NORTH WALES MEDICINES RESEARCH SYMPOSIUM
Symposiwm Ymchwil Meddyginiaethau Gogledd Cymru

16th July 2013
Kinmel Manor Hotel, Abergele

Programme

6.30	Buffet & Poster viewing	
7.00	Welcome	Professor Dyfrig Hughes, Bangor University
7.05	Keynote presentation “Drug Safety: An Update”	Professor Munir Pirmohamed, University of Liverpool
7.30	Improvement in neonatal gentamicin dosing through pharmacokinetic modelling	Jen Smyth, BCUHB Wrexham
7.45	An investigation of factors influencing renal transplant patients’ preference regarding the method of secondary care based prescribing of immunosuppressants	Anke Hagemi, BCUHB Bangor
8.00	A systematic review of patient preferences for subcutaneous medications	Dr Colin Ridyard, Bangor University
8.15	Responding to suspected avoidable antimicrobial-related admissions	Janet Thomas, BCUHB Wrexham
8.30	Cost-effectiveness of pharmacogenetic screening prior to initiation of carbamazepine treatment for epilepsy	Dr Catrin Plumpton, Bangor University
8.45	Update on the Royal Pharmaceutical Society Faculty	Mair Davies, Chairman Welsh Pharmacy Board
9.00	Depart	

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SYMPOSIWM YMCHWIL MEDDYGINIAETHAU GOGLEDD CYMRU
North Wales Medicines Research Symposium

16 Gorffennaf 2013
Gwesty Kinmel Manor, Abergele

Rhaglen

6.30	Bwffe & Darllen posteri	
7.00	Croeso	Yr Athro Dyfrig Hughes, Prifysgol Bangor University
7.05	Prif gyflwyniad “Drug Safety: An Update”	Yr Athro Munir Pirmohamed, Prifysgol Lerpwl
7.30	Improvement in neonatal gentamicin dosing through pharmacokinetic modelling	Jen Smyth, BIPBC Wrecsam
7.45	An investigation of factors influencing renal transplant patients’ preference regarding the method of secondary care based prescribing of immunosuppressants	Anke Hagemi, BIPBC Bangor
8.00	A systematic review of patient preferences for subcutaneous medications	Dr Colin Ridyard, Prifysgol Bangor
8.15	Responding to suspected avoidable antimicrobial-related admissions	Janet Thomas, BIPBC Wrecsam
8.30	Cost-effectiveness of pharmacogenetic screening prior to initiation of carbamazepine treatment for epilepsy	Dr Catrin Plumpton, Prifysgol Bangor
8.45	Diweddariad ar Gyfadran y Gymdeithas Fferyllol Frenhinol	Mair Davies, Cadeirydd Bwrdd Fferylliaeth Cymru
9.00	Ymadael	

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Keynote speaker:

Professor Munir Pirmohamed MB ChB (Hons), PhD, FRCP, FRCP(E), FMedSci

Professor Munir Pirmohamed is currently David Weatherall Chair in Medicine at the University of Liverpool, is Head of Department of Molecular and Clinical Pharmacology and is Consultant Physician at the Royal Liverpool University Hospital. He also holds the only NHS Chair of Pharmacogenetics in the UK, and is Deputy Director of the MRC Centre for Drug Safety Sciences, and Director of the Wolfson Centre for Personalised Medicine. Professor Pirmohamed is a Commissioner on Human Medicines and is the Chair of its Pharmacovigilance Expert Advisory Group. He is also an inaugural NIHR Senior Investigator, and Fellow of the Academy of Medical Sciences in the UK. He has authored over 300 peer-reviewed publications.

Professor Pirmohamed's research focuses on individual variability in drug response, both safety and efficacy, with a view to evaluating the mechanisms, and identifying strategies to personalise medicines in order to optimise drug efficacy and minimise toxicity. The work spans the whole spectrum from discovery to implementation with laboratory based studies being linked translationally to patient studies, with the aim being to develop the evidence base that can move discoveries from the lab to the clinic. The translational research agenda has been strengthened through the award of the MRC Clinical Pharmacology training scheme for clinical fellows. Professor Munir Pirmohamed has received a number of honours including in 2011, the William Withering Medal from the Royal College of Physicians and the IPIT award for Public Service from the University of North Carolina in the US.

Guest speaker:

Mair Davies MRPharmS

Mair was elected as Chair of the Welsh Pharmacy Board of the Royal Pharmaceutical Society in July 2011, after serving as Vice Chair since February 2010.

Mair currently works as a consultant in professional education for amongst other bodies, the Welsh Centre for Pharmacy Profession Education at Cardiff University; previous roles have included Course Director at Welsh School of Pharmacy, and Principle Pharmacist in education and training at the Princess of Wales hospital. She also has vast experience of hospital practice and community pharmacy, with previous managing roles in both.

Mair is a Welsh speaker and has been on the Welsh Pharmacy Board since 2007. Mair was also a member and past chair of its predecessor, the Welsh Executive.

ORAL PRESENTATIONS

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IMPROVEMENT IN NEONATAL GENTAMICIN DOSING THROUGH PHARMACOKINETIC MODELLING

Jen Smyth
Wrexham Maelor Hospital, BCUHB

Introduction

Gentamicin, an antibiotic used in the empirical treatment of neonatal infection,[1,2] has highly individual pharmacokinetics and serious adverse effects associated with high levels.

Methods

A retrospective audit of a neonatal dosing regimen, adjusted three times over a nine year period guided by a computer-based dose-modelling program created from the data.

Dosage, gestational age, weight and antibiotic levels were recorded for all neonates who received gentamicin. Exclusions:- neonates who had previously received gentamicin, who had blood results indicating renal impairment (these had early monitoring), or who did not have valid pre- and post- 3rd/4th-dose levels.

