 2015; 385(9987): 2606–2615.
3. British HIV Association (BHIVA) guidelines for the treatment of HIV-1-positive adults with antiretroviral therapy 2015. (2016 interim update). Available at: http://www.bhiva.org/documents/Guidelines/Treatment/2016/treatment-guidelines-2016-interim-update.pdf. [accessed 11 October 2016].

DVY/UK/16-10/MI/1143
Date of preparation: October 2016

GILEAD

Descovy®▼
emtricitabine/tenofovir alafenamide
200/10mg and 200/25mg tablets

Providing HIV care in community pharmacy

As specialists in this area we are all well aware that HIV is a long-term, chronic condition where adherence to ARVs is critical to achieving and maintaining viral suppression which is acknowledged to be beneficial to the patient by improving overall health, reducing risk of resistance and reducing risk of transmission. HIV care and treatment is usually only managed by clinical teams in secondary care and antiretroviral (ARV) treatment is usually supplied by hospital pharmacies or homecare companies.

Within NHS Tayside we recognised that there are a group of patients who are difficult to engage and retain in the traditional style of outpatient care due to complex health and social issues. This identified a need for provision of a different model of care in community pharmacy, in particular for, but not limited to, patients already receiving opiate substitute services.

NHS Tayside

A community pharmacy antiretroviral support service has been developed and approved locally for NHS Tayside, which utilises the relationship that already exists between the patient and the community pharmacy team. This is an innovative approach that was the first of its kind within Scotland.

The service has been designed for patients who have been in and out of HIV care over a number of years and have had numerous attempts to adhere to ARV treatment, but have failed at least once. Some have often been lost to routine follow-up care for prolonged periods of time where their health deteriorates, often significantly.

During the pilot phase we set up the service for a patient who had had varying degrees of engagement with the HIV team over 15 years. ARVs had been initiated many times but, unfortunately, the patient had been difficult to retain in care and never achieved viral suppression. The community pharmacy team, where the patient was receiving methadone daily, were fully supportive and initiated daily supervised administration of ARVs. Viral suppression was achieved within six months and has been maintained for the past 5 years. The patient's overall physical and mental health improved significantly.

The success for this patient, lead to the development of the approved local service. This was a collaborative effort between the HIV team, NHS Tayside Pharmacy Service and Community Pharmacy Tayside.

Potential patients are identified by the HIV team and patient agreement is obtained to contact their community pharmacy to arrange the service. Before a patient uses the service an individualised document with all the relevant clinical details, medicine choice, adverse reactions, interactions, patient information, counselling points, contact details and ordering details is provided to the community pharmacy team. Obviously community pharmacy access to patient care records would also be very beneficial.

Providing HIV care in community pharmacy

The HIV team provides HBP5 prescriptions for the ARVs detailing if the medicines should be supervised daily, dispensed daily or dispensed weekly. Colleagues in the community pharmacy team are asked to contact the HIV team if they have any concerns or patients miss doses or report any adverse effects so the specialist team can provide additional support as required and issues are dealt with quickly. There is a locally agreed remuneration for provision of the service.

One of the greatest challenges to this model of care has been gaining co-operation from the pharmaceutical companies to supply their medicines direct to community pharmacies rather than via our hospital pharmacy. This has taken some time to agree but is now feasible, though unfortunately every company requires a slightly different process.

All treatment monitoring is still the responsibility of the secondary care HIV team. However, this model of care has the advantage that patients do not run out of medicines because they have missed an appointment where most patients would collect their prescription.

We have treated 8 patients by this model of care to date. All patients on treatment through this model of care have achieved an undetectable viral load. Two of these patients disengaged from substance misuse service and, subsequently, our own service, about 18 months ago but both have since reengaged and they requested that their ARVs be provided again via their community pharmacy which they felt met their needs and would ensure adherence. We also have 2 patients who are getting weekly compliance aids supplied by their community pharmacy and they have had the ARVs added to the device.

Article by Kirsteen Hill
HIV Pharmacist, NHS Tayside

The scheme was shortlisted for a Scottish Pharmacist Award in 2016 for the Change and Innovation category and was also recognised locally at the NHS Tayside Sexual Health and BBV Managed Clinical Network awards. This model of service provision is now being replicated in some other Healthboards in Scotland and some colleagues are progressing schemes to supply ARVs to stable patients via their community pharmacy.

