GRP-023 ANTI-FACTOR Xa ACTIVITY AFTER PROPHYLACTIC DOSES OF ENOXAPARIN (40 mg) IN HOSPITALISED PATIENTS WEIGHING LESS THAN 55 KILOGRAMMES

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Background Enoxaparin is commonly used for thromboembolic disease prophylaxis probably because of its safety profile and once-daily administration. In contrast to therapeutic doses, the prophylactic recommended dose is fixed (40 mg once a day for enoxaparin). There is little evidence for suitable dosing in extreme body weights, especially in low-weight patients.
Purpose To establish whether the recommended dose of Enoxaparin (40 mg/day) in patients weighing less than 55 kilogrammes produces anti-factor Xa activity over the desired ranges for thromboembolic prophylaxis.
Materials and Methods Cross sectional study. Sample size estimated in 53 patients. Inclusion criteria: over 18 years, body weight equal or less than 55 kilogrammes, hospitalised in medical wards and with an indication of thromboembolic prophylaxis with enoxaparin 40 mg/day by the treating physician. Exclusion criteria: renal failure and concomitant use of oral anticoagulants. Anti-factor Xa activity was measured 3 hours after the third dose of enoxaparin. We estimated the proportion of patients with anti-factor Xa activity over 0.5 u/ml and the average anti-factor Xa activity.
Results Average age was 65.4 ± 20.3 years and average weight 47.7 kilogrammes (26 to 54). The average anti-factor Xa activity was 0.54 ± 0.18 u/ml and the proportion of patients with values over 0.5 u/ml was 60%. Weight and anti-factor Xa activity were inversely correlated, with a Pearson coefficient of −0.497. In subgroup analysis, patients weighing less than 50 kilogrammes had anti-factor Xa activity of 0.61 u/ml, while those with weight over 50 kilogrammes had an anti-factor Xa activity of 0.47 u/ml ($p = 0.019$).
Conclusions Anti-factor Xa activity rises significantly when body weight decreases. Patients with low weight had an anti-factor Xa activity over the desired range for thromboembolic prophylaxis, especially in those under 50 Kilograms. Further study is needed to determine if these data are clinically significant and whether prophylactic doses should be adjusted for body weight.

No conflict of interest.

GRP-024 ANTITHROMBOTIC PROPHYLAXIS IN PATIENTS WITH MULTIPLE MYELOMA BEING TREATED WITH LENALIDOMIDE

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Background The diagnosis of multiple myeloma (MM) has been associated with a greater risk of thromboembolic events. At the same time, the treatment with lenalidomide, an immunomodulator authorised in 2007 by the EMA, causes a significant increase in the risk of deep vein and arterial thrombosis, and pulmonary embolism in patients with MM.
Purpose To find whether patients diagnosed with MM being treated with lenalidomide have prophylactic antithrombotic treatment with low molecular weight heparin or with acenocoumarol, as recommended in the ASCO (American Society of Clinical Oncology) guidelines.
Materials and Methods A retrospective observational study was carried out in a 700-bed secondary hospital from January 2011 to February 2012. The patients included had MM and lenalidomide and dexamethasone treatment and picked up their medicines in our hospital. The data were obtained from a Diraya computer system of the Andalusian health system. The following data were obtained: sex, age, whether they had anticoagulant treatment or not and if they had, what type of anticoagulation they received.
Results The total number of patients was 31, 16 males and 15 females, with an average age of 61.7 years. Of these 31 patients treated with lenalidomide plus dexamethasone, only 9 patients received antithrombotic prophylactic treatment. Of the 22 who did not receive it, there were two cases of episodes of deep arterial thrombosis.
Conclusions Most of the patients with multiple myeloma who come to our pharmacy service are without antithrombotic prophylactic treatment with the risk that this situation entails. As pharmacists we consider it necessary to remind haematologists of the necessity both of prescribing such treatment in order to avoid future complications, and of monitoring that these recommendations are observed, in order to guarantee the safe use of lenalidomide.

No conflict of interest.

GRP-025 APPLICATION OF A PRESSURE ULCER PREVENTION AND TREATMENT PROTOCOL IN THE FATEBENEFRATELLI AND OPHTHALMIC HOSPITAL IN MILAN

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Background Pressure ulcers are very common in hospitalised patients and if not prevented or properly treated may increase the length of hospitalisation, infections due to complications, and patient suffering. Prevention is thus relevant for high quality care. To improve the quality of care and to monitor the incidence of pressure ulcers, a multidisciplinary team was created in our hospital in 2009, and a diagnostic and therapeutic pressure ulcers protocol was defined ('Percorso Diagnostico Terapeutico Assistenziale Lesioni da Pressione').
Purpose To describe the verification, performed by the multidisciplinary team, of the correct use of the protocol, using the indicators specified in the protocol itself.
Materials and Methods The protocol, created from the guidelines already in use in the hospital, was implemented with the definition of operational tools for the verification of its application. Adherence to the protocol is intended to prevent and provide the best treatment for pressure ulcers. Two analyses (one in 2010 and one in 2011) of the clinical charts were performed in order to cheque the adherence of the health care professionals to the use of the procedure: this was evaluated using a cheque list composed of nine criteria, each of which was assigned 1 point if 'correct' and 0 if 'incorrect'.
Results In 2010 a total of 214 clinical charts were analysed: in general, data was collected correctly (57% of cases). Pressure ulcers were properly identified and prevented in 37% of cases: only some nurses follow the guidelines in the detection and treatment of injuries. Of patients with pressure ulcers, 36% were properly treated. The departments that mainly detected a risk of pressure skin damage and prevented it following the procedure for the treatment of lesions were Neurosurgery, Medicine, and Cardiology. A further analysis of 62 clinical charts in 2011 showed that in 52% of cases, pressure ulcers were correctly identified, but in only 5% of cases were they then properly treated. A third analysis is ongoing, with the aim of identifying and correcting errors in the treatment of the ulcers. A poster will also be distributed to departments, for quick reference to the treatment protocol.
Conclusions The protocol is a practical tool applicable in the various departments. Verification of its correct use showed a low

adherence to the guidelines: it is fundamental continuing the training of the staff to achieve the required standard. Among the objectives for 2013, another audit with a modified cheque list will be performed, involving a greater number of health care professionals.