Results

The baseline audit (n = 83) showed only 32.5% of neonates achieved therapeutic post-dose levels. Pharmacokinetic modelling was used to design and predict the effect of an improved dosing regimen, which was then implemented. This resulted in improved post-dose levels, at the cost of increased pre-dose levels (n = 116). Two further cycles of modelling and adjustment (n = 155, n = 535) increased the number of neonates achieving therapeutic post-dose levels to 97.8%, with only 3.6% having high pre-dose levels.

Discussion

The use of a pharmacokinetic dose-modelling program enables the effect of gentamicin regimens designed around any of the parameters recorded (e.g. weight, gestational age) to be predicted. Pharmacokinetic modelling was successfully used to design, amend and fine-tune a dosing regimen for gentamicin in neonates, which produced significantly improved post-dose levels without any adverse effect on pre-dose levels.

References

1. Cope L, Nunn AJ. Alder Hey Book of Children's Doses, 6th edition. Liverpool: Royal Liverpool Children's NHS Trust, 1994: 232.
2. Medicines for Children. London: Royal College of Paediatrics and Child Health Publications Limited, 1999: 244-7.

AN INVESTIGATION OF FACTORS INFLUENCING RENAL TRANSPLANT PATIENTS' PREFERENCE REGARDING THE METHOD OF SECONDARY CARE BASED PRESCRIBING OF IMMUNOSUPPRESSANTS

Anke Hagemi
Ysbyty Gwynedd, BCUHB

Introduction

Recent prescribing policy recommendations by the Welsh Renal Clinical Network aimed at repatriation of immunosuppressant prescribing for renal transplant patients from primary to secondary care to ensure patient safety and secure significant savings.

Quantitative evidence of patient preference of the possible methods of obtaining these drugs from secondary care is limited. This study aims to investigate such preference. It also aims to identify which factors influence patients' preference and to quantify the impact of these factors on patients' choice decisions.

Method

A two stage mixed methods approach was adopted using qualitative and quantitative methodology. Focus group methods were used to assist in the design of the research instrument followed by a discrete choice experiment conducted via a postal questionnaire.

Results

A response rate of 64% was achieved, which resulted in the inclusion of 150 questionnaires in the analysis. The method of medication supply had the strongest influence on patients' choice: patients had a significant positive preference for home deliveries over hospital clinic supply. Patients also preferred longer delivery intervals and shorter waiting times for their medication supply. Method of ordering had the least influence on patients' choice with a contact initiated from the hospital as the preferred option.

Discussion

As the role of home deliveries by non NHS in Wales are currently under review, home deliveries cannot be included in new prescribing policies in Wales. However, a move to secondary care based prescribing with medication collection from the hospital does clearly not meet patients' preference.

The study results suggest that immunosuppressant home deliveries should strongly be considered if patients' choice is taken into account.

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A SYSTEMATIC REVIEW OF PATIENT PREFERENCES FOR SUBCUTANEOUS MEDICATIONS

Colin H. Ridyard, Dalia Dawoud, Dyfrig A. Hughes
Centre for Health Economics & Medicines Evaluation, Institute of Medical and Social Care Research, Bangor University, Bangor, UK

Background
Of the many routes of drug administration, some are more acceptable to patients than others; for example when a choice is presented, patients will usually prefer an oral over an injectable medication, all else being equal. Patient preference may be expressed in terms of health and non-health-related measures, which include: health technology-related attributes (including ergonomics, ease of use, convenience), behaviour (e.g. needle phobia and patients' perceptions of treatment), and adverse reactions attributable to the route of administration. Preferences may result in process-related (dis)utility, and be revealed as (non)adherence. This review aims to examine ambulatory patients' preferences for subcutaneously administered, self-injectable medications, compared with other routes of administration for the same medicines.

Method
Ten electronic databases were searched for publications published between 2002 and 2012 using terms pertaining to methods of administration, preferences and adherence. Eligibility for inclusion was determined through reference to specific criteria by two independent reviewers.

Results
Of the 1,146 papers screened, 70 met the inclusion criteria. Studies focused mainly on methods of administration for insulin and treatments of paediatric growth disorders and multiple sclerosis. Pen devices were significantly preferred to needle & syringes administration in 11 out of 12 studies – particularly with respect to ergonomics, convenience and portability; however, preferences between autoinjectors and pen devices were less pronounced. Oral administration was preferred to subcutaneous administration in 6 studies (but did not reach statistical significance), as was inhaler therapy (favoured significantly in 3 out of 4 studies).

Conclusion
The review identified a number of studies which revealed important differences in patient preference between methods and routes of drug delivery. Further evidence is required to support the notion that preference translates to better adherence.

RESPONDING TO SUSPECTED AVOIDABLE ANTIMICROBIAL-RELATED ADMISSIONS

Thomas J, Roberts E
Pharmacy Department, BCUHB, Wrexham

Background

4.7 % of admissions are due to avoidable medication-related harm[1]. Local tracking of suspected medication-related admissions showed 16.4% (n=33) involved antimicrobials[2].

Objectives

To analyse suspected avoidable antimicrobial admissions.
To facilitate dissemination of antimicrobial patient safety issues.

Method

Between 1/4/2011 and 31/3/2013, hospital pharmacists recorded suspected avoidable antimicrobial-related admissions. Recent antimicrobial drug histories were collected. The multi-disciplinary antimicrobial stewardship team clinically assessed some admissions. The Patient Safety Pharmacist tracked the patient. Additional information was gleaned via primary care /healthcare records. Root cause analysis (RCA) then ensued. Yellow MHRA cards were submitted. Cross-sector feedback was via various media. Local General Practitioner Prescribing Leads supported this project. Ethics approval was not required.

