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EPISTAXIS IN EMERGENCY MEDICAL PRACTICE IN ENT CLINIC BRASOV

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Abstract: *Epistaxis is a common reason for emergency in ENT, frequently met in patients treated with anticoagulants to prevent the appearance, development and relapse of arterial or venous thrombosis, allergic complications This is a retrospective 14 months (February 2007 – April 2008) comparative statistic study of clinical cases of ENT haemorrhages presented in Emergency ENT Unit of the Emergency Clinical Hospital of Brasov County re-evaluated for the period 01.01.2012-31.05.2012. A number of 431 patients were evaluated in the first study and 366 in the second. As a conclusion, we noticed the unfavourable influence of associated pathology typical to ageing patients or given by unsuitable associations of medicines.*

Key words: *epistaxis, anticoagulants, comorbidity.*

1. Introduction

Nosebleed (epistaxis) has been noticed to be one of the most frequent emergencies in ENT owing to the large number of cases.

These nosebleeds have mostly a clinically benign character (90% of the cases) but they can also be a cause of death.

Arterial vascularisation of nasal fossae comes from the internal and external carotid system. The epicentre of this area is in the antero-inferior area of the nasal septum, constituting the vascular spot Valsalva-Kiesselbach. [1]

The nasal turbinates are from an anatomical point of view an extremely rich venous pack subject to environmental variations of temperature, humidity and pressure.

The venous plexuses of the nasal turbinates are also subject to neuro-endocrine influences (periods, sexual excesses).

Bleeding that originates in the nasal fossae can externalize anterior through the nostrils and /or posterior in nasopharynx and oropharynx.

In children and young patients, anterior epistaxis is more frequent and it is caused by local traumatisms. [1]

In ageing patients, epistaxis is especially localized posterior and it is caused by a general condition (AHT in paroxysmal access, haemopathies, hepatopathies, etc., risk factors). In the elderly we can accept the existence of vascular fragility in various degrees which, together with AHT can determine vasculo-tensional epistaxis.

A hypertensive epistaxis can express the imminence of a brain haemorrhage, having the value of an alarm, salvation. [1]

The anticoagulant therapy has extended very much following a widening of indications and surgical practice on the cardiovascular system and transplants [5]. The aim of the treatment with anticoagulants is to prevent the appearance, spreading and relapse of arterial or venous thrombosis.

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The ENT doctor comes into contact with these patients to treat the haemorrhagic complications produced during the therapy with anticoagulants.

The externalization of haemorrhage (epistaxis, otorrhagias, gingivorragias, pulmonary, genital haemorrhages or melaena) draw the doctor's and the patient's attention to location and facilitates the precocious (early) diagnosis.

Internal haemorrhage or an untypical clinical description (unexplainable collapse, occlusive syndrome, haemoperitoneum with acute abdomen) occurring in a patient who is undergoing a treatment with anticoagulants can constitute complications accompanying the anticoagulant therapy. [1]

During the therapy with heparin, autoimmune thrombocitopoenia can be induced by heparin. (HTT) and it is suspected when between days 4 and 14 of treatment, thrombocytes decrease below 50%. Without any perceptible causes, a decrease in the number of thrombocytes appears as normal during the first days of therapy with heparin (thrombocytes recover in day 4], which shouldn't be mistaken for HTT through autoimmune allergic mechanism.

Haemorrhagic accidents caused by heparin are more rare, less serious and easier to treat than those caused by vitamin K antagonists.

Severe haemorrhages caused by vitamin K antagonists are usually due to overdose. [6]

Inadequate associations of medication (anti-inflammatory, AIDS, vasodilator, anticonceptionals) are very frequent. Association of anticoagulants antiplatelets anticoagulants increases the risk of haemorrhage which is maintained high for about 10 days, which means during the normal lifetime of afflicted thrombocytes.

The association of anticoagulants with tetracycline, hidantoina, chloramphenicol, paracetamol, furosemid, d-tirozine, cimetidine, MAO and others increases the risk of haemorrhage.

Rifampicine, barbiturics, cortisone, anticonceptionals decrease the effect of anticoagulants. [5]

The excessive uses of salt, alcohol, tobacco are encouraging factors for bleedings.