No conflict of interest.

GRP-026 APPLICATION OF FAILURE MODE AND EFFECT ANALYSIS ON THE PRESCRIBING AND TRANSCRIBING PROCESSES IN THE DISTRIBUTION UNIT DOSE SYSTEM

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Background Failure Mode and Effect Analysis (FMEA) is a tool to identify, assess and prevent possible failures that could occur in a process.

Purpose

1. To describe FMEA as a method to identify weaknesses in the process of prescription and transcription of medical orders.
2. To isolate the key steps according to their risk priority number (Rpn).
3. To report the steps taken.

Materials and Methods A multidisciplinary study group was assembled. Possible errors in the prescription/transcription workflow were identified and classified according to their RPN score (calculated by multiplying the severity, occurrence, and detection). Strategies for improvement were established.

Results Errors in the prescription were classified as follows: (1) Patient-and-history identification, (2) Clinical and laboratory data checkout, (3) Treatment conciliation, (4) Allergies, (5) Verbal prescription, (6) Handwritten prescription. Errors in transcription: (7) Patient identification (nurse), (8) Internally mailed prescriptions, (9) Paper transcription, (10) Check in pharmacy, (11) Patient identification (pharmacist), (12) Prescription validation, (13) Prescription printing, and (14) Acknowledgement of errors by the pharmacist. Top-ranked item (number), suggested solution, and indicator, respectively were: (5) Verbal prescription (288), storage of verbal prescriptions in pharmacy, % of verbal prescriptions; (9) Failure in paper transcription (288), computerised physician order entry (CPOE), % of electronic prescriptions; (14) Error report to the pharmacist (288), implementation of a two-way communication protocol, number of reports; (8) Paper-based prescriptions sent to pharmacy (243), CPOE, % of electronic prescriptions; (10) Check in pharmacy (216), CPOE, % of electronic prescriptions. The pharmacy, medical director, and Quality Unit were responsible for the changes undertaken in all cases.

Conclusions Verbal prescription, failure in paper transcription, error report and mailed prescriptions to pharmacy were the steps with the highest risk of error. For most cases, CPOE was implemented, whereas the percentage of electronic prescriptions was the key indicator to measure the overall improvement in these processes. In conclusion, further efforts and pharmacy policies should focus on the implementation of CPOE in all inpatient areas, thus preventing failure of prescription/transcription and validation loops.

No conflict of interest.

GRP-027 ASSESSMENT OF BLOOD PRESSURE CONTROL AND ANTIHYPERTENSIVE MEDICATION ADHERENCE IN A PORTUGUESE HYPERTENSIVE POPULATION

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Background Hypertension is one of the major causes of worldwide morbidity and mortality. Despite the wide variety and availability of powerful antihypertensive agents, the blood pressure (BP) of fewer than a third of adult hypertensive patients is under control. Non-adherence to medicines is one of the major causes of treatment failure.

Purpose To evaluate BP control and antihypertensive medicines adherence in a Portuguese hypertensive population.

Materials and Methods A cross-sectional observational study was conducted in adult (aged 18 or over) hypertensive patients attending the hypertension/dyslipidaemia clinic for at least 6 months at the university teaching hospital of Cova da Beira Hospital Centre, Covilhã, Portugal, from March to August 2012. Patients were asked to participate in a structured interview which included socio-demographic characteristics, antihypertensive medicines adherence and target BP values. Medicines adherence was measured using a validated five-item adherence scale, [1] derived from the four-item scale developed by Morisky *et al*, [2] Detailed clinical information was obtained from medical records.

Results A total of 94 patients met the inclusion criteria and completed the structured interview. Of these, the BP of 47% was under control according to the European Society of Hypertension. Antihypertensive medicines adherence was 40%. Patients with controlled BP had a significantly higher rate of medicines adherence than patients with uncontrolled BP (52% vs. 30%, P = 0.028). Likewise, it was observed that patients whose BP was controlled were significantly more aware of their target BP figures (75% vs. 46%, P = 0.034).

Conclusions Many hypertensive patients prescribed antihypertensive treatment fail to achieve BP control in clinical practise. Poor medicines adherence and poor patient knowledge of target BP values should be considered as possible underlying causes of inadequately controlled BP and must be addressed in any intervention aimed to improve BP control.

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No conflict of interest.

GRP-028 ASSESSMENT OF COMPLIANCE AND AVOIDED COSTS AFTER IMPLEMENTATION OF GUIDELINES FOR CANDIDA INFECTION TREATMENT AND INVASIVE FUNGAL INFECTIONS IN NON-HAEMATOLOGY PATIENTS

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Background The recent marketing of new high-cost antifungal agents (echinocandins and azoles) requires the design of cost-effective treatment protocols.

Purpose A new treatment guide for candidaemia and other invasive fungal infections for non-haematology adult patients was approved in June 2011. The main objective was to evaluate the cost reduction by introducing this protocol in a 737-bed University Hospital serving a population of more than 400,000 inhabitants.

Materials and Methods Retrospective observational study between June and December 2011. We reviewed the medical records of patients whom were prescribed antifungal treatment during that time and we assessed the adjustment to the approved treatment guidelines. To quantify the avoided costs we extracted consumption data and costs of antifungals from the pharmacy service