Results

Table 1: Themed analysis of suspected antimicrobial admissions (n=94)

Theme	n (%)
Contra-indication	15 (16%)
Dose/choice	62 (66%)
Drug interactions	16 (17%)
Avoidable adverse drug reaction (ADR)	1 (1%)

RCA revealed various contributory drugs/factors, including reference texts giving conflicting renal prescribing advice for nitrofurantoin, and wide dose bands for commonly used antimicrobials in the British National Formulary when compared to Health Protection Agency guidance. ‘Missed’ drug interactions prompted local alerts and nationally significant communications. Themed feedback included information about suspected therapeutic failure. 14 MHRA yellow cards were submitted.

Discussion

Team working and antimicrobial drug history-taking added value. Suspected antimicrobial-related admissions stimulated a preventative multidisciplinary approach. Pharmacists identified and helped action simple public health interventions applicable to antimicrobials’ optimisation.

References

1. Pirmohamed M, James S, Meakin S et al. Adverse drug reactions as cause of admission to hospital: prospective analysis of 18,820 patients. British Medical Journal 2004; 329 (7456):15-9.
2. Thomas J. Facilitating avoidance of medication-related admissions. Poster session presented at Patient Safety Congress; 2011 May 16-18; Birmingham, UK. http://yhhiec.org.uk/wp-content/uploads/2012/05/PSC2011-Facilitating-Avoidance-of-medication-related-admissions-pdf.pdf

COST EFFECTIVENESS OF PHARMACOGENETIC SCREENING PRIOR TO INITIATION OF CARBAMAZEPINE TREATMENT FOR EPILEPSY

Plumpton CO[1], Yip VY[2], Alfirevic A[2], Marson AG[3], Pirmohamed M[2], Hughes DA[1]
[1]Centre for Health Economics and Medicines Evaluation (CHEME), Bangor University, Wales, UK.
[2]Department of Molecular and Clinical Pharmacology, University of Liverpool, Liverpool, UK
[3]Department of Molecular and Clinical Pharmacology, Walton Centre for Neurology and Neurosurgery Foundation Trust, Liverpool, UK

Objectives
Carbamazepine (CBZ) is a widely-used, first-line treatment in epilepsy. However, CBZ is associated with hypersensitivity adverse drug reactions (ADRs) ranging from mild rash such as maculopapular exanthema, to hypersensitivity syndrome, Steven-Johnson syndrome and toxic epidermal necrolysis (TEN). TEN is associated with a mortality rate of up to 30%. The presence of the *HLA-A*3101* allele is associated with an increased risk of CBZ-induced hypersensitivity reactions [OR 9.1, 95% CI, 4.0 to 20.7]. *HLA-A*3101* is present in 2% - 5% of populations of Northern European descent. We aim to investigate the cost effectiveness of pharmacogenetic testing for *HLA-A*3101* prior to initiation of CBZ treatment in patient with epilepsy. Patients testing positive for the allele are prescribed an alternative antiepileptic drug, lamotrigine.

Methods
A decision analytic model was developed to represent the first three months post initiation of anti-epileptic drug, to cover the period when the majority of severe ADRs manifest. A Markov model (cycle length 1 year) was used to simulate costs (from the perspective of the NHS in the UK) and utilities incurred in subsequent years. This enables modelling of costs and disutilities from long term sequelae of severe ADRs as well as the effectiveness of treatment in terms of remission of seizures. Transition probabilities, costs and utilities were sourced from patient level data from the SANAD trial [Lancet 369(9566):1000-15] and relevant literature.

Results
Compared with no pharmacogenetic testing, and prescribing CBZ for all patients, the test results in an incremental cost effectiveness ratio of £26,684 per QALY gained. The probability that testing is cost-effective at a threshold of £30,000 per QALY is 0.55, and the cost of preventing a single ADR is £35962.

Conclusions
Pharmacogenetic testing for *HLA-A*3101* prior to treatment with CBZ might be cost-effective for populations of North European descent.

POSTER PRESENTATIONS

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SURVEY OF EVIDENCE BASE NEEDS AMONG HEALTH PROFESSIONALS

Atenstaedt R[1], Martin M[2], Jones P[3], Brown G[4]
[1]Consultant in Public Health Medicine & Associate Director of Public Health for North Wales, Public Health Wales; Honorary Senior Lecturer, School of Medical Sciences, Bangor University, Wales, UK
[2]Lead Pharmacist-Medicines Information, Ysbyty Gwynedd, Betsi Cadwaladr University Health Board
[3]Library Services Manager, Ysbyty Gwynedd, Betsi Cadwaladr University Health Board
[4]Specialty Registrar in Public Health Medicine, Public Health Wales

Introduction
Access to the latest evidence base is vital when making clinical decisions. As a precursor to a possible trial of the ATTRACT clinical enquiry service in secondary care in Betsi Cadwaladr University Health Board (BCU HB) West, a survey of evidence base requirements and resources was undertaken amongst clinicians in North West Wales.

Methods
A survey instrument was designed by a multi-professional group. After a pilot of the survey questions within the group and some minor changes, final survey instrument was sent out by BCU Communications Team through the email list of BCU HB (West) marked “For Clinicians Only” on 2/4/12. Anonymous replies were gathered. A reminder was sent on the 17/4/12 and a final reminder on the 30/4/12.

Results
219 responses were received within the allotted time period, giving a response rate of 9% overall. There was a wide variation within specific clinical groups of evidence base requirements and resources used.

