

REMARKS ON PATIENTS ENTERING HOSPITAL CARE FOR "DISEASES OF VEINS, LYMPHATIC VESSELS AND LYMPH NODES, NOT ELSEWHERE CLASSIFIED (I80-I89)"

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INTRODUCTION

Venous and lymphatic diseases are very common and affect around one third of the adult population.

The clinical manifestations and severity of these diseases vary from simple embarrassment or aesthetic imperfection to intense pain, disability or even instant death. Venous diseases occur in the veins of all tissues and organs, but the most common pathological manifestations are in the veins of the lower limbs (Varicose vein disease, Thromboembolic disease, Venous malformations) or upper limbs (Upper limb thrombophlebitis). In terms of disease burden, many of the conditions associated with venous disease require surgery or costly procedures, and one of the common problems is the relapses that may occur, given the specific structural features and pressure regime in the venous territory. The burden caused by venous disease is thus also amplified by the need for effective and efficient monitoring of stage of disease. In this regard, postoperative monitoring of patients with varicose vein disease should be continued over a period of 5 or more years, according to the International Society of Phlebology [1]. On the other hand, although these pathologies do not appear as direct causes of death, one of the most common antecedent causes in deceased patients is venous embolism, one of the major complications of chronic venous insufficiency.

In Romania, one out of three people has a condition related to venous pathology (PEGASUS study). Patients with these pathologies are admitted and treated in various hospital wards, and are cared for by doctors with different specialties (surgeon, internal medicine doctor, cardiologist, general practitioner, dermatologist, etc.), taking into account the fact that phlebology does not appear in the nomenclature of medical disciplines as a separate entity in Romania.

Goal and Methods. In-depth statistics and analyses on the prevalence, incidence, complications and, in general, the burden caused by venous pathologies are limited in Romania, and the aim of this article is to identify hospitalization patterns and to present the current overview of hospitalizations due to venous diseases and diseases of the vessels and lymph nodes, revealed from a cross-sectional study carried out in 2023, based on data extracted from the DRG National database. In these regard, socio-

INTRODUCTION. Venous and lymphatic diseases are complex diseases with a large clinical diversity, requiring hospital approach for surgical resolution or homeostatic maintenance and balancing. Clinical management includes effective and efficient non-invasive diagnostic and therapeutic procedures that allow acute or chronic case resolution toward positive clinical outcomes, leading to a significant increase in patients quality of life.

THE AIM of this article is to describe hospitalization patterns and to present the current state of hospitalizations due to venous diseases and diseases of the vessels and lymph nodes.

RESULTS. The pattern shows that of all patients hospitalized with venous and lymphatic vessel and lymph node disease prevalent are females vs. males (54% vs. 46%), with a mean age 54-59 years, urban vs. rural (54% vs. 46%), admission being performed predominantly at GP's referral, with an average length of hospitalization of 4-5 days and treatment in wards with a surgical profile (over 52%).

CONCLUSIONS. Venous and lymphatic vessel and lymph node disease is a complex pathological entity with many specificities, and the treatment of these pathologies is carried out in various clinics and departments of hospitals. The evidence provided in this paper can be used to assess the current status of venous and lymphatic pathology case management in Romanian hospital units.

The gathering of clinical, administrative or financial data on hospitalised morbidity due to venous and lymphatic diseases needs to be continued and complemented by in-depth, detailed research on relevant issues that can sustain policy and strategic decision-making in the field of phlebology, an area that deserves much more extensive attention from policy makers, researchers and other stakeholders.

Keywords: hospitalization, venous and lymphatic disease, Romania.