This model of care has been very successful in the small number of patients that have used it, but it does not provide all the answers as it is recognised that retaining this group of patients in care is challenging but does provide an alternative option. Community pharmacy teams can have an integral role in HIV care and all the community pharmacies involved were very keen to provide the service and could see the benefits of their involvement.

Scottish Pharmacist Awards

In the News

Montano et al presented a study of PrEP users at CROI 2017. The study aim was to investigate whether and how MSM modify sexual behaviour after initiating PrEP. They suggest further research is necessary to clarify their own findings. 'MSM in our clinic reported decreased condom use during receptive anal intercourse with HIV-seropositive partners after initiating PrEP. The proportion of men diagnosed with CT and GC was higher in the time period after PrEP initiation, which could reflect increased risk behavior, increased detection during routine screening, or temporal increases in STD risk in the population.'

Read more at
http://www.croiconference.org/sessions/changes-sexual-behavior-and-sti-diagnoses-among-msm-using-prep-seattle-wa

PrEP has been the subject of much debate over the past 12 months. In August 2016 we witnessed the National AIDS Trust successfully challenge NHS England. An appeal made in November 2016 by NHS England was unsuccessful. Subsequently, NHS England has agreed to fund PrEP for 10,000 people in an implementation trial. NHS England have commented that the three-year trial is likely to commence in 'early financial year of 2017/18'. It is thought that manufacturing companies will be asked to bid for the contract to supply Truvada for the trial, this includes generic companies in light of the expiring patent .

Read more about the PrEP journey in a great summary article by Dr Mags Portman, Mortimer Market
http://sti.bmj.com/content/93/1/7

Two sexual health clinics in London reported a drop in new diagnoses of HIV last year. Both Dean Street in Soho and the Mortimer Market Centre reported a fall in new diagnoses of HIV during 2016, when compared to data from 2015. Dean Street reported a fall of 40.4%, whilst Mortimer Market announced its data shows more than a 50% drop. Both centres confirmed that this fall is despite more HIV tests being performed in the clinics, and a comparable rate of bacterial STI diagnoses. Representatives for each clinic both suggest the use of PrEP may be the explanation.

Dean Street offer HIV and renal function monitoring for people who buy PrEP themselves and currently report approximately 500 attenders. Similarly Mortimer Market also support patients choosing to buy PrEP. Clinicians from Dean Street presented findings at Glasgow 2016 and BASHH 2016 and reported that all patients were found to have adequate levels of both drugs in their system, suggesting no counterfeit preparations.

For further information visit:
www.aidsmap.com/The-UKs-largest-sexual-health-clinic-saw-a-40-drop-in-new-HIV-infections-this-year/page/3106754/
https://www.iwantprepnow.co.uk/
http://prepster.info/

In the News

Sax et al published the results of a phase 2 trial of a new Integrase Inhibitor- bictegravir. Bictegravir is a novel, once daily, unboosted integrase inhibitor. In this phase 2 study bictegravir was compared with dolutegravir and showed both treatments to be well tolerated.

Read the full results: Sax, Paul E et al. (2017) *Bictegravir versus dolutegravir, each with emtricitabine and tenofovir alafenamide, for initial treatment of HIV-1 infection: a randomised, double-blind, phase 2 trial.* The Lancet HIV online 2017.

Sabin et al, on behalf of the UK CHIC Study Group and the REACH Study Group, published a UK observational cohort study in AIDS. The objective was 'to assess associations between engagement in-care and future mortality'. 44,432 individuals were followed for a median of 5.5 years. They concluded that 'higher levels of engagement in-care are associated with reduced mortality at all stages of infection, including in those who initiate ART'.

Read the full results: Sabin et al. (2017) *Association between engagement in-care and mortality in HIV-positive persons.* AIDS 2017, 31:653-660.

Halve It

EARLY TESTING SAVES LIVES.

