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Validity of thyromental distance as a predictor of difficult airway in prehospital emergency care

Validez de la distancia tiromentoniana como predictor de vía aérea difícil en medicina extrahospitalaria

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Objectives: In the hospital setting, thyromental distance (TMD) is used as an indicator of difficult airway. TMD <6 cm indicates possibly difficult orotracheal intubation (OTI). The aim of this study was to assess the adequacy of TMD as a predictor of difficult airway in an out-of-hospital setting.

Method: Prospective study based on OTI data in elderly patients performed by SUMMA112 staff. TMD is defined as that between the thyroid cartilage and chin in the neutral position. Difficult airway is one that requires 3 or more attempts to achieve OTI. We calculated the sensitivity, specificity and predictive values of TMD.

Results: Of a total 240 cases of OTI, TMD was measured in 206 patients; of these, 112 (54.4%) had TMD less than 6 cm. Two thirds (65.7%) were men, and mean age was 62 years (IQR 50-77). The reasons for OTI were: cardiac (5.1%), trauma (6.8%), neurological (18.6%), cardiopulmonary arrest (61.2%) and others (8.4%). No significant associations were found between age or reason for OTI and TMD, but a significant association was found between female gender and TMD <6 cm ($p = 0.03$). Half (51.8%) the cases with TMD <6 cm were classified as Cormack-Lehane > Class III, reflecting a significant association ($p = 0.04$). Of the 112 cases with TMD <6 cm, only 35% required 3 or more attempts to achieve OTI. Thus, TMD <6cm as an indicator of difficult airway had a sensitivity of 58% (46-71), specificity of 47% (39-56), and a negative predictive value of 70% (60-79).

Conclusions: TMD is not a reliable predictor of difficult OTI in the out-of-hospital setting, but this study suggests that it does correlate well with the Cormack-Lehane classification. TMD showed low sensitivity and specificity in this context.

Diagnostic accuracy of 2 clinical scales and D-dimer determination in evaluating patients for pulmonary embolism in the emergency department

Precisión diagnóstica de diferentes escalas y del dímero D en pacientes con sospecha clínica de tromboembolismo pulmonar en el área de urgencias

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Introduction: The severity of pulmonary embolism (PE) should be understood as an individual estimated risk of early mortality associated with the disease rather than the anatomical pattern and distribution of pulmonary emboli. Immediate bedside use of this estimate can stratify patients as high risk or other levels of risk. This classification should also be applied to patients with suspected PE as an aid to the choice of optimal strategy for diagnosis and initial management. Different scales and models have been proposed to triage and classify patients with suspected PE in the emergency department. Validation should be carried out in the specific context of emergency services, where such scales are applied.

Objectives: to determine the accuracy of the Wells scale, the Geneva scale and D-di-

mer levels in patients with suspected PE treated in the emergency department of a tertiary hospital.

Method: We calculated the sensitivity, specificity, positive and negative predictive values (PPV and NPV) and likelihood ratio (+LR and -LR) of the 2 clinical scales and D-dimer levels for the diagnosis of PE, confirmed by helical computerized axial tomography (the gold standard).

Results: PE was diagnosed in 96 cases (15.1%). For the Wells scale, NPV was 85.3%, PPV 62.5%, sensitivity 15.6%, specificity 98.1%, +LR 8.32 (95% CI = 3.75 to 18.45) and -LR was 0.86 (95% CI = 0.78 to 0.95). For the Geneva scale, NPV was 82.8%, PPV 58.8%, sensitivity 11.8%, specificity 98.1%, +LR 6.17 (95% CI = 2.42-15.74) and -LR 0.90 (95% CI = 0.81 to 1.00). For D-dimer levels, NPV was 99.1%, PPV 21.6%, sensitivity 98.9%, specificity 25.8%, +LR 1.33 (95% CI = 1.26 to 1.41) and -LR 0.04 (95% CI = 0.01 to 0.29). The area under the ROC curve (AUROC) for the Wells scale was 0.72 (95% CI = 0.67-0.78), AUROC for the Geneva scale was 0.57 (95% CI = 0.60 to 0.54) and for D-dimer it was 0.84 (95% CI = 0.79 to 0.88).

Conclusions: The Wells and Geneva scales are good candidates for use in the ED as predictors of severity in patients with suspected PE; the Wells scale showed superior specificity. However, neither can be used as a diagnostic tool because of their low sensitivity. In contrast, D-dimer levels are good candidates for use as a diagnostic tool when severity has been established by other means. The combined use of different diagnostic tools available, such as these two clinical scales and D-dimer levels, together with helical CT, should improve the quality of care and efficient management of patients with suspected pulmonary embolism in hospital emergency departments.

Patient characteristics and clinical presentation of atrial fibrillation in candidates for restoration of sinus rhythm: implications for emergency department management (the RHYTHM-AF-Spain study)

Características y presentación clínica de los pacientes con episodios de fibrilación auricular elegibles para restauración del ritmo sinusal: implicaciones para el manejo en urgencias (estudio RHYTHM-AF-Spain)

Introduction: Atrial fibrillation (AF) is the type of sustained arrhythmia most often seen in hospital emergency departments (ED), and implies serious consequences for prognosis and quality of life. It is essential to know the clinical profile of patients in order to guide management decisions and to optimize treatment outcomes.

Objectives: To evaluate the profile of patients with AF, the clinical presentation of recent onset AF, and their implications for immediate treatment.

Methods: A multicenter observational conducted in 52 emergency departments in Spain. During 5 weeks, we included adult patients with recent-onset AF (less than 48 hours from first symptoms) and persistent AF, who could be selected for restoration of sinus rhythm (properly anti-coagulated for 3 weeks prior to ED visit) confirmed by ECG performed in the ED. We prospectively recorded clinical variables, and AF management and patient outcomes. There were no missing data. The study was approved by a Research Ethics Committee and informed consent was obtained from all patients.

Results: We included 592 patients; mean age 66 years (± 15), 53% men, structural heart disease was present in 36% [the most prevalent were: heart valve disease 17%, cardiomyopathy 10.5% and chronic heart failure (CHF) 10%]. The most prevalent cardiovascular risk factors were hypertension (58.5%), hyperlipidemia (36.4%) and diabetes mellitus (17%). According to the criteria of "CHA2DS2Vasc embolic risk stratification scheme", 59.6% had a high risk of CVA, while 7.9% had medium risk and 32.4% low risk. Most patients (86%) showed rapid ventricular response to treatment (>100 bpm). The main symptoms leading to ED visits were palpitations (70%), chest pain (29%),

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dyspnea (24%) and dizziness (22%); 13% had symptoms of CHF. In only 26.5% of cases were we able to identify the trigger for AF. For 54% of the patients this was the first diagnosed episode of AF, 40% had paroxysmal AF and 5% persistent AF. Regarding medical treatment prior to enrollment, 23% were anti-coagulated and 28% were receiving heart rate or rhythm medication (52% beta blockers, 28% flecainide, 14% amiodarone, 8% diltiazem and 7% digoxin).