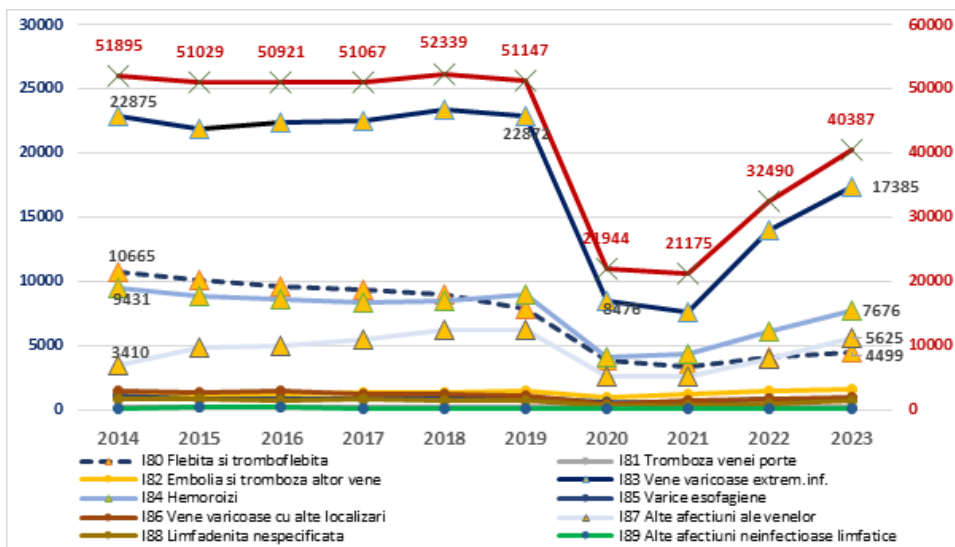
demographic features (age, gender, occupation) and clinical descriptions of continuous hospitalizations (hospitalization of at least 12 hours) were analyzed for patients discharged in 2023 from the Romanian hospitals reporting mandatory clinical data (main diagnosis, secondary diagnosis, procedures).

In order to assess the trend of hospitalizations, we extracted data reported for the ten-year period (2014-2023) for all hospitalized patients with a main diagnosis as in the ICD10 pathology of block of venous and lymph vessels and lymph nodes diseases were extracted: I80 Phlebitis and thrombophlebitis, I81 Portal vein thrombosis, I82 Other venous embolism and thrombosis, I83 Varicose veins of lower extremities, I84 Haemorrhoids, I85 Oesophageal varices, I86 Varicose veins of other sites, I87 Other disorders of veins, I88 Nonspecific lymphadenitis, I89 Other noninfective disorders of lymphatic vessels and lymph nodes.

RESULTS

In the first part of the ten-year period analysed (2014-2023), we observed a constant evolution can be observed in the value of the indicators measuring the volume of continuous hospitalisations due to venous and vascular and lymph node diseases, both within the category and for each pathology defined by ICD10 code.

Figure 1. Evolution of hospitalisations due to venous, vascular and lymph node diseases, 2014-2023



ry, followed by Other disorders and Phlebitis and Thrombophlebitis with about 14% and 11% of the total respectively (Table 1).

The analysis of hospitalizations by ward at discharge revealed that the most cases (52% of hospitalizations) are adults patients discharged from surgical wards where they undergone interventional surgery. Thus, most frequently, adults with venous and lymphatic pathology are admitted and treated on general surgery wards (37%) and cardiovascular surgery wards (14%) for surgical intervention. In smaller percentages, the wards for discharge were thoracic surgery, plastic and reconstructive surgery, maxillofacial surgery or neurosurgery - Table 2.

The medical treatment of venous and lymphatic pathologies in hospitals was carried out in departments with differing profile, dermatology being at the top of the list (17% of continuous hospitalizations), followed by cardiology (12%) and internal medicine (10%) - Table 3.

Only 3,6% of venous and lymphatic pathology hospitalised was registered among children, who were hospitalised mainly in paediatric wards - Table 4.

Hospitalisation model in 2023

As to the pattern of the patients hospitalized with venous and lymph vessel and lymph node diseases, it is observed that these hospitalized diseases occur predominantly in Females vs. Males (54% vs. 46%), mean age 54-59 years, urban vs. rural (54% vs. 46%).