The Halve It campaign and the APPG for HIV & AIDS hosted a World AIDS Day Event panel session in parliament in December 2016. The event was attended by a wide variety of audience members including parliamentarians and members of the HIV community from clinical, commissioning, peer support and advocacy backgrounds. Speakers included Mike Freer MP, Chair of the APPG on HIV & AIDS and David Regan, the Director of Public Health for Manchester City Council who spoke about the continued need for collaboration to ensure that HIV testing reaches those most at risk. The event welcomed the launch of the All-Party Parliamentary Group on HIV & AIDS report into the impact of the Health & Social Care Act on HIV services in the UK. The HIV Puzzle: Piecing together HIV care since the Health and Social Care Act notes 'significant upheaval' to HIV and sexual health services since the implementation of the Act in 2012 and that the lack of a 'lead commissioner' for HIV services is leading to widely diverging standards in care across the country. The report warns that HIV prevention and testing services are at serious risk in a climate of reducing local authority budgets and recommends that the accountability structure for commissioning of HIV care is clarified and that guidance should be brought together for ease of access.

Tom Addison (HalveIT)

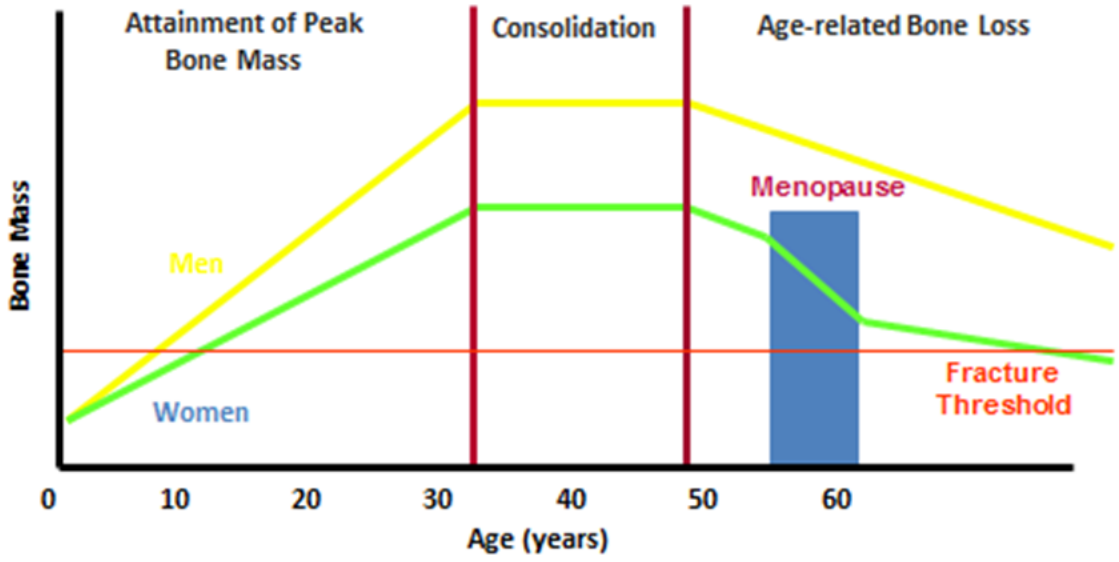
HIVPA representative Sacha-Marie Pires

HIV and the bone

Background

The skeleton has two main roles: mobility and protection. Its extraordinary structure allows it to be extremely strong whilst light enough to move rapidly. Bones have a basic structure composed of an outer cortical zone (which resists deformation) and an inner trabecular or spongy zone (complex system of internal supports). The spaces inside the bone structure are filled with bone marrow. Throughout life, bone cell turnover takes place with a cycle of bone resorption (by osteoclasts) and bone formation (by osteoblasts) but the net rates of these are not stable throughout the lifecourse. Figure 1 shows that changes in bone mass over the lifecourse with the most rapid phase of bone formation in childhood and adolescence, followed by consolidation which occurs over approximately a decade age 25-35 years and then slow involution in both sexes, but with an acceleration of bone loss after the menopause among women.