Conclusions: In the acute phase, most patients with recent-onset AF had increased risk of arterial embolism, but only half of them were receiving anticoagulants; so thromboprophylaxis should be routinely considered on medical evaluation in the emergency department. Most patients had rapid ventricular response and were therefore eligible for heart rate control. The high prevalence of structural heart disease in these patients is a critical factor in selecting the strategy for restoration of sinus rhythm, electrical cardioversion or pharmacological treatment and, when indicated, the class of antiarrhythmic drug.

Management of care in cases of atrial fibrillation in which sinus rhythm can be restored: analysis of hospital emergency department "run sheets" (the RHYTHM-AF-Spain study)

Análisis del proceso de manejo de la fibrilación auricular subsidiaria de restauración del ritmo sinusal: la hoja de ruta en los servicios de urgencias hospitalarios (estudio RHYTHM-AF-Spain)

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Introduction: Atrial fibrillation (AF) is a serious condition with ever-increasing prevalence, high cost and has a significant impact on survival and quality of life. It is essential to know the results and characteristics of patient care processes in order to develop strategies to improve the efficiency and quality of care.

Objectives: To analyze the process of diagnosis and treatment of sensitive restoration FA sinus rhythm (SR) in emergency departments (ED), and its impact on the evolution to identify areas for improvement.

Method: A multicenter observational conducted in 52 emergency departments in Spain. During 5 weeks, we included adult patients with recent-onset AF (less than 48 hours from first symptoms) and persistent AF, who could be selected for restoration of sinus rhythm (properly anti-coagulated for 3 weeks prior to ED visit) confirmed by ECG performed in the ED. We prospectively recorded clinical variables, and AF management and patient outcomes. There were no missing data. The study was approved by a Research Ethics Committee and informed consent was obtained from all patients.

Results: We included 592 patients (96% had AF-related symptoms). 95% of patients underwent chest x-ray, 21% transthoracic echocardiogram and 1% transesophageal echocardiogram. Sinus rhythm restoration was planned in 81% of patients (81% with a first episode of AF, 86% paroxysmal AF and 50% persistent AF). It was not considered in patients with comorbidity (25%) or advanced age (24%). Cardioversion (CV) was successful in 83% of cases where it was used. Sinus rhythm control was attempted in 44% of patients with rapid ventricular response, and prophylactic anticoagulation was prescribed to 53% of patients at high risk of embolism (according to CHADS 2 stratification). Three quarters (77%) of patients were discharged directly from the ED, and 23% were admitted (11% Cardiology, 6% Internal Medicine). At hospital discharge, 75% of patients had normal sinus rhythm and 65% were prescribed antiarrhythmics or heart rate therapy. Nine patients (1.5%) died. The mean (SD) / median stay in the ED was 12.7 (11) / 9 hours. In patients receiving cardioversion, these figures were 13.5

(11) / 10 hours (16.2 hours with amiodarone, 9.7 hours with flecainide and 14.2 hours with propafenone). In patients where cardioversion was successful, these figures were 11.8 hours (14.5 hours with amiodarone, 12.2 hours with flecainide and 8.8 hours with propafenone).

Conclusions: Only a small proportion of patients with recent-onset AF visiting the ED for reasons related to arrhythmia actually undergo specific complementary examinations. In most patients, restoration of sinus rhythm is attempted, but heart rate control and prophylactic anticoagulation is not prescribed for half of all eligible patients. These management strategies are developed in the emergency department itself and the results are moderately effective, with a low proportion of hospital admission but a prolonged stay times. We need to implement all available strategies for the management of recent-onset AF in all patients presenting to the ED, applying procedures and drugs that improve effectiveness and reduce length of stay to increase efficiency and quality of care.

Survival rates in cardiorespiratory arrest treated initially by vital life support teams

Índices de supervivencia de pacientes en parada cardiorrespiratoria atendidos inicialmente por unidades de soporte vital básico

Introduction: Rapid and effective care of patients with out-of-hospital cardiopulmonary arrest (CPA) in Madrid has been and is a constant challenge for emergency professionals. Knowing that outcome is time-dependent, and the importance of CPR (cardiopulmonary resuscitation) and early defibrillation, in 1999 the emergency service SAMUR-PC incorporated semiautomatic external defibrillators (SAED) in all its Basic Life Support (BLS) mobile units, accompanied by continuous training courses in CPR + defibrillation technique. SAMUR-PC is a dual-level service, with Advanced Life Support units (ALSU) that work together with BLS units. Given the greater number of BLS units, they are usually the first to reach the patient. The present paper is a 3-year follow up study of patients who were treated initially by BLS units.

Objectives: To describe the profile of the CPA patient initially attended by BLS units and to perform survival analysis *ad integrum*.

Method: observational analytic design. Scope: SAMUR-PC in the city of Madrid.

Study population and inclusion criteria: patients with extra-hospital CPA initially attended by BLS units equipped with SAED. Study period: 2008-2010. Variables: age, sex, response times, transfer to hospital, survival at 6 hours, 24 hours and 7 days and neurological outcome at 7 days. Data analysis performed with Access 2000. Statistical analysis by SPSS v.17.0. Qualitative variables are described as frequencies and quantitative variables as central measures and dispersion. Chi2 test was used to compare qualitative variables and means were compared using Student's t test, and Kaplan Meier curves to assess survival. Differences with a p value of <0.05 were considered statistically significant. The study was carried out with strict observance of ethical aspects and data confidentiality.

Results: 288 patients were included; 74% men with a mean age 62 years (SD: 17.593) and for women 77.50 years (SD: 16.439). BLS team median response time was 0:07:25 and mode time was 0:05:24. Defibrillation was performed in 33% of cases versus 67% not deemed appropriate. In situ revival was achieved in 171 patients, of whom 103 survived (61.7%) at 6 hours; Of these, 62 survived at 7 days (21.5% of the total), 22 (51%) of whom had full neurological recovery. Statistically significant differences were found in defibrillated patients. Ad integrum survival Index was 7.6% with CI95% (4.6% -11.50%). Survival analysis showed that the highest ad integrum survival rate was obtained in cases where the BLS response time was between 5 and 6 minutes.