The analysis of the way patients were admitted revealed that, as of 2023, most of the admissions (43.3%) were approved after receiving a note from the general practitioner (family doctor), which emphasizes their essential role in referring to the specialist those cases requiring special hospital care.

In second place (more than one third of admissions) are admissions without a referral, and in third place (about one fifth of admissions) are admissions by referral from a medical speciality - Table 5.

Less than 1.9% of patients had no health insurance or had voluntary insurance, while the vast majority (98.1% of patients) had health insurance that provided funding for their hospital care.

The average length of stay in hospitals (ALOS) for patients with venous, vascular and lymph node disease was 4-5 days. The longest hospital stays were recorded, on average, for patients with I81 Portal vein thrombosis (7.52 days), I82 Other venous embolism and

Table 1. Number and percentage share of hospitalisations by pathology, 2023

| ICD10 Diagnosis | No. of hospitalizations | % hospitalizations |
|---|-------------------------|--------------------|
| I83 Varicose veins of lower extremities | 17385 | 43.0% |
| I84 Haemorrhoids | 7676 | 19.0% |
| I87 Other disorders of veins | 5625 | 13.9% |
| I80 Phlebitis and thrombophlebitis | 4499 | 11.1% |
| I82 Other venous embolism and thrombosis | 1620 | 4.0% |
| I88 Nonspecific lymphadenitis | 1364 | 3.4% |
| I86 Varicose veins of other sites | 942 | 2.3% |
| I85 Oesophageal varices | 820 | 2.0% |
| I89 Other noninfective disorders of lymphatic vessels and lymph nodes | 249 | 0.6% |
| I81 Portal vein thrombosis | 207 | 0.5% |
| Total | 40387 | 100.0% |

Subsequently, the steady trend from 2014 to 2019 was interrupted by the onset of the pandemic in 2020 (Figure 1); this evolution is mainly due to the restrictions imposed during the emergency and alert period at the beginning of the SARS-COV2 pandemic. Thus, the strict restrictions on surgical interventions only for very urgent situations that do not require postponement led to the emergence of a behaviour of avoidance of referral to hospital units by patients, as well as a decrease in the number of hospitalizations during that period (also taking into account that many of the pathologies in this category of diseases are either non-surgical conditions or conditions for which surgery could be postponed).

It is obvious that the evolution of hospitalisations for the whole category of Venous and lymphatic diseases is strongly influenced by the evolution of hospitalisations for varicose veins of the lower limbs (I83), the two line graphs being almost identical. This similarity arises because "Varicose veins of the lower limbs" is the predominant pathology (in terms of absolute number of hospitalisations and percentage share) within the category of Diseases of the veins, vessels and lymph nodes.

The second place in the ranking was taken by Haemorrhoids, representing 19% of the pathologies in this category.

Table 2. Evolution of hospitalisations by discharge ward, 2014-2023, adults in surgical wards