Discussion
30% of respondents found it difficult to access the latest evidence. Colleagues were highlighted as the main resource for evidence base support. Google, which has obvious limitations, was mentioned as a very widely used evidence source. More than half of clinicians surveyed said that they required rapid evidence support to answer a clinical enquiry, which shows time pressured nature of roles that they perform. Only one third respondents felt that current sources/services fulfilled their needs, and another 46% felt it fulfilled their needs ‘partially’. A number of useful and relevant comments were sent in concerning additional services which could be provided to health professionals. There is currently work ongoing to develop a “one-stop shop” evidence webpage.

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CLINICAL EXPERIENCE OF USING NEW ORAL ANTICOAGULANTS

Uttam Chouhan
Glan Clwyd Hospital, BCUHB

Introduction

Warfarin has been the predominant oral anticoagulant in use but lately new oral agents have been introduced, namely dabigatran, rivaroxaban and apixaban. The main advantages of the newer agents over warfarin are short half- life, rapid oral absorption, lack of anticoagulant monitoring and less intracranial bleeds. Clinical experience of using these agents is described.

Method

Patients meeting the eligibility criteria for dabigatran, rivaroxaban or apixaban were referred to the author. Discussion with patient included education of the new product, importance of compliance, possible management of bleeding, likely side-effects and repeat dispensing. Agent selection and dose were based on indication for use, renal function assessed by the Cockcroft and Gault equation and other patient clinical factors.

Results

Patient demographics are described below:

	Dabigatran	**Rivaroxaban**	**Apixaban**
Number of patients	59	23	7
Age range, years	48 to 96	20 to 79	59 to 90
Mean age, years	70.3	49.4	76.9
No. of patients age ≥ 80 years	9	0	2
Male/female	36/23	11/12	2/5

Further analysis will focus on why use one of these new agents, duration of treatment, side-effects, surgical interventions, comments from patients and transfer of some patients to primary care.

Discussion

Introduction of new oral anticoagulant agents has opened up the opportunities for patients who previously either had side-effects or poor INR control with warfarin. Experience is limited especially in those over 80 years of age but further analysis of the data is necessary.

INTEGRATING A CLINICAL PHARMACIST INTO A MULTIDISCIPLINARY INTERMEDIATE CARE TEAM

Lois Gwyn and Alaw Roberts
Glan Clwyd Hospital, BCUHB

Introduction

Intermediate Care is described as a range of services which aims to prevent avoidable hospital admission and facilitate early discharge by maximising rehabilitation. Funding for a pharmacist post within the multidisciplinary Conwy Intermediate Care Service has presented an opportunity to develop a new model for providing clinical pharmacy services. The aim of the study is to describe the interventions undertaken by a pharmacist undertaking home medication reviews within the intermediate care setting.

Methods

Between August 2011 and March 2013 the reason for patient referral, type of interventions and actions undertaken were recorded prospectively. The number of medicines prescribed for each patient before and after review, including cost savings from medication changed/stopped was collected.

Results

A total of 240 patients were referred and 478 interventions were undertaken. The most common types of interventions included: identifying unnecessary medication, identifying compliance issues, providing patient education and medication dose/frequency adjustment. The mean number of prescribed repeat medication was reduced from 10.1 to 9.5. An estimated annual saving of £13,112 was made from medication stopped/changed.

Discussion

A clinical pharmacist has been fully integrated into the intermediate care team and patient referrals are consistently received. The limited clinical information which is available within the intermediate care setting occasionally restricts the scope of the medication review. Pharmacy links with community based health and social services teams has been strengthened due to the close liaison required to resolve identified issues. Future opportunities for developing the role include targeted reviews of patients at risk of falls and pharmacy support to enhanced care services.

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PERSISTENCE WITH MEDICATIONS: A DISCRETE CHOICE EXPERIMENT OF PREFERENCES AMONG HYPERTENSIVE PATIENTS

Fargher EA[1], Morrison V[2], Plumpton CO[1], Hughes DA[1] (on behalf of the ABC Team).
[1]Centre for Health Economics and Medicines Evaluation (CHEME), Bangor University, Wales, UK.
[2]School of Psychology, Bangor University, Wales, UK.

Objectives
To examine patients' stated preferences for persisting with medications using a discrete choice experiment (DCE).

Methods
A DCE questionnaire describing risk of mild side-effects, potentially life-threatening but rare side-effects, dose frequency, treatment benefits. Scenarios were folded into nine forced binary choices: Which medicine would you be most likely to continue taking? The survey was translated, piloted and approved for eleven European countries. Target sample was 100≤n≤323 patients prescribed anti-hypertensives per country, recruited by posters in community pharmacies or general practices. Results were analysed in STATA using a random effects logit model.

Results
2856 patients from Austria (n=323), Belgium (n=180), England (n=323), Germany (n=265), Greece (n=289), Hungary (n=323), Netherlands (n=237), Poland (n=323) and Wales (n=323) completed the online questionnaire. All four attributes influenced persistence with treatment ($p<0.01$). Patients were willing to forego chance of improvements in treatment benefits (%) in order to improve other attributes: -36.10% for a very rare risk of life-threatening side-effects; -18.66% for once daily dose frequency; -0.74% to reduce the risk of mild ADR by 1%. Likelihood ratio tests showed that models controlling for clinical, demographic and psycho-social variables were significantly different from the base-case.

Conclusions
Patients were willing to trade potential benefits, harms, and convenience in responding that they would persist with treatment. Clinical, demographic and psycho-social factors influence the extent of the trade-offs between these attributes. Persistence may therefore be enhanced directly, through selection of medicines meeting preferred levels of attributes, or indirectly through targeting modifiable psycho-social factors that affect trade-off choices.

APPLICATION OF BEHAVIOURAL ECONOMICS TO THE UNDERSTANDING OF ADHERENCE: DOES AN INDIVIDUAL'S TIME PREFERENCE INFLUENCE ADHERENCE TO MEDICATIONS?