Conclusions: Our study demonstrates the efficacy of BLS unit resuscitation of extra-hospital patients with cardiopulmonary arrest. It shows the clear relationship between early defibrillation and good prognosis, but also highlights the fact that these units are well prepared to attend these patients in the first few minutes after the event sin-

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ce they have the necessary training and equipment, whatever the type arrhythmia involved.

Creation and validation of a scale to assess the severity of exacerbation of chronic obstructive pulmonary disease

Creación y validación de una escala para evaluar la gravedad de la exacerbación de la enfermedad pulmonar obstructiva crónica (EPOC)

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Introduction: The relevant guidelines contain specific chapters on the diagnosis, management and treatment of exacerbations of COPD, but rarely establish specific and explicit standard directions on how to assess the severity of exacerbation.

Objectives: To create and validate a scale to assess COPD exacerbation, which may help ED physicians in decision making.

Method: A multicenter prospective cohort study involving hospital EDs in Basque Country, Andalusia, Cantabria, Catalonia and Madrid during the years 2007 to 2010. We present the results of 1,415 ED patients whose main diagnosis was COPD exacerbation. Clinical and blood gas parameters were recorded at the time of decision on hospital admission / discharge, during hospitalization, and again at one week after hospital discharge. Poor outcome was considered ICU admission, need for invasive mechanical ventilation, cardiac arrest and / or death. Creation of the scale: the variables included were those shown to be predictive of poor outcome after COPD exacerbation according to medical literature, clinical guidelines and the experience of the research team. All the variables were combined into a large easy-to-use scale based on pH, level of consciousness, hemodynamic stability, respiratory rate and blood gas data (pO₂, pCO₂, O₂ Sat), all measured at the time of decision-making on admission or discharge. Statistical analysis: we explored the influence of each variable on the severity scale, and discriminative validity of the scale by means of the chi-square test.

Results: Of 1,415 patients, 983 (69.47%) were admitted and 432 (30.53%) were discharged; 41 (2.9%) had poor outcome and 1,374 (97.10%) good outcome. In the group of patients with mild exacerbation, 1 (0.4%) had a poor outcome; in those with moderate exacerbation, 7 (1.64%) had poor outcomes and in those with severe/very severe exacerbation, 30 (5.62%) had poor outcomes. Statistically significant differences were found between those with poor outcome versus those without poor outcome for all the variables comprising the scale except hemodynamic stability ($p = 0.08$). Significant differences ($p < 0.0001$) were observed between poor-outcome patients according to categories of severity (0.4% mild, 1.6% moderate, 5.6% severe/very severe).

Conclusions: Our scale was able to detect those patients most likely to show poor results after COPD exacerbation. We hope to increase the validity of the discriminative ability of the tool by increasing the sample size and expect that in the near future it will prove useful in the daily practice of emergency physicians.

Emergency department reorganization by levels of urgency: impact of effectiveness and quality of care

Reorganización de un servicio de urgencias por niveles de urgencia. Impacto sobre la efectividad y calidad asistencial

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Objective: To analyze the effect of reorganizing an emergency department (ED) on effectiveness and quality.

Method: Setting: urban third-level university hospital ED. From the initial organization of care spaces in specialty areas (medicine, surgery and trauma), our ED was reorganized, as from 17/11/10, and divided into spaces according to MAT triage system levels of emergency care (I, II, III and IV-V), regardless of specialty and with no change in resources. Periods analyzed: A (before) from 16/12/09 to 11/01/10 vs. B (after) from

16/12/10 to 11/1/11. Indicators of effectiveness: number visits per day, total stay time. Quality indicators: objective (wait time, dropout rate, revisits, mortality) and subjective (complaints).

Results: After the reorganization, the number of visits increased (184 vs. 198, $p < 0.05$) total stay decreased (5.72 vs 5.09 hours, $p < 0.05$), wait time decreased (127 min vs 98 min, $p < 0.05$) and dropout rate decreased (4.8% vs 3.9%, $p < 0.05$). Mortality remained unchanged (0.42% vs 0.43% $p = ns$) and revisits increased (2.1% vs 3.3%, $p < 0.05$). Complaints decreased from 0.4% to 0.2% ($p < 0.05$).

Conclusions: Reorganization of the ED according to triage levels of urgency has allowed more patient visits to be made and improved most of the quality indicators studied except the rate of revisits.

Response to in-hospital cardiac arrest: the missing link in the chain of survival

Asistencia a la parada cardiorrespiratoria en el centro de salud. El eslabón perdido de la cadena de supervivencia

Introduction: The attention of patients suffering sudden cardiac arrest (SCA) cannot wait; we must act in less than 5 minutes. The only two measures that have proven effective in reducing SCA-related morbidity and mortality are chest compressions and early defibrillation. These measures should be applied in situ. The aim of this study was to analyze the real situation of SCA attention in health centers of the Murcia Health Area VI.

Objectives: To investigate the level of knowledge about SCA attention among professionals working in primary healthcare centers of our region, their self-perceived capacity and knowledge of equipment used to deal with cases of SCA.

Method: We performed a cross-sectional study with active health professionals working in primary healthcare centers of our region. Tools: 1) "ad hoc" survey to investigate socio-demographic and work variables, as well as those related with equipment (knowledge about location, content and protocol of use) with dichotomous (yes/no) questions and a question about whether the participants felt qualified to attend a case of PCR, with 5 response options. 2) Test-type questionnaire on basic CPR and equipment, of 12 questions with 4 possible answers, one valid (used in the training courses of the National CPR Plan). Variables are presented as mean $\pm$ standard deviation, frequencies and percentages. Comparisons were performed using Pearson chi-square test, ANOVA and linear trend.

Results: Of a total of 302 professionals, 282 (93.4% responded to the survey). Mean age was 48 ± 10 years, with a predominance of women (57.4%); 80.1% knew where the CPR equipment was kept, with differences between categories of professionals ($P < 0.001$); highest scores amongst the nurses (93.6%) and lowest in pediatricians (67.7%). Most (60.6%) were unaware of the CPR protocol and 37.2% did not know the contents of the equipment. Regarding self-perceived capacity to deal with SCA, 5.3% felt incapable, 66.7% only somewhat / little, 23.8% fairly capable and 3.2% felt very well qualified and capable. There were differences ($p = 0.001$) in the number of correct answers to the test (maximum 12) according to occupational category: 119 physicians (mean 6.0 ± 2.1), 112 nurses (4.1 ± 1.9), 32 pediatricians (5.4 ± 1.6), 19 midwives (5.1 ± 2.6). The highest score was obtained by the 11 residents (8.4 ± 2.1) and the lowest by the 202 permanent staff (4.7 ± 2.1) ($p = 0.001$). There were no differences in theoretical knowledge between professionals who believed they were highly capable, with 4.3 ± 1.5 correct answers, compared to those who felt unprepared (4.0 ± 2.5 and 5.2 ± 2.1 respectively) ($p = 0.14$).