A haemorrhagic accident during the therapy with anticoagulants can draw attention to a deficient surveillance of indices of coagulation, poor education of patients about the existence of risky activities (professional, sport) the existence of a lesion suspicious of haemorrhagic relapse incompletely investigated, neglected comorbidities, unsuitable associations of medicines. [3]

The presence or absence of a causative factor and the nature of such a factor are the first relevant ones when deciding the use and length of treatment.

The rapid development of anticoagulant treatment involves incorporating information and therapeutic guiding lines in clinical practice, for being up to date.

In spite of refinement and standardization in their usage, there still remain some problems on the shoulders of the clinicians. [4]

Acenocoumarol has a narrow therapeutic range/spectrum and a large individual pharmacocynetical and pharmacodynamical variability. Apart from the exogenous factors, the genetic factor is conditioning the therapeutic answer. Thrombocytopenia is also known during the therapy with acenocoumarol. Vitamin K antagonists are not recommended until the thrombocytes get back to at least 100 000 elements/cmm. [4], [6].

The solution of every clinical case should be related to the clinical context (the clinical case of the haemorrhage, associated diseases, general condition, haematic picture/description, coagulation tests). [6]

The presence of a haemorrhage outside ENT can be an alarming symptom of an unbalance of the coagulation mechanisms.

The therapeutical approach of the ENT doctor is in all cases local specific to ENT domain and general measures after knowing the laboratory data about coagulation, haematic description, liver and renal description, calcium and so on.

Evaluation of coagulation during the treatment with vitamin K antagonist preparations is done testing INR (International Normalised Ratio). [4]

After this overview of bibliographical data regarding the pathology of nosebleed or/and systemic, with or without anticoagulant therapy, it can be stated that the solution of every clinical case must be related to the clinical context (the Clinique of the haemorrhage, associated diseases, general condition, haematic description, laboratory for coagulation.

The approach to these cases needs to be done in a different way, aiming both goals-the reason for bleeding and maintaining the prophylactic anti-thrombosis treatment.

2. Material and Methods

The study was based upon hospitalized patients or treated as out-patients (ambulatory) subject to a local and general clinical examination recorded in the observation sheets or in the register of consults of the ENT emergency, laboratory examinations, imagistic examinations, permanent clinical observation, interdisciplinary, creating the basis of a correct diagnose and a complex therapy.

The great number of patients permits objective conclusions on this pathology.

Constant clinical observation on clinical cases of epistaxis and the growth in their numbers in the last two years have determined us to analyse this pathology in the period 01.01.2012-31.05.2012 in ENT Clinic Brasov.

We investigated the pathology of epistaxis in the patients coming as emergency cases, with or without being hospitalized.

This is a statistic, retrospective, comparative study in haemorrhage case-book record from the period 2007 to 2008 which was the subject of my thesis on clinical cases of epistaxis in ENT Clinic Brasov, also presented in the students' session of scientific papers in 2011.

3. Results and Discussions

3.1. Results

The average age of patients with epistaxis was of 68, 5 years.

133 patients having epistaxis were hospitalized during the period 01.01.2012-31.05.2012, that is 6,35 % of the total cases of ENT emergency. (Total is 2094 cases).

There were also 233 cases of epistaxis coming as emergency but not needing hospitalization (being light forms or internal diseases, haematological diseases or needing hospitalization in cardiology department), a percentage of 11,99% from the total cases.

In emergency we remark the presence of 366 cases of epistaxis, 133 hospitalized and 233 treated ambulatory or in other clinic departments.

The cases that were hospitalized constitute the patients lot subject to a diagnostic and therapeutic protocol from which we obtained the following data:

- AHT essential stages I, II – 60 cases, representing 46,83%
- By-pass – 4 cases, representing 3%
- Mitral condition – 6 cases, representing 4,51 %
- Ischaemic heart disease – 35 cases, representing 26,31%
- Disorder of heart rhythm:
- Atrial fibrillation – 7 cases, representing 5,10%

- BRD – 7 cases, representing 5,10%
- Extrasystolic arrhythmia – 2 cases, representing 1,5%
- Atrioventricular block – 2 cases, representing 1,5%
- Varicose syndrome – 6 cases, representing 4,51%
- Profound thrombophlebitis – 2 cases, representing 1,5%
- Obstructional arteriopathy – 1 case, representing 0,5%

Anticoagulant therapy was applied to these diseases, in 61 cases, in various combinations (antiplatelets anticoagulants, anticoagulant vitamin K antagonists) constituting 45,87% from the cases of epistaxis.