Figure 1: Age-related changes in bone mass

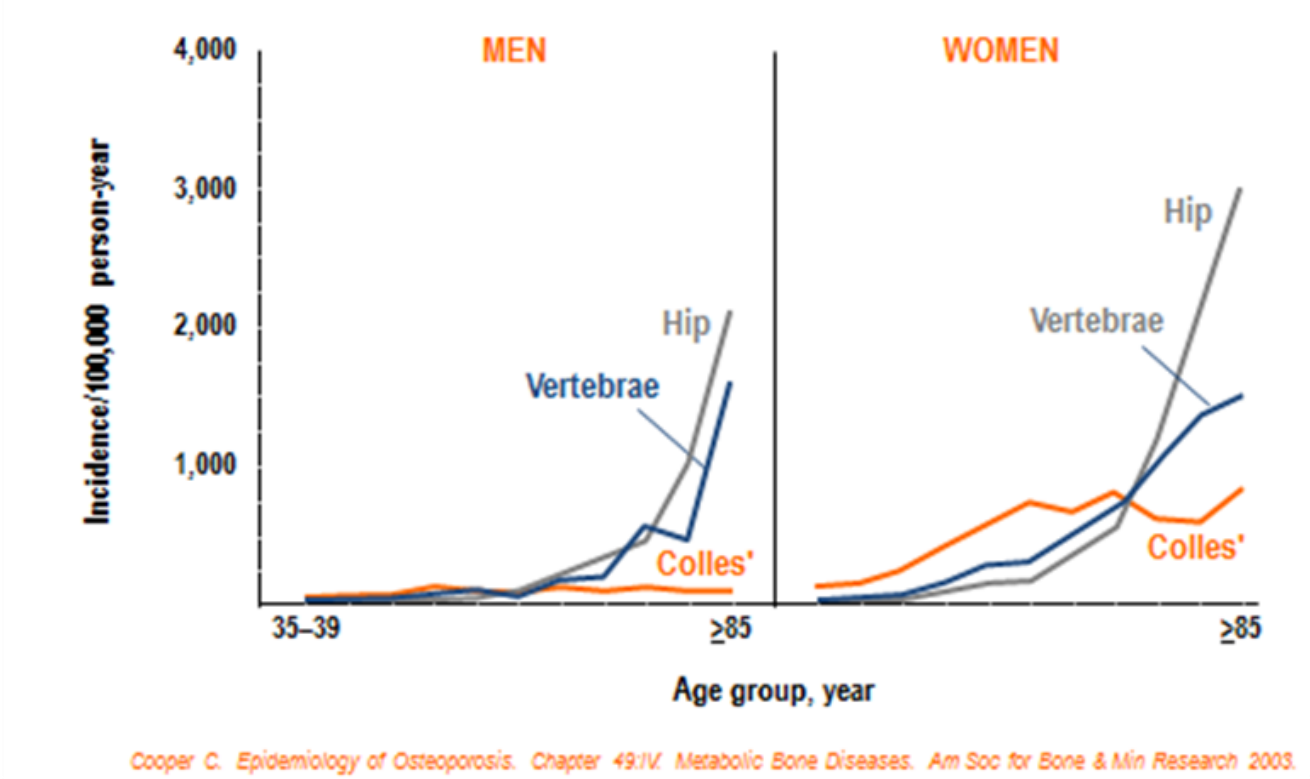


Compston JE. Clin Endocrinol 1990; 33:653–682

Osteoporosis

The importance of osteoporosis lies in its association with fragility fractures. Fractures of the distal radius, vertebrae and femoral neck have long been recognised as 'typical' osteoporosis fractures but it is now clear that many common fractures at other sites are also caused by osteoporosis, including: pelvis, humerus, tibia/fibula. All fragility fractures occur at low levels of physical trauma (usually a fall from standing height or less) and cause pain and dysfunction. Women are considerably more at risk of fragility fractures than men. Many fragility fractures cause long-term morbidity and effects on mortality, particularly hip fractures. It is important to be aware that two-thirds of vertebral fractures do not come to clinical attention (the patient loses height or develops chronic back pain). The costs of fragility fractures to individuals, healthcare providers and societies are sufficiently enormous (estimated £1.7 billion in UK per annum) that attention has focussed on osteoporosis prevention in order to try and reduce the rates of incident hip fractures. Importantly fragility fractures occur at older ages (typically > 50 years in both genders and start younger in women than in men (Figure 2).

Figure 2 Occurrence of fragility fractures by age among men and women



Cooper C. Epidemiology of Osteoporosis. Chapter 49:IV. Metabolic Bone Diseases. Am Soc for Bone & Min Research 2003.

