SUCCESSFUL MANAGEMENT OF ERYTHROMELALGIA SYMPTOMS WITH TOPICAL KETAMINE AND CLONIDINE: A CASE REPORT

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Background and Importance

Erythromelalgia (EM) is a rare clinical syndrome that may be associated with myeloproliferative disorders. Due to the incomplete elucidation of its pathogenesis, effective pharmacological management of intermittent triad of symptoms – pain, heat, and redness in the extremities – remains challenging. Despite avoiding precipitating factors such as ambient heat and exercise, patients continue to experience episodic symptoms that significantly diminish their quality of life.

Aim and Objectives

This study aims to review the published evidence on topical treatments for EM and present our singlecentre experience through a case study.

Material and Methods

A comprehensive literature search was performed in PubMed using the MeSH headings 'erythromelalgia' and 'administration, topical' without restrictions on date or publication language. Other resources included Google Scholar and UpToDate. We present data from a 54-year-old female patient with arterial hypertension, diagnosed with a myeloproliferative disorder in 2002 and treated with anagrelide and aspirin. Her initial episodes of erythromelalgia were noted in 2019. The patient's medical records were reviewed using the electronic prescribing system, and a treatment plan by a clinical pharmacist was developed in collaboration with a haematologist.

Results

Published literature shows there is a paucity of robust evidence: mainly anecdotal experience or case series that describe topical agents, mainly ointments or patches, with non-steroidal anti-inflammatory agents, lidocaine, capsaicin, gabapentin and combination treatments with ketamine and amitriptyline or clonidine to alleviate EM pain. Topical midodrine,
oxymetazoline, brimonidine tartrate, and timolol maleate are also used to reduce redness. Our patient responded well to the compounded combination of amitriptyline 1% and ketamine 0,5% in white vaseline, applied thrice daily. When EM episodes returned in 2024, there was an amitriptyline shortage, and alternative extemporaneously compounded ointment with ketamin 2% and clonidine 0,1% in SydoFarm was prescribed to be applied thrice daily, along with education on nonpharmacological measures such as ice cooling the affected area, limb elevation or fan use.

Conclusion and Relevance

Topical compounded formulations containing combination of ketamine and amitriptyline or clonidine effectively alleviated EM symptoms in our patient, significantly improving her quality of life without significant adverse reactions. Topical agents may be safe first-line treatment for EM symptoms, especially when accompanied by nonpharmacological measures.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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POTENTIAL AND CLINICALLY MANIFESTED DRUGDRUG INTERACTIONS IN PATIENTS ADMITTED TO THE HOSPITAL: A CROSS-SECTIONAL STUDY

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Background and Importance

Drug-drug interactions (DDIs) are increasingly common in ageing populations. Although many studies address potential DDIs, few explore clinically manifested DDIs.

Aim and Objectives

To provide information on the prevalence and characteristics of potential and clinically manifested DDIs in patients admitted to the hospital.

Material and Methods

This study included patients from our previous study1 with a minimum of two medications in their medication history. Data were obtained from electronic health records. Potential DDIs were identified using Lexicomp (via UpToDate), Micromedex and Stockley's drug interactions database. Potential DDIs were defined as those detected by at least one DDI database with moderate or greater severity. Clinically manifested DDIs were defined as those linked to clinically adjudicated adverse drug events.

Results

The study involved 968 patients with a mean age of 73 and a mean of seven medications. Potential DDIs were identified in 90% (95% CI: 88–92) of patients. Most were categorised as pharmacodynamic and moderate in severity. Diuretics, antithrombotic agents, and drugs used in diabetes represented medication classes most frequently involved in potential DDIs. Clinically manifested DDIs were observed in 6% (95% CI: 5–8) of patients, primarily involving gastrointestinal haemorrhage, with antithrombotic agents being the most common culprits.

Conclusion and Relevance

A high prevalence of potential DDIs was found among acutely admitted hospital patients, though clinically manifested DDIs were less common. Compared to previous research, the rate of DDIs was significantly higher, underscoring the issue's growing importance. The discrepancy between potential and clinically manifested DDIs points to the need for targeted alert systems to prevent alert fatigue. Drug interaction databases showed a DDIs prevalence twice as high as the international consensus list of potentially clinically significant DDIs in older people.

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Conflict of Interest No conflict of interest

EVALUATING RENAL DRUG DOSING APPROPRIATENESS IN PATIENTS WITH REDUCED GLOMERULAR FILTRATION RATE: A CONSENSUS ACROSS MULTIPLE DRUG INFORMATION SOURCES

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Background and Importance

Various drug information sources provide recommendations for adjusting medication dosing in patients with reduced glomerular filtration rate (GFR). Discrepancies in these recommendations can lead to varying prevalence of inappropriate prescribing or suboptimal patient care.

Aim and Objectives

This study aims to assess the prevalence of inappropriate renal drug dosing and the use of contraindicated medications in patients with reduced GFR, based on a consensus from multiple drug information sources. Additionally, it aimed to identify medications most frequently subject to inappropriate renal dosing adjustments and
contraindication.