Conclusions: Most professionals working in health centers showed a significant lack of knowledge about attending cases of SCA and did not feel competent to deal with SCA in an appropriate manner. There was no relationship between self-perceived capability and theoretical knowledge. There was general ignorance about CPR equipment in the workplace. Attention of SCA in the health centers studied presents important deficits that could lead to safety problems for our patients.

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Gender-based violence: implications for emergency care

Violencia de género. Implicaciones de la atención urgente

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Objectives: 1. To estimate the prevalence of gender-based violence (GBV) in women who visit the emergency department. 2. To determine whether GBV is associated with general state of health. 3. To analyze the correlation between GBV and socio-demographic variables.

Methods: Cross sectional. The study population consisted of women visiting the emergency department of a general urban university hospital located in Murcia. These women were selected in order of arrival and mild or low risk triage level, and who fulfilled the following inclusion criteria: age 18-75 years, present or past stable partner, absence of mental disability, native Spanish speaker, informed consent to participate in the study and answer the questionnaire, with data confidentiality. The sample pilot study included 30 women. As screening tools we used the GQH-28 Questionnaire, The abuse of women measurement scale (validated by the Andalusian School of Public Health, abridged and adapted from ISA, the Index of Spouse Abuse, 2008) and a sociodemographic questionnaire. The results are expressed as mean $\pm$ standard deviation and numbers with percentages. The comparison between variables was performed using Fisher's exact test and the Mann-Whitney test. We used SPSS for Windows, version 15 for all statistical analyses.

Results: The overall prevalence of GBV in the sample was 60%. Physical abuse was found in 23.3%, psychological abuse in 60% and sexual abuse in 33.3% of the sample. The mean score on the GHQ-28 was 8.63 ± 6.37 , with predominantly psychosomatic symptoms (2.97 ± 2.33). Taking 6 (no case) / 7 (case) as a cutoff point on the GHQ-28 score, 60% of cases had psychological distress and vulnerability. Suffering abuse was associated with three demographic variables: being married ($P = 0.008$), presence of children ($p = 0.05$), and only primary or no educational level ($P = 0.016$). We found a significant association between the presence of abuse and psychological distress, predominantly symptoms of anxiety / insomnia ($p = 0.002$) and depressive symptoms ($p < 0.001$).

Conclusions: GBV was present in a high percentage of women in the study sample. This prevalence was associated with high psychological vulnerability, with the most common symptoms being anxiety, depression and sleep disorders. From these relevant results we conclude that gender-based violence and abuse is not explicitly detected in the emergency department. Further study with a larger population sample is required, in order to confirm these results and support GBV interventions in and by our health care services.

Do we forego examining emergency patients out of respect for their privacy and is this safe?

Por respetar la intimidad de nuestros pacientes dejamos de realizar parte de nuestra actividad asistencial, ¿es seguro?

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Objectives: To assess the views of professionals working in hospital Emergency Departments (ED) of an autonomous community regarding the non-completion of physical examination due to lack of patient privacy.

Method: Multicenter study on the perception of patient privacy in the ED, using a specially prepared questionnaire designed to explore auditory, visual and overall privacy. The questionnaire was completed in nine EDs by a sample of workers in each one. The questionnaire consisted of 11 questions. We here present the results referring to the following two questions: 1) During the preceding week in the area of initial attention of emergency patients, did you at any time omit any physical examination / care work because you had the feeling that the patient could be seen by any unauthorized person? and 2) During the preceding week in the ED observation room, did you at any time skip any physical examination / care work because you had the feeling that the patient could be seen by any unauthorized person? We also collected information regarding the person who answered the survey: age, sex, year of completing medical

studies, year when he/she began working in the ED, professional status (emergency physician, MIR, nurse, assistant nurse) and hospital.

Results: Of a total of 330 questionnaires, 23.1% were answered by men vs. 76.9% by women, mean age 38.55 years. Only 44% of staff in the area of initial attention and 46% in the ED observation area had not omitted any health care activity in the preceding week for fear of violating patient privacy. No statistically significant differences were found according to gender, age or time since completion of studies or working experience in the ED. Regarding professional status, 38% of nurses, 36.8% of nursing assistants, 48.9% of emergency physicians and 51.9% of MIR said they did not omit any health care activity in the preceding week in the area of initial attention ($p = 0.18$). And in the observation room the proportions were 38.4% of nurses, 41.1% of nursing assistants, 49.4% of emergency physicians and 62.5% of MIR ($p = 0.05$). There were no differences between public versus private centers, but significant differences were observed according to hospital size (in the area of initial ED attention, 63% of staff in small hospitals did not omit any care activity compared to 43.3% in large hospitals and 31.2% in medium-sized hospitals ($p < 0.001$). Similar results were found in the ED observation room ($p = 0.002$). According to multivariate analysis, the likelihood of omitting a healthcare activity in the ED area of initial attention was 2.6 times higher for auxiliary nursing, 2.3 for nurses and 1.6 for emergency physicians with respect to MIR, and 61% lower in small hospitals compared to large.

Conclusions: Over half of ED staff reported non-performance of some physical examination / care work for fear of violating the patient's right to privacy. The risk was higher in large compared to small hospitals, and in nursing staff and emergency physicians compared to MIR. Omission or non-performance of certain practices in order to respect the privacy of patients could pose a risk to their welfare.

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Noninvasive hemodynamic monitoring in the emergency department: a new challenge and a step forward

Monitorización hemodinámica no invasiva en los servicios de urgencias: un nuevo reto, un paso más

Background: Many emergency departments integrate care areas (units for acute, semi-critical patients) and treat complex cases because they do not meet the criteria for admission to the intensive care unit (ICU) or because ICU beds are not available. Knowledge about hemodynamic parameters, until recently only obtained by invasive procedures in the ICU, could help optimize their management in the ED. In our ED we are currently using a novel non-invasive monitoring technique based on bioactance, in order to verify the feasibility of its use in our setting and evaluate the profile of patients who could benefit from it.