In a number of 11 cases (8,29%) a renal condition was present, with chronic renal insufficiency, nephroangiosclerosis LED.

- Hepatopathy like A,C or B hepatitis, hepatic steatosis, liver cirrhosis constituted 17 cases, that represents 12,78% .
- Cases of diabetes, insulin dependent (four cases) and noninsulin dependent (13 cases) consisted of 17 patients.
- Obesity (16 cases) and dyslipidemia (five cases), and gout (two cases) totalized 23 cases, that represents 17,28%.

Inflammatory syndrome clinically present or in laboratory was differentiated by leucocytosis- 10 cases, high SSH– five cases, IARCS– six cases, post viral condition two cases, adding up to a total of 17,29%.

- Rendu-Osler disease – 1 case, representing 0,75%
- Bronchic asthma – 2 cases, representing 1,50%
- Silicosis – 1 case, representing 0,75%
- Hypernevrism – one case, representing 0,75%
- Pancreatitis – one case, representing 0,75%
- Allergies to drugs – two cases, representing 1,5%
- Tabacosis – four cases, representing - 3%
- Disorders of metabolism of calcium – three cases, representing 2,1%
- Chronic alcoholism 5 cases and acute alcoholism – 1 case, representing 4,2%
- Other causes (periods, overeffort, uncleared up) – 14 cases, representing 9,55%

The local nasal causes were represented by:

- Nasal tumours 2 cases - 1,59%
- Rhinosynusal traumatisms – five cases, representing 3,89%
- Nasal inflammations – two cases, representing 1,5%

At the patients hospitalized with nosebleeds, the haemorrhagic manifestation at the level of the nasal fossae was:

- Bilateral – 19 cases, representing 14,21%
- Unilateral – 114 cases, representing 85,79 %
- Posterior – 6 cases, representing 4,51%
- Anterior – 127 cases, representing 95,49%

The consequences of haemorrhages were:

- 23 clinical cases of anemia – 17,28%
- with values of haemoglobin lowered till 7,09 g
- red corpuscles 2580000
- haematocrit value 25% in 7 cases and needing substitution therapy.

Completing with the paraclinical data from the laboratory, we remark:

- 2 cases with the number of thrombocytes between 7.000 and 14.000/mm
- 4 cases with values between 28000 – 100000 elements/mmc
- 11 cases with values between 100000 and 150000 elements/mmc.

These 17 cases with thrombocytopenia represent a haematological affliction of 12,05% of the patients from the 133 patients with epistaxis.

Laboratory investigations especially useful in appreciating anticoagulant therapy have interpreted 38 samples with the following values:

- Between 0,97-1,5 – 24 cases, representing 63, 10%
- Between 1,5-2 – three cases, representing 7,80%
- Between 2-3 – three cases, representing 7,80%
- Between 3-4 – five cases, representing 13,50%
- Between – 6,26-7,40 cases , representing 37,80%

Three cases were exceptions through their high value: 1 case with INR-7,40, 1 case with INR 7,02 and 1 case with INR 6,26, representing 7,89% from the total of determinations.

These determinations and values were the consequence of using as anticoagulant therapy Thrombostop and Sintrom, in 21 cases (46,66%).

Antiplatelets medication (Aspenter 13 cases - 28, 1%, Aspirin 3 cases - 6,66%, Nurofen 4 cases - 8,8%, Plavix 2 cases - 4,44%, Trombex 2 cases - 4,44%) and 3 cases using the peripheral vasodilator Pentoxifilin 6,66% together with vitamin K antagonists constituted 45 clinical cases of coagulation modifications accompanying epistaxis.

These modifications were gingivoragies 2 cases - 4,44%, cutaneous ecchymosis two cases - 4,44% or digestive-maelena three cases - 6,66%.

In 15 clinical cases we noticed associations of medicines, of antiplatelets, anticoagulants, anticoagulants vitamin K antagonists, peripheral vasodilators in various quantities.