Fargher EA[1], Morrison V[2], Plumpton CO[1], Hughes DA[1] (on behalf of the ABC Team).
[1]Centre for Health Economics and Medicines Evaluation (CHEME), Bangor University, Wales, UK.
[2]School of Psychology, Bangor University, Wales, UK.

Objectives
We hypothesised that adherence to medication requires trade-offs between immediate and delayed health benefits. Patients with lower time preference rates may be more adherent to medication as they place a higher value on the future benefits of adherence.

Methods
Hypertensive adult patients across England and Wales were invited to complete a web-based survey that had been translated and piloted. Patients' time preference was assessed (4-items) to calculate individual discount rates (%) in both short term (3-years) and medium term (6-years). Medication adherence was measured using the Morisky questionnaire (primary analysis) and the Medication Adherence Report Scale (MARS, secondary analysis). Sample size calculation, based on 5% one-sided confidence, assuming 30% non-adherence with Morisky measure indicated n=323 per country. Missing data were imputed using multiple imputation in STATA. The significance of the association with adherence was assessed using the Wald test statistic.

Results
646 patients completed the questionnaire across England, Wales and Hungary, 79% of possible responses were observed. Short and medium term time preference rates in England, Wales and Hungary were in the expected directions, but the relationship was not statistically significant. Based on Morisky adherence - Wales (short): adherent 8.7%, non-adherent 9.4% (p=0.541); (medium): adherent 4.7%, non-adherent 5.0% (p=0.611). England (short): adherent 7.8%, non-adherent 9.5% (p=0.163); (medium): adherent 3.7%, non-adherent 4.5% (p=0.095).

Conclusions
Time preference rates were aligned with those in the published literature but the association between time preference and adherence was non-significant in both primary and secondary analyses at an individual country level.

PATIENT PREFERENCES AND PRIORITIES FOR ANTI-EPILEPTIC DRUG TREATMENT

Fargher E[1], Hughes D[1], Ring A[2], Jacoby A[2], Marson T[3]
[1]Bangor University, [2]Univeristy of Liverpool, [3]Walton Centre for Neurology and Neurosurgery

Aims

(1) to identify which outcomes of drug treatment are considered important by people with epilepsy;
(2) to elicit preferences for outcomes and to investigate how perceptions of acceptable trade-offs between benefits and harms differ across subgroups.

Methods

Semi-structured individual interviews containing ranking exercises, were used to explore views and interpretations of benefits, harms, and potential life-impacts of anti-epileptic drug treatments (n=38); the feasibility of these findings were evaluated using focus group research with health care professionals responsible for prescribing anti-epileptic drugs (n=8) . A large scale survey using discrete choice methodology will examine whether the views elicited in the qualitative research, are supported by a larger more inclusive stakeholder group (n=1,000), and to quantify the relative weightings given to the selected benefits and harms.

Outcomes to date

Reduction in seizure frequency was the most highly ranked outcome of drug treatment across sub-groups. Adults with early epilepsy were most concerned about feelings of aggression, depression and memory problems. Adults with established epilepsy were most concerned about negative impacts on relationships, ability to work, and headaches. In addition to these harms, women of child bearing age were concerned about foetal abnormality and reduced independence. Clinicians considered life-impacts (e.g. independence) to be consequences of benefits and harms of treatment.

Conclusion

Patient preferences for negative outcomes of drug-treatment varied by sub-group. The results of the discrete choice experiment will provide further information on acceptable trade-offs between seizure reduction and potential harms and will inform a patient directed agenda for treatment provision and outcomes.

AUDIT ON DOSE BANDING OF CHEMOTHERAPY DOSES IN WALES

Malen Gwilym, Mared Hughes
Ysbyty Gwynedd, Bangor, BCUHB

Background

Chemotherapy is the treatment of cancer with cytotoxic medications. Many of these medications are given intravenously and are therefore produced under sterile conditions in hospital aseptic suites. As the number of aseptically produced chemotherapy doses is so high it can sometimes be impractical for every dose be individually tailored and produced specifically for that patient. Dose banding is defined as the rounding up or down of doses calculated on an individual patient basis to a defined predetermined standard dose (band). The dose banding of chemotherapy special project group in Wales created the All-Wales Dose Banding (AWDB) document. The document lists doses of different chemotherapy drugs (cyclophosphamide, docetaxol, doxorubicin, epirubicin, 5-FU, gemcitabine, methotrexate, irinotecan and oxaliplatin) which the group suggests should be the only presentations of these products to be made available from the pharmacy. By dose banding products the group aims to reduce patient waiting times, increase the capacity of aseptic units and reduce wastage.

Aims and objectives

Aims: -To collect data to assess current situation with regard to dose banding across Wales.
Objectives: -To quantify compliance with the AWDB document and investigate reasons for non-compliance.
-To identify the strengths and source of each drug listed in the document.
-To identify drugs which are not currently included in the AWDB of chemotherapy document.
-To geographically map the use of different drugs across Wales.

Methodology

Data was collected retrospectively over a period of 2-3 months - until data for 500 chemotherapy doses prepared was obtained. A data collection form was prepared by the All-Wales Audit team was used. Data was collected by the auditor (MG) and analyzed using Microsoft Excel 2007.

Results

A total of 500 chemotherapy doses prepared at Ysbyty Gwynedd were analyzed. 62% (n=310) of the doses prepared were drugs that are included in the AWDB document. Of the 310 doses of drugs listed in the AWDB document, 21% (n=65) were dose banded, and of these 65 doses which were banded 0% were dose banded according to the AWDB document. 46% (n=144) of the 310 doses of drugs listed in the AWDB document could be provided by strengths listed in the AWDB document. 79% (n=244) of the sources used to obtain chemotherapy drugs in the AWDB document were within Wales. Throughout Wales, 47% of the total doses prepared were dose banded, with 63% of those being dose banded according to the AWDB document.