Methods: We used the NICOM™ system (Cheetah, Wilmington, Delaware, USA) based on bioactance with the application of four bipolar electrodes, placed on the chest. We measured cardiac output (CO), systolic stroke volume (SSV) peripheral resistance (PR), mean arterial pressure (MAP) and free pulmonary extravascular fluid. NICOM monitoring was conducted on patients located in one of the three rooms we have for diagnosis and treatment, with a total of 21 beds per room occupied by semi-critical patients (intermediate-high risk acute heart failure (AHF), severe respiratory failure with or without NIV, patients with SIRS or sepsis, multiple trauma, etc.). For assessment we used the passive leg raising protocol in which the legs are raised at an angle of 30° for 3 minutes with the patient supine, or the administration of 250 ml saline in patients where this was not possible. A 10% increase in the CO or SSV index was considered positive. The increase in CO reflects sufficient capacity of the heart to withstand increases in volume (fluid). Exclusion criteria: severe pulmonary hypertension, ascending aortic aneurysm.

Results: To date we have used the NICOM device in 19 patients (17 cases of AHF and

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2 septic shock), recording parameters continuously every 30 seconds for 12 hours. Trends of the parameters analyzed were recorded on a data base for further analysis if required. Handling the device is simple and requires no special training once its characteristics are known, and it can be used by physicians and nurses. The initial phase of calibration is the most sensitive, and correct placement of the electrodes and perfect adherence to the skin are necessary. In the management of AHF, the changing values of CO, SSV and VLS and PR facilitated treatment with fluids and dose adjustment of vasoactive drugs and inotropes. In septic processes, this information helped us to establish a differential diagnosis and optimize treatment. We had problems when calibrating the monitoring device in mastectomy patients, patients with pacemakers (despite following the manufacturer's recommendations), and highly tachypneic patients (because acute phase tachypnea limits its use). Another limitation was the price of the electrodes.

Conclusions: The NICOM device allows noninvasive hemodynamic monitoring and constitutes a useful tool for use in the ED. Knowledge of the parameters involved (cardiac output, peripheral resistance, systolic stroke volume), until recently outside the scope of ED physicians, provides information that allows optimizing treatment, and the device may prove to be an exceptionally useful tool for correct differential diagnoses in critically ill patients.

How are we applying cardioversion in atrial fibrillation?

Cardioversión de la fibrilación auricular: ¿qué estamos haciendo?

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Objetivos: Objectives: To evaluate our emergency department's approach to atrial fibrillation (AF) susceptible to cardioversion during a study period of 3 years (2008-2010). **Methods:** We studied all cases of AF susceptible to cardioversion during the study period. Variables collected were: underlying heart disease, absence or presence of previous AF, treatment performed (no treatment, frequency control, pharmacological or electric cardioversion), drugs used in pharmacologic cardioversion (flecainide or amiodarone), whether cardioversion was effective, thrombo-prophylaxis and destination of the patient. Data were analyzed with the program PASW 18.

Results: In 2008, 301 patients were discharged from the ED with a diagnosis of AF, of whom 72 were eligible for cardioversion. Three quarters (75%) had no underlying heart disease and 51.1% had paroxysmal AF. Cardioversion was performed in 87.5% of cases, mostly (84.7%) pharmacologically. Flecainide (42.8%) and amiodarone (57.2%) were used, proving effective in 89.1% of patients. Amiodarone was used in 16 patients amenable to treatment with flecainide. Thrombo-embolic prophylaxis was correctly performed in 67.2% of patients. Finally, 78.1% were discharged from the ED. In 2009, 319 patients were discharged from the ED with a diagnosis of AF, of whom 101 were eligible for cardioversion. Three quarters (75%) had no underlying heart disease and 56.9% had paroxysmal AF. Cardioversion was performed in 91.1% of cases, mostly (84.8%) pharmacologically. Flecainide (58.7%) and amiodarone (41.3%) were used, proving effective in 98% of patients. Amiodarone was used in 13 patients amenable to treatment with flecainide. Thrombo-embolic prophylaxis was correctly performed in 71.8% of patients. Finally, 78.3% were discharged from the ED.

In 2010, 293 patients were discharged from the ED with a diagnosis of AF, of whom 92 were eligible for cardioversion. Three quarters (75%) had no underlying heart disease and 51% had paroxysmal AF. Cardioversion was performed in 87.3% of cases, mostly (74.9%) pharmacologically. Flecainide (58.6%) and amiodarone (41.4%) were used, proving effective in 92.3% of patients. Amiodarone was used in 13 patients amenable to treatment with flecainide. Thrombo-embolic prophylaxis was correctly performed in 78% of patients. Finally, 78.3% were discharged from the ED.

Conclusions: In general, no progress in the use of cardioversion was observed in these three years; although the number of cases remained high, there was still a proportion of about 15% of patients where we could improve. Cardioversion was performed in 9 out of 10 patients. There was a slight improvement in thromboprophylaxis, increasing by 10% over these three years. Three quarters of patients are discharged from our department, which could be indicative of the importance of performing cardioversion there.

Diagnosing acute cholecystitis in the emergency department: utility of the consensus-based Tokyo guidelines

Diagnóstico de la colecistitis aguda en urgencias: utilidad de los criterios diagnósticos consensuados en la guía de Tokio

Introduction: Ever increasing numbers of patients with infection of biliary origin visit our emergency departments (ED). This is mainly due to the high prevalence of cholelithiasis (10% -15% of the adult western population) and the fact that 1-4% of these patients present clinical episodes each year. Acute cholecystitis (AC) is a complication of cholelithiasis in 90% of cases. Although diagnosis is classically based on the triad of abdominal pain, fever and leukocytosis, this has been questioned in recent publications. In 2007, the consensus-based Tokyo guidelines identified the following criteria for the diagnosis of AC: A. Local signs: 1) + Murphy's sign, 2) mass, pain, sensitivity in right upper quadrant. B. Systemic signs: 1) fever, 2) elevated CRP, 3) leukocytosis. C) Imaging. The final diagnosis: 1 local + 1 systemic sign, confirmed with imaging tests (most often abdominal ultrasound).

Objectives: The aim of this study is to evaluate the diagnostic value of the Tokyo guidelines in ED patients with AC.

Method: A retrospective descriptive study of medical records of patients discharged from our hospital with the diagnosis of CA, confirmed by pathology, between 2005 and 2010. The diagnosis of CA was performed on the basis of clinical symptoms and additional tests (ultrasound or CT), and finally confirmed by pathological examination of the specimen. Fever was defined as axillary T >37.8°C and leukocytosis >10.800/mm³.