The cumulative effect of the medication given on anticoagulant purpose to patients with AHT exceeding normal values (27 cases) explains the appearance of hemorrhagic manifestations.

In 3 cases thrombocytopenia was present accompanying the use of Aspenter, Trombex or Nurofen.

We exemplify a number of particular cases that associate a number of extremely complex and different etiopathogenic factors:

1. Epistaxis, AHT, hepatopathy, Obesity
2. Epistaxis, Obesity, Diabetes, Anticoagulant therapy
3. Epistaxis, nasal tumour, chronic hepatitis, diabetes
4. Epistaxis, hypertensive cardiopathy, arrhythmia, thrombocytopenia
5. Epistaxis, leukaemia, thrombocytopenia
6. Epistaxis, coronarian disease, anticoagulant, obesity.

Comparative results between the two groups:

Group 1- patients with epistaxis studied during the period 01.02.2007 – 30.04.2008. [2]

Group 2 - patients with epistaxis studied during the period 01.01.2012 – 31.05.2012 in ENT clinic Brasov.

Group 1 – total of ENT emergency cases 6553, out of which patients with epistaxis 431, 6,73%

Patients with epistaxis hospitalized 154 = 35, 48 % of the total number of patients with epistaxis

Group 2 total of ENT emergency cases 2094, out of which patients with epistaxis as ENT emergencies 366 = 17, 47%

Patients with epistaxis hospitalized 133 = 36,47% % of the total number of patients with epistaxis.

4. Tables and diagrams

The percentage of patients with epistaxis out of the total of ENT emergencies:

Group 1	Group 2
6,73%	17,47%

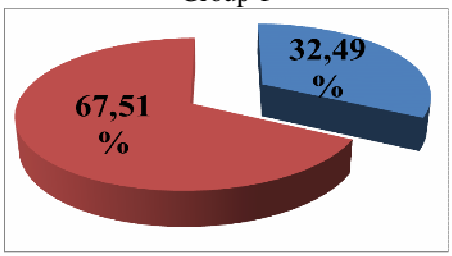
The percentage of patients with anticoagulant medication:

Group 1	Group 2
25,98%	45,87%

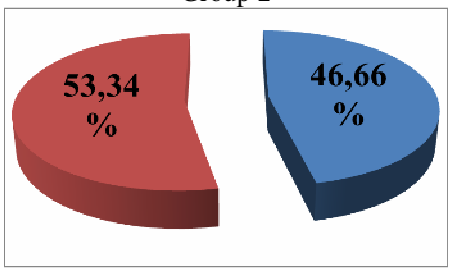
The percentage of anticoagulant antiplatelets and vitamin K antagonists therapy:

	Group 1	Group 2
Vitamin Kantagonists	32,49%	46,66%
Antiplatelets	67,51%	53,34%

Group 1



Group 2



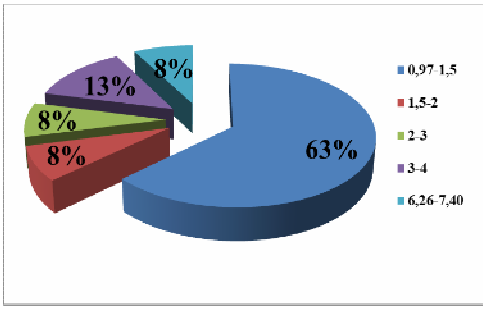
Comorbidities associated to epistaxis

	Group 1	Group2
Cardiovascular	59,21%	87,51%
Nephropathies	2,51%	8,29%
Hepatopathies	5,33%	12,78%
Diabetes	15,22%	12,78%
Dislipidemias	0	17,29%

To each of the patients of both groups there have been morbid associations of one or more diseases, each of one favouring the epistaxis appearance.

INR Values

Range	Cases	Percent
0,97-1,5	24	63,10%
1,5-2	3	7,80%
2-3	3	7,80%
3-4	5	13,50%
6,26-7,40	3	7,80%



5. Discussions

A comparison between the percentages of the clinical cases of epistaxis reveals a significant increase of the number of cases assisted between 01.01.2012-31.05.2012 (from 6,73% to 17,47%) compared to the previous period 01.02.2007-30.04.2008.