Conclusion

This audit has established that the aseptic department in Ysbyty Gwynedd does not comply with the AWDB document. However, this is intentionally done as the workload is not high enough to justify the need to dose band these medicines. Creating batches of dose banded drugs would lead to a high level of wastage. As this aseptic unit does not hold a license, most of the doses are produced as a single product under section 10, with the exception of 1000mg cyclophosphamide syringes, which are purchased from Baxter. This audit also highlighted that the AWDB document is lacking in the number of different drugs that it includes. Although some drugs such as the biologics (e.g. rituximab**)** are not suitable for inclusion due to their short shelf-life, there are many more drugs which are excluded from the document.

AUDIT ON THE USE OF UROKINASE IN TUNNELLED HAEMODIALYSIS CATHETERS

Hannah Povey, Anke Hagemi, Mahdi Jibani
Department of Nephrology, Ysbyty Gwynedd Hospital, Bangor

Introduction

Tunnelled haemodialysis catheters (TDCs) provide vascular access with high volume blood flow rates to undertake haemodialysis in patients without a functioning fistula. A common TDC related complication is thrombotic occlusion which can be managed with thrombolytic agents. In the BCUHB there are guidelines recommending urokinase as the first line thrombolytic agent.
A review of expenditure on urokinase in 2011 identified an increased use of urokinase in Bangor compared to the other two renal units in North Wales.
This audit aimed to assess adherence to the urokinase prescribing guidelines and identify whether deviation from this guidance was the cause of the increased expenditure.

Method

A retrospective audit on urokinase prescriptions for all haemodialysis patients who had a TDC between 1/6/11 and 31/12/11 dialysing either in the Bangor Renal Unit or at home was undertaken utilising nursing notes, drug charts and medical notes as data sources.

Results

Data for 25 patients was analysed. Inadequate documentation was identified across all steps of the recommended process of urokinase prescribing. Most urokinase was prescribed at the correct dose and route. Prescribing of urokinase on a “per required need” (PRN) basis was identified as the most significant deviation from the guidelines.

Discussion

Inappropriate prescribing of urokinase on a PRN basis was identified as a major cause for inappropriate administration of urokinase leading to increased drug expenditure.
During a discussion of the results in the renal multidisciplinary team meeting, importance of appropriate documentation was highlighted. A sticker which aims to prompt nurses to follow required steps when initiating a patient on Urokinase was developed. A review of urokinase requirement during the monthly multidisciplinary ward round was agreed. A re-audit is planned for 2014.

THE NEUROPSYCHOLOGICAL DOMAIN DIFFERENCES BETWEEN PARKINSON'S DISEASE PATIENTS WITH AND WITHOUT MILD COGNITIVE IMPAIRMENTS; A LONGITUDINAL INVESTIGATION

P. Hobson and R.J. Meara
Bangor University

Objective
To explore the possible neuropsychological domain differences between Parkinson's disease (PD) patients with and without mild cognitive impairment (MCI), based upon the Movement Disorder Society (MDS) Task Force Guidelines for PD-MCI. In addition, to determine the incidence of new PD-dementia cases and PD-MCI cases over a four year longitudinal cohort follow-up.

Background
It is well established that in PD, cognitive dysfunction ranges from very mild impairment (MCI) to PD-dementia. Recently the MDS Task Force developed guidelines on the early recognition of PD-MCI, in order to assist in our understanding of the natural history of cognitive impairment in PD.

Methods
Eighty six PD patients without dementia were assessed with the CAMCOG neuropsychological assessment at baseline and approximately four years later. The diagnostic criteria for PD-MCI was determined by cognitive impairment based upon the Movement Disorder Society Task Force Guidelines. We employed cut-off values 1 - 2 standard deviations or more below normative population means, in at least two total scores from different cognitive domains to diagnose PD-MCI. In addition to neuropsychological assessment, demographic, motor, mood and HRQoL were also recorded.

Results
At baseline, eighteen (21%) patients fulfilled criteria for PD- MCI. These patients PD-MCI had poorer neuropsychological assessment performance in the cognitive domains of, Orientation, Language, Praxis, Memory, Abstraction, Perception and Executive function ($p < 0.05$). No differences were observed in the age, sex, motor function, mood or duration and onset of symptoms ($p > 0.05$). At follow-up, twelve of these patients progressed onto PD dementia, two remained as MCI cases and the remaining four patients died between assessments. Furthermore, fifteen incident cases of PD-MCI were observed at the four year follow-up.

Conclusions
This longitudinal cohort investigation reports the early recognition of PD-MCI as a distinct clinical entity. Furthermore, it reports the incidence and the progression into PD-dementia amongst these cases.

INTERPROFESSIONAL WORKING ACROSS THE INTERFACE TO IMPROVE MEDICATION CONCORDANCE AND SAFETY PREVENTING HOSPITAL ADMISSION

Fiona Jones
BCUHB Conwy Locality

Introduction

Patients over the age of 75 years are more at risk from the adverse effects of medication, increased cognitive decline, higher admission rates and longer inpatient bed days. New services are being considered across the country to reduce admission to hospital, improve transfer of care and improve support to this vulnerable group. This project is the first part of the evaluation into a Home Based medicines review service to support elderly patients at risk of medicines misadventure.

Method

The evaluation is a mixed design. Quantitative data has been collected from an online database capturing specific patient and intervention information.