Results: We diagnosed 94 cases of CA, confirmed by pathology. Of these, 55 were men (58.5%) and 39 women (41.5%). Regarding age, 29 (30.85%) were <60 years, 33 (35.10%) between 61-70 years and 32 (34.05%) >71 years. Mean age was 64.1 years. 60.6% (57 patients) had previous gallstones. Most (84 patients) presented with abdominal pain (right upper quadrant-epigastric), but only 45 (47.8%) had + Murphy's sign on physical examination; 20.2% (19 patients) had fever, 35.1% (33 patients), mild fever (<37.8°C) and 44.68% (42 patients) had no fever; 66% (62 patients) had leukocytosis. Only 32 patients had the classic triad, whereas 73 patients (77.65%) met the Tokyo guideline criteria for AC.

Conclusions: The profile of patients with CA visiting our ED was a man aged about 64 years, most with right upper quadrant pain and slightly more than half with low-grade fever / fever (55.3%) and leukocytosis (66%). Only 32 patients (34%) showed the classic triad of diagnostic symptoms. Using the Tokyo criteria, initial clinical suspicion of CA increased to 73 patients (77.65%). The Tokyo guidelines are a useful tool to improve the accuracy of suspected AC and reduce the time required for additional tests, and therefore, time to definitive diagnosis and treatment. These results support the utility of the Tokyo guidelines for the diagnosis of CA in the ED.

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Intravenous antibiotics for treating patients admitted to the home hospitalization program from the emergency department

Tratamiento antibiótico endovenoso en pacientes procedentes del servicio de urgencias e ingresados en la unidad de hospitalización a domicilio

Objectives: To analyze the efficacy and safety of home intravenous antibiotic treatment (TADE in Spanish) in emergency department patients. To assess the number of days of hospital stay saved by the home-hospital unit (HHU).

Methods: Prospective 3-year descriptive study (2008-2010) of emergency department patients enrolled for TADE.

Results: 65 patients were treated, 69% males, generating a total of 66 cases. Mean age was 70 years (19-91). The most common types of infection were urinary (42%) and respiratory (39%). The most frequently isolated bacteria were: *E. coli* (ESBL) (17%), *E. coli* (12%) and *P. aeruginosa* (8%). Urine culture was positive in 35% of

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cases. We used 11 types of antibiotics: ceftriaxone was the most common (38%), followed by ertapenem (23%) and piperacillin-tazobactam (17%). TADE was administered by elastomeric pump in all cases, self-administered by the patient himself or caregiver in 98% of cases. The types of venous access were: peripheral catheter (Abbot) (20%), peripherally inserted central catheter (PICC) (20%) and one case of port-a-cath. Complications arising from venous access were: phlebitis (11%), obstruction (11%), extravasation (8%) and accidental removal (4%). All were solved in the home except in one case where hospital transfer was required for PICC placement. Seven patients were readmitted to hospital (6 for clinical worsening and one nosocomial bacteremia), one of whom died. Average number of days with treatment was 9 (1-23), and average stay of 14 days. The number of hospital days saved was 932.

Conclusions: 1) infectious disease admissions from the emergency department to HAD for TADE proved effective (89.4% resolution of episodes. 2) TADE is safe (with a complication rate of 33%, all mild) and allows the treatment of multiple infections. 3) Admission to HAD from the emergency department saves a significant number of hospital days.

Prophylaxis for arterial thromboembolism after recent onset of atrial fibrillation: the view from the emergency department in changing times (the RHYTHM-AF-Spain study)

Profilaxis del tromboembolismo arterial después de la fibrilación auricular de reciente comienzo: la perspectiva de los servicios de urgencias en los tiempos del cambio (estudio RHYTHM-AF-Spain)

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Introduction: Several embolic risk stratification schemes have been developed to facilitate the prescription of thromboprophylaxis in atrial fibrillation (AF) associated with increased risk of arterial thromboembolism (75% as stroke). Anticoagulation reduces this risk, but its prescription is insufficient in all areas of care. In Spain, emergency departments are generally the first to deal with recent-onset AF, and represent an opportunity for primary prophylaxis, considered the most appropriate option given the serious consequences of arterial embolism.

Objectives: To analyze the embolic risk profile of patients with AF and susceptible to sinus rhythm restoration in the ED, the appropriateness of prescribing anticoagulation and the impact of new indications for thromboprophylaxis.

Methods: A 5-week multicenter observational study involving 52 EDs. We included adults with new onset AF (less than 48 hours from the onset of symptoms) or properly anticoagulated persistent AF and confirmed by ECG. We prospectively collected clinical and AF management variables. Embolic risk was calculated according to the guidelines of the European Society of Cardiology 2006 (CHADS 2) and 2010 (CHA2DS2-VASC: heart failure / dysfunction systolic hypertension, age > 75 years, diabetes, previous embolism, vascular disease). All data were monitored and informed consent was obtained of all patients.

Results: Of the 592 patients enrolled [mean age 66 years (SD 15)], 54% had a first episode of AF, 40% paroxysmal AF, and 5% persistent AF; 23% of patients were receiving anticoagulation at admission (6% first episode of AF, 39% paroxysmal AF and 73% persistent AF). According to the CHADS 2 scheme, 31% of patients had low risk of embolism, 29% medium and 40% high, and according to the CHA2DS2-VASC scheme these percentages were 31.6%, 8% and 60.5% respectively. Nearly half (47.5%) the patients were prescribed anticoagulation therapy at discharge: 100% of patients with anticoagulation on admission and only 32% of patients without anticoagulant therapy on admission. Considering the CHADS2 scheme, anticoagulant therapy was prescribed in 12% of patients at low risk, 34% medium risk and 53% high risk. According to the CHA2DS2-VASC scheme, these percentages were 12.5%, 22% and 48% respectively. The anticoagulant prescribed in 82% of patients was a vitamin-K antagonist (acenocoumarol in most cases). The main reasons for not prescribing anticoagulant therapy to patients with medium or high risk were "low risk to the patient"

(51%), "the risk of bleeding outweighs the benefit "(14%) or" contraindicated "(2.5%).