NOTE: Bones will always break if they are hit hard enough. Not all fractures can be totally prevented even by strengthening everybody's bones!! Think about FALLS risk!!

In order to prevent fracture, we needed to be able to diagnose osteoporosis and this can be done very effectively using DEXA machines. Requiring a very low dose of radiation, these machines allow estimation of the bone mineral density at any anatomical site, but they are usually performed at the lumbar spine and femoral neck for clinical diagnosis. The results are compared with the reference range, based upon the young adult mean, to produce a standard deviation score expressed as a T-score. According to the World Health Organisation (WHO) definition, a T score of <-2.5 equates to osteoporosis and treatment should be targeted to prevent future fractures. The WHO also defined "osteopenia" as a T-score of <-1.0 but > -2.5 standard deviations below the young adult mean but this is NOT pre-osteoporosis but rather a guide as to who should be considered for repeat DEXA scanning.

Assessment of fracture risk

More recently, fracture risk assessment algorithms have been developed. One such tool is FRAX©, developed at the University of Sheffield and freely available on-line (https://www.shef.ac.uk/FRAX/tool.jsp) (Kanis). Working from clinical risk factors, without the requirement for DEXA scanning, the tool allows calculation of the 10-year risk of (a) any osteoporotic fracture and (b) a hip fracture for adults aged >50 years. Although this tool has not yet been validated for accurate fracture risk prediction among PLWHIV, and available evidence suggests that it may under-estimate fracture risk, European guidelines advocate its use as part of assessment of bone health (EACS and BHIVA). When used in PLWHIV, most practitioners agree that the 'secondary osteoporosis' box should be marked affirmatively to take some account of the independent effect of HIV and ART.

HIV and the bone

HIV, ART and Bone

Most of the evidence about bone health and HIV comes from studies of bone mineral density. It has been shown time and again that PLWHIV consistently have lower bone mineral density than uninfected control subjects in a large number of studies, which have been meta-analysed (Brown, Bolland). The original belief was that bone health was being impaired by ART. Interestingly, there is evidence to suggest that people who live a lifestyle that puts them at risk of HIV infection also appear to have lower bone mass than those who do not share these lifestyles.

Protease inhibitors (PIs) were particularly implicated in causing low BMD in the early studies (Brown) although the size of the effect has been debated because PIs also cause significant effects in body mass which impact upon BMD measurements. In most studies, tenofovir disoproxil fumarate (TDF) has been shown to cause greater bone loss than other ART. However, it appears that almost every ART combination is associated with some attenuation of bone mass (2-6%) in the first 12-24 months after commencement (also seen in studies of PEP) but that bone loss stabilises thereafter (Childs, Bolland). Table 1 summarises the available information about bone effects of different types of ART.

Recently, a new tenofovir pro-drug has been investigated and come to the marketplace (tenofovir alefanamide (TAF)) which appears to deliver higher concentrations of bioactive tenofovir to the virally-infected cells despite creating much lower plasma concentrations. The evidence from clinical trials is that this results in reduced side effects in the renal tubules and is associated with reduced bone loss among naïve patients and even enhanced bone density among those switched from TDF to TAF (Wohl, Mills). Based upon the results of these trials, NHS-England has created new commissioning guidance (NHS-England):

- Switching not permitted on grounds of cost alone
- Services will be reimbursed for:
  - ⇒ Patients with definite contra-indications to TDF
  - ⇒ Patients with relative contra-indications to TDF
  - ⇒ Stable patients switching from alternative ART regimens that meet the clinical criteria in the commissioning policy
  - ⇒ Patients approaching the thresholds of osteoporosis outlined above where abacavir is not a suitable alternative
  - ⇒ Patients with renal markers approaching the thresholds where TAF is thought to be more appropriate and abacavir is not a suitable alternative
  - ⇒ All patients with relative contra-indications to TDF must be discussed at MDT
  - ⇒ Patients stable on elvitegravir /cobicistat /emtricitabine /TDF can switch to elvitegravir / cobicistat /emtricitabine /TAF, providing clinical assessment has deemed this clinically appropriate, without MDT discussion if it is cost-neutral or cost-saving
  - ⇒ Patients switching from alternative ARV regimens can switch to elvitegravir/cobicistat/ emtricitabine/TAF where there is a clinical indication to do so, the switch is clinically appropriate and this had been discussed in an MDT
  - ⇒ The rationale for switch must be explained to the patient and be clearly documented in the notes, available for audit.