Material and Methods

This cross-sectional study focused on chronic kidney disease patients admitted to University Hospital Hradec Králové, with an estimated GFR below 60 ml/min. The requirement for renal dose adjustment or contraindication was determined based on the consensus between the Summary of Product Characteristics and other drug information sources – Renal Drug Handbook, British National Formulary, Lexicomp and Micromedex. For medications requiring renal dosing adjustment agreement between the prescribed and recommended renal dosing was assessed. The data were obtained from our previous studies.1 2

Results

Of 375 chronic kidney disease patients, 67 (18%, 95% CI 14–22) received drug dosages that were inconsistent with
recommended renal dosing adjustments. Fenofibrate and metformin represented the medication most frequently dosed inappropriately. The prevalence of patients prescribed at least one contraindicated medication was 4%, with fenofibrate, metformin, dabigatran etexilate, ibandronate and nitrofurantoin being the most common.

Conclusion and Relevance

Nearly 1 in 5 patients with reduced GFR received medication dosages that did not align with recommended renal dosing according to the consensus between the Summary of Product Characteristics and other drug information sources. Special attention is required when prescribing metformin and dabigatran etexilate to patients with reduced GFR due to the risks of lactic acidosis and bleeding.

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ORAL TOLERANCE INDUCTION TO COTRIMOXAZOLE IN IMMUNOSUPPRESSED PATIENTS WITH A HISTORY OF A NON-SEVERE HYPERSENSITIVITY REACTION

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Background and Importance

Cotrimoxazole (CTX) is the firstline therapy used to prevent and treat Pneumocystis jirovecii pneumonia (PJP). In the case of a previous non-severe hypersensitivity reaction to CTX, oral tolerance induction may be used instead of alternative therapies – pentamidine, dapsone or atovaquone.

Aim and Objectives

The aim of this study was to establish a management protocol for oral induction of tolerance to CTX in patients with a history of non-severe hypersensitivity reactions.

Material and Methods

Information on CTX hypersensitivity reactions and their management was gathered from published literature, databases, and consultations with an allergist. Protocols for tolerance induction were proposed, and a list of pharmaceutical excipients in available CTX-containing medications, which may contribute to drug reactions, was compiled. Data on patients undergoing oral CTX tolerance induction were collected from the hospital information system in two institutions.

Results

Due to limited relevant publications – mainly addressing CTX hypersensitivity management in HIV/AIDS patients – and lacking a standardised protocol, we adapted single-day and multi-day protocols from existing studies. The single-day protocol suits patients with non-severe skin reactions, while the multi-day protocol is used for more severe reactions and can also be applied in outpatient settings for non-severe cases. Protocol choice must be strictly individualised based on patient condition and reaction severity. Severe reactions require basophil activation and skin tests, followed by an oral provocation test with a full therapeutic CTX dose under observation and preparedness to manage anaphylaxis. We compiled a list of CTX product excipients, noting that generic substitution often improved tolerance. Pharmacists proposed alternative preparations during oral suspension shortages for optimal desensitisation dosing. To prevent loss of tolerance during PJP prophylaxis, especially if CTX administration is interrupted for over three days, we recommend administering CTX three times a week, every other day, or daily. Oral induction is contraindicated in severe delayed-type hypersensitivity reactions, Stevens-Johnson syndrome, or acute generalised exanthematous pustulosis. Since implementing local protocol, nine immunocompromised patients were successfully delabeled from CTX allergy using oral desensitisation or generic substitution.

Conclusion and Relevance

The prevalence of hypersensitivity reactions to CTX in the population is lower than reported in patient's medical history. Multidisciplinary collaboration is essential for rational treatment and effective prophylaxis of PJP infections.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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EXTRAVASATION MANAGEMENT AWARENESS IN NURSING STAFF IN A TERTIARY CARE HOSPITAL

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Background and Importance

Extravasation of cytotoxic agents is a serious complication in cancer treatment that requires immediate and effective management. Nurses administering chemotherapy, especially vesicant agents, must stay updated onthe latest evidence regarding the identification and treatment of extravasation. Educated nurses are essential for detecting, managing, and documenting extravasation events. Their role is crucial in preventing such incidents and ensuring patient safety through proactive interventions.

Aim and Objectives

This study aimed to evaluate the level of awareness among nursing staff handling cytotoxic and biological anticancer agents, focusing on their knowledge and practices in managing extravasation.

Material and Methods

A prospective, single-centre, cross-sectional study was conducted by hospital pharmacists during mandatory cytotoxic drug training sessions between November 2023 and September 2024. The survey targeted nursing staff involved in administering cytotoxic and biologic agents at a tertiary care hospital. An anonymous 10-item questionnaire was used to assess knowledge and experience in extravasation management, covering years of practice, knowledge of risk factors and high-risk agents, symptom recognition, previous experience with extravasation, and awareness of antidote availability. The data were statistically analysed.