Conclusions: Most patients with recent-onset AF who visit the ED have high embolic risk, and therefore an indication for anticoagulation. However, as in other health care settings, anticoagulants are only prescribed in the ED to half the number of eligible patients. The impact of new patterns of stratification is high in ED, since the proportion of patients at high risk increases, and therefore indications for anticoagulation. It is necessary to implement strategies to increase the prescription of thromboprophylaxis to patients at high risk of embolism in the ED, to help reduce mortality and improve quality of life.

Sepsis in elderly patients age with community-acquired pneumonia

Sepsis en el anciano con neumonía adquirida en la comunidad

Introduction: The presence of sepsis alone is associated with increased risk of mortality. Age can modify the host response to disease. Thus, elderly patients are less likely to have leukocytosis, fever or tachycardia than a young patient, and these criteria define sepsis. Therefore, the risk of early mortality in the elderly patient may be inadequately assessed by the criteria of sepsis.

Objectives: To determine whether the presence of sepsis or any of its clinical signs are independently related to 30-day mortality in elderly patients over 65 years attending an emergency department for community-acquired pneumonia (CAP).

Method: A prospective non-interventional cohort study including all patients over 65 years with a diagnosis of CAP in the Emergency department, Clinical Hospital of Madrid during 2 months. Data collection: demographics (age and sex), clinical [temperature (T), heart rate (HR), respiratory frequency (RF)], and outcome (mortality at 30 days). Statistical analysis was performed with SPSS 19.0.

Results: We studied a total of 140 patients, mean age 80 years (SD 7.5), 101 (72%) men; 45 (35%) met the criteria for sepsis. Overall 30-day mortality was 27% (38). The presence of sepsis was not associated with increased mortality at 30 days after discharge ($p = 0.7$); 51% had HR ≥ 90 bpm, 48% had RF ≥ 20 rpm and 33% had T $\geq 38^\circ\text{C}$. RF ≥ 20 rpm was found to be an independent risk factor for 30 day mortality (OR = 2.8, CI 95% 1.3-6.1, $P = 0.007$). There was a decrease in mortality at 30 days in patients with T $\geq 38^\circ$ (OR = 0.20, 95% CI 0.02 to 0.53, $P = 0.001$). Multivariate analysis showed that RF < 20 rpm was a protective factor against 30-day mortality (OR 0.38, 95% 0.15-0.97, $P = 0.043$) and so was T $\geq 38^\circ\text{C}$ (OR 0.14, 95% CI 0.046 to 0.42, $P = 0.001$).

Conclusions: The presence of sepsis in elderly patients with CAP was not associated with increased 30-day mortality, but the presence of RF ≥ 20 bpm was. Fever (T $\geq 38^\circ\text{C}$) favored 30-day survival, which could reflect an adequate inflammatory response to acute infection.

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Deteriorating renal function as a predictor of 30-day mortality in patients with acute heart failure: the EAHFE study

El deterioro de la función renal como factor pronóstico de mortalidad a los 30 días en pacientes con insuficiencia cardiaca aguda (ICA). Estudio EAHFE

Introduction: Impaired renal function is a factor of poor prognosis in heart failure (HF) patients admitted to inpatient units. However a significant proportion of ICA patients are not admitted but managed in ED-dependent units or discharged.

Objectives: To test the predictive power of renal function deterioration as a predictor of 30-day mortality in patients with AHF treated in the ED.

Methods: An observational, prospective, multicenter study of patients with AHF, defi-

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ned by the Framingham criteria, seen in the ED of 19 Spanish hospitals. Variables: mortality within 30 days of ED care, age and sex, presence of classic risk factors (hypertension, diabetes mellitus and dyslipidemia), cardiovascular disease [coronary artery disease, previous heart failure (HF), cerebrovascular accident (CVA)], chronic obstructive pulmonary disease (COPD), degree of functional impairment as measured by the Barthel scale, baseline dyspnea functional class NYHA III-IV, anemia, systolic blood pressure (SBP) and arterial oxygen saturation at the time of ED arrival. The estimated glomerular filtration rate (eGFR) was calculated using the abbreviated formula of MDRD [$186.3 \times (\text{serum creatinine})^{-1.154} \times \text{age} - 0.203 \times (0.742 \text{ in women})$]. Comparison of proportions was performed using chi-square test, means by Student's t test and control for confounding factors was performed by multivariate analysis using logistic regression.

Results: The study included 2,431 patients. Mean age was 78.3 years (10.2) and 1,273 (52.4%) were women; 1,206 patients (49.6%) had an eGFR <60 ml / min. Mortality at 30 days in those with an eGFR <60 was 10.4% vs 5% in those with eGFR $\geq$ 60, $p < 0.0001$. In patients with eGFR <60 ml / min the following factors predominated: female sex (59.5% vs 45.1%, $p < 0.001$), anemia (63.1% vs 48.5%; < 0.001), SBP <100 mmHg at the time of ED care (6.1% vs 4%, $P = 0.037$), baseline Barthel Index <60 points (22.9% vs 17.7% $p = 0.005$), baseline NYHA III-IV functional class (30% vs 22.9%, $p < 0.001$), previous HF (74.7% vs 68%, $P = 0.001$) and stroke (12.2% vs 9.4%, $p = 0.041$). COPD appeared less frequently (22.2% vs 26.1%, $p = 0.038$). Controlling for confounding factors by logistic regression analysis, eGFR <60 ml / min was independently associated with mortality (OR 1.95, 95% CI 1.30-2.92).

Conclusions: In patients with AHF, impaired glomerular filtration is an important prognostic factor and independent of other factors related to it, such as low levels of SBP, baseline functional impairment and advanced functional class of dyspnea (NYHA III-IV).

Markers of quality in chest compressions: relation to return of spontaneous circulation

Parámetros de calidad de las compresiones torácicas y su relación con la recuperación de circulación espontánea

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Introduction: The "Q-CPR" is a device built into a monitor-defibrillator that measures and immediately and objectively corrects different parameters in active cardiopulmonary resuscitation (CPR). It has a sensor, applied to the chest while chest compressions are carried out, which collects data and transmits them to the monitor-defibrillator, showing the results and allowing the rescuer to correct their mistakes. The Municipal Service of Emergency Aid and Rescue (SAMUR-PC) has implemented this system in its operating units, thus allowing analysis of chest compressions and return of spontaneous circulation (ROSC).

Objectives: To analyze the performance of chest compression and parameters relating to ROSC.

Method: Prospective study. Population: patients treated with Q-CPR by SAMUR-PC from 07 November to 31 December, 2010. Variables: age, sex, previous basic CPR, initial rhythm, number of compressions per event, compressions per minute, number of compressions allowing return to original chest position, depth of compressions (mm) and ROSC. Data processing and analysis was performed using Access, Excel and SPSS v.17.0. P values <0.05 were considered statistically significant. Data privacy.