The qualitative part of the evaluation is not yet complete but will consist of 30 qualitative semi-structured interviews with patients, using a purposive technique to capture information from each service model.

The patients are referred to the service once identified using a screening tool (PREVENT)
They undergo a clinical medication review with a GP/Pharmacist prior or during a home visit. Information is collected;

- Age
- Person referring to service and reason for concern
- Number of medicines pre and post review
- Costs from interventions +/-
- Cost of wasted medication removed from home
- Are high risk drugs prescribed? Documented.
- Other information around the intervention –blood tests, referral to Social services etc

Results

The results have shown a reduction in poly-pharmacy, with resultant cost savings, from waste (hoarding/ poor compliance) and changes to make medication safer. Patients selected were easily identified using the screening tool which meant resources could be focused on this high risk group, reducing unnecessary expense.

We were also interested in adverse drug reactions and hospital admissions and although we can't prove a reduction in admissions at the moment we know the percentage of patients on the high risk drugs most likely to cause this and have costed a predicted saving based on a one off admission.

Discussion

Based on the initial results we can see that using a multi-professional referral system to identify at risk patients and by tailoring medicines intervention to the individual, we can make medicine administration safer in this elderly group, and help reduce costs for the NHS.

MAKING ROUTINELY COLLECTED HEALTH DATA AVAILABLE TO RESEARCHERS

Kevin Mawdesley
Bangor University

Data is routinely collected wherever individuals interact with health services. These data are personal and can be extremely sensitive.

Clinical Trials (and other health related research initiatives) potentially operate in all areas where health services are provided, seeking to improve the standard, efficiency and/or cost effectiveness of service delivery. Clinical Trials need access to accurate data to assess the benefit of the intervention being trialled.

Historically, because of the sensitive nature of the dataset and the measures in place to protect it, even when an individual has consented to the use of their data in a trial, data that are already held electronically often has to again be collected, either from the individual by interview or manually from existing systems. This is time consuming, adds expense to the trial and can lead to inaccuracies; especially as paper based systems are often used. Also, it conflicts with GCP for data that are already held about a patient to be again collected from the patient by interview for the convenience of researchers and, as well as not being in line with GCP, the extra burden on the proposed trial subject can lead to reduced trial recruitment.

This project seeks to make routinely collected data already held on local health board systems available to approved trials and other research initiatives in electronic form in a secure, ordered and protected manner, in line with Good Clinical Practice (GCP), Information Governance, R&D and ethics.

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THE PHARMACOLOGICAL MANAGEMENT OF PATIENTS ADMITTED TO HOSPITAL WITH ESTABLISHED HEART FAILURE (LVSD): AN AUDIT

Mared Wyn Owen, Pascale Eichenmuller
Ysbyty Gwynedd, Bangor, BCUHB

Background

Patients with diagnosed Heart Failure (HF) require optimal medicines management due to the nature of their prescribed medication. Heart Failure patients when admitted to hospital receive changes to their usual prescribed medication. There is evidence from the published literature to suggest that changes to medication and guidance for the continual management of patients post discharge are not communicated effectively to primary care. Poor medication management and compliance has been strongly linked to patients readmitted to hospital.

Aims and objectives

Audit the prescribing practice and management of patients with HF to establish whether it complies with the National HF Guidance. Ascertain if changes to regular medication during admission are communicated effectively on the patient's discharge prescription.
Objectives: - Ascertain if prescribing of HF medication is as per NICE guideline

- Identify changes to medication by comparing the medication on admission with the discharge medication
- To evaluate the quality and quantity of information documented on the discharge prescription
- To determine the readmission rates of patients with HF

Criteria / acceptance standards

Inclusion criteria- Patients with a past medical history of congestive heart failure with Left Ventricular Systolic Dysfunction (LVSD) diagnosed on a previous admission, over the age of 18, and admitted to a medical ward at Ysbyty Gwynedd.
Exclusion criteria- Patients with HF not due to LVSD and patient admitted as a day case or for a surgical procedure.

Methodology

Retrospective audit of patients admitted to Ysbyty Gwynedd from 1st of January to 31st of March 2012. Information about the patient's heart failure medication on admission was gathered from the medical notes and cross referenced with the pharmacy care plan when applicable. Discharge medication information was gathered from patients electronic discharge prescription accessed via the PIMMS database. Medical records and clinic letters where used to identify the severity of Heart failure for each patient. Data was collected by the auditor (MWO) and collated using Microsoft Excel.

Results

The number of patients prescribed an ACE inhibitor/ARB and Beta Blocker meet the national standard by 64%, and 90%, respectfully. Patients with severe LVSD who'd been prescribed an Aldosterone Antagonist met the National standard by 80%. There were 8 incidences of changes medication on discharge, of which one had the change of dose, reason for dose change and recommendation for future titration highlighted/documented on the discharge prescription (combined standard met by 12.5%).

Conclusion

There is evidence to suggest that patients are not managed as per the national guidelines, but this not a full representation as the data was gathered from a limited number of patients. Documentation of the changes to medication on the discharge prescription is poor, increasing the risk of medication errors when the information is transferred to primary care. Pharmacist being experts in medicine are ideally situated to be able to identify changes to medication, and provide guidance to health professionals about the importance of highlighting medication changes for the attention of the GP; one step forward to improving the transfer of information between the secondary and primary care sector.