Results

A total of 116 nurses participated in the survey. Despite 72.0% having over 10 years of healthcare practice, 57.8% had never encountered extravasation cases, indicating limited hands-on experience. Regarding venous access, 86.0% expressed confidence in selecting appropriate veins for cytotoxic drug administration. While the vast majority (93.1%) had partial knowledge of risk factors such as repeatedly cannulated veins, lymphedema or obesity, only 38.1% of experienced nurses could fully describe the signs of extravasation. Additionally, 10 nurses (8.6%) indicated they did not educate patients about the signs and symptoms of extravasation. Half of the participants correctly identified dimethyl sulfoxide (DMSO) 99% as the antidote for anthracyclines, whereas only 7.8% selected hyaluronidase with warm compresses for vinca alkaloids. Although more than two-thirds of the nurses knew where antidotes were stored,25.0% were unsure, revealing a need for better communication and training.

Conclusion and Relevance

Despite local standards being in place, the study revealed gaps in nurses' awareness of extravasation management, especially concerning patient education and antidote use, highlighting the necessity for enhanced and regular training in diagnosis and treatment of extravasation to improve patient safety.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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PATIENT-ORIENTED CARE IN PHARMACY CONSULTATION CENTRE: CHANGES OF TRENDS IN CONSULTATIONS IN LAST 12 YEARS – ANALYSIS OF ACTIVITIES IN CONSULTATION CENTRE

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Background and Importance The number of drugs used has increased in the last years. Some patients need an explanation of how to use their drugs and how to prevent medical errors. The pharmacy consultation centre in St. Ann University Hospital has offered advice for in- and outpatients for more than 25 years. Patients can consult with pharmacists about their drug related problems. In last 10 years the consultation care has expanded to include other services (smoking cessation, memory loss counselling, cholesterol screening, and higher blood glucose levels).

Aim and Objectives

To analyse what the most frequent topics of consultations were in years 2011–2013 and 2022 – 2024. To compare changes of trends in topics of consultations after 11 years.

Material and Methods

Patient records were analysed retrospectively in 2011 and 2013 (January to September) and then in 2022 and 2024 (January to September) and it was followed number of patients and visits, topics of patient questions and type of offered services. Pharmacists offered repeated check visits to the patients to increase the adherence of recommendations and ensure the successful smoking cessation.

Results

Authors performed 221 consultations in 2011 to 2013 for 81 patients. The most frequent topics of consultation: smoking cessation 43.4%, potential drug interactions 36%, correct usage of drugs 7.6%, drug side effects 6.5% and weight loss 6.5%. In 2022 to 2024, 1027 consultations were carried out for 438 patients. The most frequent topics of consultation: smoking cessation 56%, potential drug interactions 16%, memory loss counselling 14%, cholesterol screening 7% and higher blood glucose levels 7%. The number of consultations increased more than 4.6 times over the last 11 years.

Conclusion and Relevance

In recent years, thanks to the expansion of the range of services in the consultation centre, the number of consultations has increased by more than 4.6 times. The greatest interest of patients is in helping them quit smoking and revealing the risk of drug interactions. Newly, patients use the possibility to detect incipient memory changes, elevated cholesterol and blood glucose levels.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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OPTIMISING PATIENT ADHERENCE IN HEART TRANSPLANTATION: A PHARMACIST-LED EDUCATIONAL APPROACH

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Why was it done?

Adherence to immunosuppressive medication is crucial for long-term graft survival. Patients receive substantial information from various healthcare professionals regarding new medications and lifestyle choices during hospitalisation and post-discharge. Frequent non-adherence indicated that the existing educational approach led by physicians was insufficient. Our objective was to create optimal conditions for providing these instructions to patients before discharge.

What was done?

In collaboration with the cardiology department, hospital pharmacists created and implemented a new educational project to improve adherence among heart transplant patients. The main aktivity involves hospital pharmacists conducting educational visits at the patient's bedside, supported by new educational brochures, materials, and questionnaires.

How was it done?

We created a questionnaire and collected baseline data by assessing the knowledge of transplant patients educated by the existing educational approach. Afterwards, we designed and implemented a six-visit educational program and prepared new educational materials and brochures. A new record system was integrated into the hospital information system to facilitate communication between doctors and pharmacists, documenting educational visits and questionnaire results. The initial three visits, scheduled during hospitalisation, cover the correct use of immunosuppressants and other medications, their interactions, and potential adverse effects. Guidance on recommended lifestyle changes post-transplantation, such as hygiene, diet, and infection prevention, is also included. The remaining three visits occur within one year post-discharge to assess patient knowledge with the previously mentioned questionnaire and adherence to the treatment plan with BAASIS©. During these visits, the pharmacist conducts a comprehensive review of adherence, addresses any drug-related issues, and guides medication changes.

What has been achieved?

Since the project's initiation, 120 visits have been completed, involving more than 30 patients. The education significantly improved patient knowledge, with educated patients scoring an average of 94 % correct answers on the knowledge questionnaire compared to 59% correct answers of patients educated by the existing educational approach. Only three educated patients were non-adherent, with the most common type of non-adherence being failure to take medication at the prescribed time.

What next?

As more patients participate in the project, we aim to correlate their knowledge and adherence with tacrolimus levels and the incidence of rejection. Additionally, we intend to extend this educational initiative to other departments within the hospital.