Results: We analyzed 176,791 compressions in 108 PCRs. Mean age 64.68 years (SD 17.82), 69.15% men. Bystander CPR was performed in 34.9% of cases prior to the arrival of the advanced life support unit (ALSU) and in 55.6% before the arrival of basic life support unit (BLSU); 12% were PCRs of traumatic origin; 29.9% VF, 56.1% asystole and 14% PEA (pulseless electrical activity). ROSC was achieved in

46.3%. The average number of compressions per minute was 105.71 (SD 7.89), with an average depth of 41.03 mm (SD 4.76), appropriate depth (according to ILCOR 2005) 76.51% (SD 17.63%), and 202.50 compressions per event that did not allow the chest to return to its normal position between one compression and the next. This parameter and the total number of compressions were significantly associated with ROSC ($p < 0.05$) while the other parameters were not. In rhythm analysis, the percentage of adequate depth in asystole and the average number of compressions turn to original chest position in asystole and VF were associated with ROSC ($p < 0.05$). There was no significant difference for any parameter in cases of PEA.

Conclusions: Q-CPR is an effective tool for the control and analysis of quality of chest compressions. After ILCOR 2010, the massage parameters to be amended are 1cm increase in compression depth and an extra 5 compressions per minute. Allowing the chest to recover between one compression and the next is also an important parameter for improving the rate of ROSC in both asystole and VF. In asystole, where massage is the cornerstone of treatment, ROSC is associated with the number of compressions performed with appropriate depth. In cases of PEA, none of the parameters on the quality of massage were associated with ROSC.

Thromboprophylaxis in emergency department patients: results of the URGENTV study

Tromboprofilaxis en pacientes médicos en los servicios de urgencias hospitalarios: resultados del estudio URGENTV

Introduction: Thromboprophylaxis in trauma and medical patients who require hospitalization is well established, but little studied in patients with acute medical conditions visiting the emergency department (ED) and not requiring hospitalization.

Objectives: To quantify the number of medical patients with moderate-high risk of thromboembolism that are discharged from the ED without appropriate thromboprophylaxis. To analyze the factors that are associated with non-prescription of thromboprophylaxis. To assess the short-term development of thromboembolism after ED discharge.

Methods: Retrospective multicenter observational epidemiological study (50 Spanish centers). Study period: June-October 2009. Population: patients consecutively discharged from the ED during the study period, attended for aggravated acute or chronic medical conditions. Variables evaluated were: demographic data and procedure, medical history, diagnosis at discharge and data after one month of discharge from the ED (development of deep vein thrombosis -DVT- and / or pulmonary embolism-PE). For the evaluation of adequate thromboprophylaxis, the PRETEMED scale was used. Data collection was performed by e-Clinical method based on an electronic format through a website. We performed a general descriptive analysis and the relationship between variables was established by multiple logistic regression analysis.

Results: We included a total of 2936 patients, of whom 656 were not scored on the PRETEMED scale, so finally 2280 patients were evaluated. Most (81.1%) patients had a moderate-high risk of thromboembolism, and 42.1% of them were discharged without thromboprophylaxis. Variables independently associated with non-prescription of thromboprophylaxis at discharge were: reduced mobility was not expected (OR 6.76, 95% CI 5.15 to 8.85, $p < 0.0005$), bed rest not expected at discharge (OR 19.67, 95% CI 13.83 to 27.99, $p < 0.0005$), a history of neurodegenerative disease (OR 1.74, 95% CI 1.20 to 2.51, $p = 0.003$) and advanced age (OR 1.036, 95% CI 1.02 to 1.04, $p < 0.005$). One month after discharge, 3.2% of patients with moderate-high risk had experienced a thromboembolic event, of whom 67.9% had not received thromboprophylaxis at discharge from the ED.

Conclusions: Most patients discharged from the ED had a high-moderate risk of thromboembolism. Of these, nearly half were discharged without appropriate throm-

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boprophylaxis. Scientific societies and researchers must continue to promote the importance of assessing the risk of disease thromboembolism in both acute and chronic medical patients with associated comorbidities.

Environmental change and acute vascular disease in the emergency department

Cambios atmosféricos y patología vascular aguda en urgencias

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Introduction: Sudden variation of physical conditions, such as ambient temperature (ambient T), relative humidity (RH) and atmospheric pressure (AP) may influence health. Several authors have correlated atmospheric changes and non-traumatic acute vascular disease (NTAVD) such as myocardial infarction (AMI), pulmonary thromboembolism (PTE), cerebral vascular event (CVE) and unstable angina (UA).

Objectives: To provide data on the influence of atmospheric changes on NTAVD in our setting.

Method: Prospective, observational. Period: 24 months (01/01/2009 to 31/12/2010). Sample: patients older than 14 years consulting for NTAVD and treated in the emergency department (ED). Variables: personal and demographic data, ED visit time slot, final diagnosis. During the study period, 4 daily measurements of AP, amb T and HR were taken in our area by the National Institute of Meteorology (at 07, 13, 18 and 24 hours). Univariate statistical analysis was performed using chi square test, Student's t test or ANOVA for the comparison of qualitative variables, and values of $p > 0.05$ were considered statistically significant.

Results: In this period 609 patients were treated for NTAVD (1.1% of all emergencies), 60% of whom were men ($p > 0.05$). The 609 cases occurred on 412 of the study period (730 days). ED visits took place predominantly in the morning between 9 and 12h ($p < 0.05$). NTAVD was mainly attended on days with lower AP ($p = 0.05$). A drop in AP two days before was associated with an increase in the number of ED visits for NTAVD ($p = 0.01$). Regarding ambient T, we observed greater increase in ED visits for CVE with lower ambient T ($p = 0.04$), with an annual distribution of predominance in the winter months, and a greater number of unstable angina patients at higher ambient T ($P = 0.04$).

Conclusions: 1) NTAVD accounted for 1.1% of ED visits at our hospital during the 2-year study period. 2) there was a higher prevalence of NTAVD in men than in women. 3) NTAVD was more common in winter months and ED visits took place predominantly between 9 and 12 am. 4) We found a significant relation between maximum ambient temperatures and the appearance of unstable angina. 5) We found a significant relation between minimum ambient temperatures and the appearance of cerebral vascular events. 6) The prevalence of NTAVD was significantly related with a drop in atmospheric pressure two days before. These findings may be useful for better management of resources in the ED.