HIV and the bone

Vitamin D and HIV

A high prevalence of vitamin D insufficiency / deficiency has been described in HIV. It is not currently clear if this is actually greater than that in the general population (rarely studied) although PHWHIV may have an excess of some important risk factors for hypovitaminosis D (pigmented skin, less time outside, poorer diet). Vitamin D is essential to maintain serum calcium and deficiency will lead to secondary hyperparathyroidism in order to enhance osteoclastic activity to release calcium into the serum. Vitamin D deficiency is associated with impaired bone mineralisation, bone pain, myalgia and osteomalacia (rickets in children). DEXA scans do not differentiate osteomalacia from osteoporosis so that vitamin D status MUST be assessed if a DEXA suggests osteoporosis. Alkaline phosphatase is an unreliable marker of vitamin D deficiency and parathyroid hormone (PTH) is more reliable as an indicator if vitamin D itself is not to be measured. Vitamin D has limited availability from dietary sources (egg yolks, oily fish, wild mushrooms, liver, cod liver oil) and UK policy has limited supplementation to date so that sunlight exposure is essential. In consequence, many UK residents will have lower serum vitamin D levels in Winter (January-May) annually. Vitamin D status is measured as 25 hydroxyvitamin D_3 (half-life 2-3 weeks). The following definitions are recommended (Pearce):

- Deficiency < 25 nmol/L
- Insufficiency 25-50 nmol/L
- Adequate 50-75 nmol/L
- Optimal >75 nmol/L

In practice, anybody found to have 25 hydroxyvitamin D_3 <25 nmol/L MUST be made replete. In patients with insufficient vitamin D with bone health problems (fractures, osteoporosis), treatment is also recommended. The following (EACS) guidance is very helpful:

- If vitamin D deficient, replacement is recommended
- Consider loading dose of e.g. 10,000 IU vitamin D daily for 8-10 weeks
- After replacement, maintenance with 800-2000 IU vitamin D daily
- Consider re-checking 25(OH) vitamin D levels after 3 months
- The principal goal is to achieve a serum level > 20 ng/mL (50 nmol/L) and to maintain normal serum PTH levels
- Combine with calcium supplementation if necessary
- The therapeutic aim is to maintain skeletal health
- Vitamin D supplementation has not been proven to prevent other co-morbidities in HIV-positive persons
- In particular, patients MUST be treated if they have osteoporosis, osteomalacia, or hyperparathyroidism and vitamin D needs to be re-assessed after 6 months to ensure that treatment has achieved its objectives.

HIV and the bone

Conclusion

Osteoporosis is yet another comorbidity of HIV infection. However, fragility fractures occur age> 60 years in women and >70 years in men in the general population and therefore, even if HIV brings this forwards by a decade, osteoporosis will be rare below aged 50 years. Fractures are prevented through better bone health but falls are another vitally important risk factor.

People with one definite fragility fracture are at the GREATEST risk of others. Vertebral osteoporosis is usually sub-clinical and so must be looked for among people losing height or with thoracic back pain. It is established that ART has detrimental effects on bone health but these effects probably should not unduly influence decision-making except in unusual cases. Osteoporosis treatments are developing rapidly. Bisphosphonates are cheap but NOT risk-free.