This numeric increase must be correlated with the data referring to the modification of comorbidities of AHT type, hepatopathies, nephropathies, dismetabolisms in the same period.

The number of hospitalized cases is about equal (35,40%-26,44%)

Therapy with anticoagulants has significantly increased as number of indications in 2012, 25,98% of the patients in group 1 and 45,87% from group 2

Prescriptions of Thrombostop, were 31,51% in the group from 2007-2008 and 46,66% for the group of 2012. Antiplatelets constituted 62,51% of the indications in 2007-2008 and 37,76% in 2012. These differences in using the anticoagulants are a consequence of more cardiovascular surgical interventions and appreciation of vitamin K antagonists as more useful in the prophylaxis of thromboembolism.

Cardiopathies, AHT associated with epistaxis increased from 59,33% in 2007-2008 to 87,51% in 2012.

Chronic kidney insufficiency associated to epistaxis increased from 2,51% group 1 to 8,29% in group 2.

Chronic hepathopathies were met in group 1 (2007-2008) in 5,33% increasing to 12,78% in group 2 (2012)

In the article published in JMB by Wusinczky E. and collaborators, they admit cardiovascular diseases, hepatitis as being on the increase in the population of Brasov County. [7]

Diabetes mellitus present approximately the same percentages 15,22% and 12,78%.

Dyslipidaemias, obesity constituted 17,29% from the comorbidities of epistaxis.

Primary thrombocytopenia or secondary have determined and aggravated 12,03% of the cases in 2012.

Improvement of the laboratory techniques and enlarging the laboratory basis helped to complete and widespread information upon the comorbidities of epistaxis.

A special attention is necessary to the results of INR testing at the patients with epistaxis. In 2012, 71,04% had INR values inefficient to the prophylactic aim.

Among the possible causes can be the large time intervals of evaluation, changing the testing laboratory, lack of control regarding a correct dosage of medication, neglect of population, including abandoning the testing.

In the introduction we gave the bibliographic data upon the influence of the genetic factor, of medication, of food upon the anticoagulant therapy. The diversity of pathologies associated with epistaxis define the term of epistaxis as symptom affecting the vascular, thrombocitary, plasmatic time of coagulation AHT even in the absence of anticoagulant therapy can be the main cause of nasal bleeding through affecting the vascular wall in elderly people (fragility) and the hypertensive paroxisms determining the vasculo-tensional epistaxis.

The local nasal causes only constituted 6,89% of the cases (traumatisms, tumours, inflammations) and generally determined clinically complicated evolutions.

The consequence of haemorrhages is the appearance of anemia, in 17,20% of the cases we had severe anaemia with Hg 7-8g needing transfusions izogroup izo Rh.

The average age of the hospitalized patients was approximately equal 65,7 years, 68,5 years, an age that associated very varied comorbidities.

6. Conclusions

The vascular anatomy of the nasal fossae is extremely exposed to the endogenous and exogenous factors and constitutes a favouring factor of nose bleeds. Epistaxis, otorrhagias, gingivorragias are emergencies and present an important number of cases becoming the main emergency in ENT

Epistaxis as a symptom constitutes a mirror of the state of health of the population, a reflexion of the cardiovascular, hepatic, hematologic pathology, of the anticoagulant therapies which are more and more applied in the cardiovascular surgery, transplant and dialysis.

These objective observations in this study obliges to the application of the therapy of epistaxis in medical multidisciplinary teams.

Every clinical case must be individualized aiming to both goals- controlling the bleeding and maintaining the prophylactic anti-thrombosis treatment.

The treatment with anticoagulants is subject to genetic influence of every individual, to associated medicine, to the patient's preoccupation with the disease.

Self-medication practiced on a large scale by the patients is a risk factor for health and is often a cause of various bleedings, including epistaxis.

The ENT clinic in Brasov insures 24 hours medical assistance necessary to cases of ENT haemorrhages.

In the future, the ENT emergency service must be included in the central medical unit of the Emergency Clinical Hospital of Brasov County.

The rapid development of anticoagulant treatment involves incorporating the new information and therapeutical guiding lines in the clinical practice. In spite of the refinement and standardizing in their usage, some problems remain on the shoulders of the clinicians.

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