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COMPLIANCE WITH ANTIBIOTIC PRESCRIBING GUIDELINES IN WREXHAM MAELOR HOSPITAL

Jenna Bulger, Charlie Ratcliffe, Jennifer Caesar
Wrexham Maelor Hospital

Introduction

Antibiotic resistance has been a concern in recent years, and remains so. It has been described as one of the greatest threats to modern health. The Department of Health have said we face a future without cures for infection if antibiotics are not used responsibly. An audit of compliance to the Betsi Cadwaladr University Health Board's antibiotic prescribing guidelines within the surgical clinical programme group of Wrexham Maelor Hospital was therefore conducted. The guidelines state that every systemic antibiotic for regular administration must have documented: an indicated review date or course length; a statement that the antibiotic is for surgical prophylaxis; or a statement that the antibiotic is for long term prophylaxis.

Methods

Using a measurement tool devised by The Antimicrobial Stewardship Committee, the prescription charts of up to ten surgical patients on each of the six surgical wards of Wrexham Maelor Hospital were audited each month for six months between November 2012 and April 2013.

Results

The overall compliance rate was 37%. Compliance varied greatly between wards and months. As the compliance rate was poor, an intervention was initiated. Posters were displayed on each of the surgical wards and in the doctor's communal area in the hospital. A teaching session was given to the hospital's foundation year one doctors to raise awareness of the guidelines.

Discussion

Compliance with the antibiotic prescribing guidelines has been poor. Following intervention, compliance will be re-audited between May 2013 and July 2013. The results of re-audit will be ready for presentation following this.

FOUNDATION YEAR DOCTORS PRESCRIBING COMPETENCE PROGRAMME AT YSBYTY GWYNEDD

Alwen J Nicholson[1], Catrin M Roberts[2]
[1]Training and Development Pharmacist Lead, BCUHB; Medical Education Pharmacist, BCUHB

Introduction
Prescribing is an essential skill practiced by qualified doctors from day one of their Foundation Year 1 (FY1) training (1). Many graduates feel under-prepared to take on prescribing responsibilities following graduation (1). The General Medical Council have acknowledged this and in Tomorrow's Doctors competencies have been identified (2).To ensure appropriate prescribing skills, BCUHB (West) has developed a competence framework, specific for FY1 doctors.

Purpose of the work
The aim of the Prescribing Competency Programme (PCP) is to ensure that all FY1 doctors are competent at prescribing in practice and follow health board guidelines.

Description
The PCP involves workshops, e-learning and assessments to ultimately improve competence in prescribing. The programme is introduced at Undergraduate level with assessments at the end of the assistantship placement or during FY1 induction (for non-Cardiff graduates). Assessments include calculations, prescribing for in-patients and discharge, prescribing controlled drugs, anticoagulation and antibiotics. Whilst on placement at BCUHB (West), 5th year Cardiff University Medical Undergraduates attend prescribing workshops, gaining the experience required for the PCP.

Discussion
In a recent study at BCUHB (West) all FY1 agreed that the PCP programme prepared them for their roles as prescribers, it "…..made me feel confident and safe at prescribing especially when on-call" (3). One consultant quoted "the quality of the prescribing has improved just through looking on ward rounds, and there has been a reduction in adverse incidence since starting the programme" (3).

The PCP identifies further learning needs of newly qualified doctors and these are addressed as one-to-one tuition or during the monthly FY1 workshops led by pharmacists.

Conclusion
The PCP is a realistic tool, which demonstrates if newly qualified doctors can safely prescribe on appropriate charts and follow local guidelines. This will endorse the National Prescribing Assessments soon to be introduced.

1. Scottish Medical Journal Vol 51 Issue 4 p 27 – 32 November 2006
2. Tomorrow's Doctors – General Medical Council
3. Evans E, Nicholson AJ, Thomas CM, John DN. How are Foundation Year One doctors (FY1) at Ysbyty Gwynedd prepared for their role as prescribers? Welsh School of Pharmacy Research Abstracts 2011, (ed. R Price-Davies) STS Publishing, Cardiff (2011) p25. ISBN 9780948917431
4. Cardiff University Student feedback. Feb 2012.

IDENTIFICATION OF NOVEL CANCER/TESTIS ANTIGENS AND VALIDATION OF THEIR POTENTIAL CLINICAL RELEVANCE: POSSIBLE TARGETS FOR IMMUNOTHERAPEUTICS

John Sammut, Nick Stuart, Ramsay McFarlane
Bangor University

Introduction

Colorectal cancer is the second commonest cause of cancer-related mortality in the Western world and fourth worldwide. Like many other cancers, one of the problems when treating the disease is that it often presents at an advanced stage. There is thus a drive to find new tests or biomarkers that can detect cancer at an earlier stage and in that way improve survival. Cancer-testis antigens (CTAs) have the potential to act as such a biomarker. CTAs are a group of proteins that are found in cancer but in normal tissues they are predominantly only found in the testis. The existence of the blood-testis barrier together with the fact that they are not generally found in normal tissues means that CTAs are not only attractive targets for the development of diagnostic tests but they could also be the basis for developing novel immunologically-based therapies.

Methods and results

We have performed a bioinformatics screen using microarray and expressed-sequence tag databases to identify potential new CTAs. Using specific intron-spanning primer sets, polymerase chain reaction experiments were conducted to detect gene expression initially in a range of normal tissues. Genes which showed very low expression patterns in normal tissues were then tested against a range of cancer types, including colon cancer. From an initial list of over 300 genes, around 20% have been 'validated' by our group as potential new CTAs.

Discussion

A limitation of this work to date is that the tumour and normal tissues have been obtained from either commercial sources or from cell-lines cultured in our laboratory. Further work will now focus on matched normal and cancerous tissue from individual patients. In this manner, we can be more certain that the gene expression is a consequence of the cancer and not due to variance between individuals. In order to be utilised as either a diagnostic or therapeutic target, we will then need to establish the presence of the protein product within the tumour sample or circulating blood. If this is established it would be of considerable scientific and translational research interest, having the possibility of being the target for powerful new anti-cancer drug treatments.