References

1. Compston JE. Osteoporosis. *Clin Endocrinol* 1990; **33**:653–682
2. Cooper C. Epidemiology of Osteoporosis. Chapter 49:IV. Metabolic Bone Diseases. *Am Soc for Bone & Min Research* 2003.
3. World Health Organisation. Assessment of fracture risk and its application to screening for postmenopausal osteoporosis. Geneva: WHO, 1994.
4. Kanis JA, Johnell O, Oden A, Johansson H, McCloskey E. (2008) FRAX™ and the assessment of fracture probability in men and women from the UK. Osteoporosis International 19: 385-397.
5. European AIDS Clinical Society Guidelines version 8.0, 2015. Available at: http://www.eacsociety.org/files/guidelines_8_0-english_web.pdf (last accessed 10.8.16)
6. Brown TT, Qaqish RB. Antiretroviral therapy and the prevalence of osteopenia and osteoporosis: a meta-analytic review. *AIDS.* 2006; **20**:2165-74.
7. Bolland MJ, Grey AB, Gamble GD, Reid IR. low body weight mediates the relationship between HIV infection and low bone mineral density: a meta-analysis. *J Clin Endocrinol Metab*. 2007; 92(12):4522-8.
8. Childs K, Welz T, Samarawickrama A, Post FA. Effects of vitamin D deficiency and combination antiretroviral therapy on bone in HIV-positive patients. AIDS 2012; 26: 253-262.
9. Bolland MJ, Grey A, Horne AM et al. Stable bone mineral density over 6 years in HIV-infected men treated with highly active antiretroviral therapy (HAART). Clin Endocrinol (Oxf) 2012; 76: 643-648.
10. Wohl D, Oka S, Clumeck N et al. Brief report: a randomized, double-blind comparison of tenofovir alafenamide versus tenofovir disoproxil fumarate, each coformulated with elvitegravir, cobicistat, and emtricitabine for initial HIV-1 treatment: week 96 results. J Acquir Immune Defic Syndr 2016; 72: 58–64.
11. Mills A, Arribas JR, Andrade-Villanueva J et al. Switching from tenofovir disoproxil fumarate to tenofovir alafenamide in antiretroviral regimens for virologically suppressed adults with HIV-1 infection: a randomised, activecontrolled, multicentre, open-label, phase 3, non-inferiority study. Lancet Infect Dis 2016; 16: 43-52.
12. NHS-England. Clinical Commissioning Policy: Tenofovir Alafenamide for treatment of HIV 1 in adults and adolescents. NHS England: 16043/P, July 2016.
13. Pearce SH, Cheetham TD. Diagnosis and management of vitamin D deficiency. BMJ. 2010 Jan 11;340:b5664. doi: 10.1136/bmj.b5664.

Walker-Bone K[1,2]

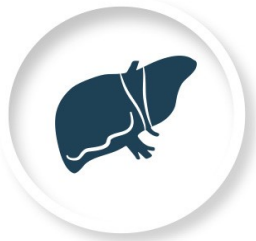
[1]MRC Lifecourse Epidemiology Unit, University of Southampton, UK

[2]Arthritis Research UK/MRC Centre for Musculoskeletal Health and Work, University of Southampton, UK

HepEd

Introducing an e-learning resource for pharmacists involved in the management of patients living with liver disease.

The HepEd e-learning programme has been developed in association with experts working in the field and is tailored to the needs of pharmacists.



Anatomy of the liver

Hepatitis C virology

Drug-drug interactions (DDIs)

Modules consist of a series of videos and/or slide presentations, each of which is followed by a self-test. Modules start from a foundation level and work up to advanced level.

www.heped.co.uk

abbvie

Job code: AXHCV162113b

Date of preparation: February 2017

The content of heped.co.uk is accredited by the Royal Pharmaceutical Society

My Faculty Journey

I submitted my Faculty portfolio in 2014, when I was 10 years qualified, via the recognition of prior experience route. I was really keen to do this as I felt that after completing my diploma I lacked a clear and specific structure to my career development. I had worked on a few things across different rotations and within my specialty which I had mapped to the Advanced to Consultant Level Framework (ACLF); however I hadn't received feedback on how I was progressing nor areas to focus on. Additionally, I had taken on the role of Education lead for HIVPA and felt this was something I should do to be able to feedback on.

I started building my Faculty portfolio by first looking at my paper portfolio - this was examples of my best work so seemed like a good place to start. I wrote an entry for each piece of work and mapped them against the framework. On reflection, I should have collated similar entries to avoid duplication and be more efficient. The most important section of an entry is the impact box, which I must admit I didn't fully appreciate when I submitted. You need to clearly explain how your entry maps to both the section and level of the portfolio in jargon free language, that someone outside of your specialty would understand. Despite my best attempts not to, I used quite a bit of jargon and abbreviations, and so would advise reading over entries a couple of times to double check that they are clear.

I then looked at the reports section to "view my matrix" to get an overview across the framework. I found the process of putting together my portfolio in itself really useful to reflect upon what I had achieved so far and also to identify what I needed to work on. This was added to by the testimonials as it was really nice to hear positive feedback which can be a rarity, particularly in the NHS! Finally, after submission, the feedback report from Faculty summarised my progress and had suggestions for development. This helped me to target my efforts for development as well as think how I could have completed entries differently.

Since submitting to Faculty I have become a Faculty champion and I encourage and support others to complete their Faculty journey. Additionally, I am credentialed to be involved with assessing others via the Faculty Practice Assessment route. I have been trained to complete Record of Expert Pharmacy Practice (REPP) assessments and I have completed these for pharmacists whose scope of practice matches mine. Currently we have a limited number of Faculty credentialed HIVPA members, so I would encourage you all to submit, not only for your own development but also to increase the pool of available assessors.

ROYAL PHARMACEUTICAL SOCIETY
FACULTY

Lucy Hedley

University College London Hospital NHS Foundation Trust

HIVPA Committee Member, Education and Training Lead

RPS Faculty portfolio– a personal experience

The Faculty Journey has changed my approach to professional development

I find that many pharmacists, myself included, don't take the time to look back on and celebrate their achievements and acknowledge how far their practice has progressed. Possibly because we are pushed to reflect and identify what we don't know before completing a CPD cycle that meets the needs of the regulator.

As a pharmacist who worked in academia, undertook research in pharmaceutical sciences, was involved in national policy work, then recently returned to clinical practice; I certainly hadn't followed the "traditional" route that a junior pharmacist might be expected to take. While I knew the RPS's Foundation Practice resources would help me re-affirm my skills as a hospital pharmacist, I also felt prior experiences meant I could practice beyond this level.

Building my portfolio allowed me to look at my previous roles and projects, and reflect on how these impacted on my practice and patient care within my current role. The Faculty focuses on recognising and celebrating excellence, and encouraging oneself to be the best you can be. Catherine Duggan, Director for Professional Development and Support at the RPS once told me "I don't believe in weaknesses, only areas for development." and this is something I now find myself telling colleagues.

By using the Advanced Pharmacy Framework and the Expert Practice Curricula for infection and antimicrobial stewardship I have been able to identify my learning and development needs in a positive way, which support my career aspirations. Alongside this, case-based discussions with peers are designed to give you constructive support for your onward development, rather than acting as a test or assessment.

The overall, final assessment feedback helped me highlight other areas for development and even included examples of how I could achieve this. All of this came in handy at my next annual appraisal at work, where I was able to build-in Faculty objectives to my workplace objectives.

The online Faculty portfolio, resource packs, and curricula are all freely available to all members of the RPS at no extra charge so members can reap the benefits of building a portfolio and using the advanced practice framework from today. There is also a network of peers available to support members through their Faculty journey and submit for assessment, so you don't have to struggle through the process if portfolio building is new to you.

My advice for pharmacists looking to start their Faculty journey, or start a professional portfolio, is "Just do it!"

For more information about the RPS Faculty and what it can offer you and your career please follow this link: www.rpharms.com/

Ryan Hamilton MRPharmS MFRPSI

Specialist Pharmacist in Antimicrobials and Acute Medicine

University Hospitals of Leicester NHS Trust

Dates for your diary

HIVPA study days

25th April, 2017 - Women's Day and pharmacokinetics including pregnancy, paediatrics and contraception

21st September, 2017 - Public Health and the role of the pharmacist including vaccines, travel and PrEP

8th November, 2017 - Hepatitis C and co morbidities

16-17th June 2017, Brighton, UK

HIVPA Annual Conference http://www.hivpa.org/hivpa-annual-conference/

4 - 7th April 2017, Liverpool, UK

23rd Annual Conference of the British HIV Association (BHIVA) http://www.bhiva.org/

7 – 9th June, 2017 Rome, Italy

15th European Meeting on HIV and Hepatitis

http://www.virology-education.com/event/upcoming/15th-european-meeting-hiv-hepatitis-2017/

18 – 20th June 2017, Belfast, Northern Ireland

BASHH Annual Conference 2017

https://www.bashh.org/events/annual-conference/annual-conference-2017/

9 – 13th July 2017, Rio de Janeiro, Brazil

2017 World STI and AIDS Congress and HIV & AIDS Conference

http://hiv-aids-std.conferenceseries.com/

HIVPA
HIV Pharmacy Association