| TYPE OF WARD | Year 2014 | Year 2015 | Year 2016 | Year 2017 | Year 2018 | Year 2019 | Year 2020 | Year 2021 | Year 2022 | Year 2023 | % 2023 |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ADULTS IN SURGICAL WARDS | 25923 | 24923 | 24590 | 24045 | 24773 | 24093 | 10993 | 11373 | 17177 | 20993 | 52.0% |
| General surgery | 20831 | 20025 | 19856 | 19246 | 19410 | 18537 | 8383 | 8449 | 12291 | 14866 | 36.8% |
| Vascular surgery | 2595 | 2650 | 2610 | 2909 | 3389 | 3739 | 1785 | 1952 | 3432 | 4482 | 11.1% |
| Cardiovascular surgery | 660 | 757 | 743 | 699 | 775 | 749 | 355 | 476 | 784 | 858 | 2.1% |
| Urology | 664 | 628 | 652 | 583 | 607 | 525 | 230 | 243 | 369 | 451 | 1.1% |
| Plastic and reconstructive surgery | 336 | 234 | 259 | 221 | 232 | 212 | 89 | 86 | 134 | 108 | 0.3% |
| Oncological surgery | 72 | 72 | 35 | 56 | 51 | 49 | 19 | 38 | 46 | 68 | 0.2% |
| Orthopaedics and traumatology | 242 | 149 | 181 | 179 | 167 | 132 | 45 | 20 | 16 | 44 | 0.1% |
| Otorhinolaryngology | 44 | 44 | 22 | 19 | 13 | 42 | 20 | 19 | 24 | 32 | 0.1% |
| Obstetrics - Gynaecology | 226 | 171 | 131 | 74 | 63 | 41 | 14 | 16 | 30 | 21 | 0.1% |
| Maxillofacial surgery | 24 | 28 | 19 | 19 | 27 | 23 | 22 | 32 | 16 | 17 | 0.0% |
| Heart and major vessel surgery | 87 | 82 | 9 | 6 | 13 | 11 | 5 | 18 | 7 | 16 | 0.0% |
| Thoracic surgery | 15 | 18 | 16 | 22 | 19 | 13 | 11 | 12 | 12 | 13 | 0.0% |
| Oftalmology | 3 | 3 | 1 | 6 | 2 | 13 | 8 | 7 | 4 | 7 | 0.0% |
| Neurochirurgy | 2 | 5 | 5 | 5 | 4 | 4 | 4 | 1 | 6 | 4 | 0.0% |
| Laparoscopic surgery | | | 1 | | | 3 | 2 | 3 | | 3 | 0.0% |
| Gynaecology | 2 | 1 | 2 | 1 | 1 | | 1 | 1 | 1 | 2 | 0.0% |
| Obstetrics | 120 | 56 | 48 | | | | | | 5 | 1 | 0.0% |

Table 3. Evolution of hospitalisations by discharge ward, 2014-2023, adults in medical wards

| TYPE OF WARD | Year 2014 | Year 2015 | Year 2016 | Year 2017 | Year 2018 | Year 2019 | Year 2020 | Year 2021 | Year 2022 | Year 2023 | % 2023 |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|
| ADULTS IN MEDICAL WARDS | 24422 | 24614 | 24844 | 25418 | 26195 | 25659 | 10222 | 8931 | 14167 | 17958 | 44.5% |
| Dermatovenereology | 11438 | 10513 | 10703 | 11085 | 11367 | 11344 | 3568 | 2660 | 5247 | 6772 | 16.8% |
| Cardiology | 4646 | 5716 | 5740 | 5852 | 6305 | 5762 | 2845 | 2566 | 3816 | 4760 | 11.8% |
| Internal medicine | 5472 | 5773 | 6008 | 6093 | 5982 | 5801 | 2556 | 2155 | 3140 | 3918 | 9.7% |
| Gastroenterology | 2518 | 2228 | 2060 | 2108 | 2228 | 2438 | 1101 | 1384 | 1766 | 2251 | 5.6% |
| Infectious diseases | 130 | 170 | 112 | 66 | 112 | 90 | 34 | 44 | 52 | 57 | 0.1% |
| Diabetes. nutrition. metabolic diseases | 17 | 15 | 26 | 38 | 24 | 22 | 7 | 14 | 26 | 46 | 0.1% |
| Nephrology | 68 | 51 | 40 | 46 | 42 | 37 | 19 | 16 | 20 | 39 | 0.1% |
| Neurology | 18 | 20 | 26 | 31 | 27 | 24 | 17 | 23 | 28 | 32 | 0.1% |
| Pulmonology | 11 | 7 | 9 | 6 | 9 | 7 | 1 | 5 | 6 | 15 | 0.0% |
| Coronary Intensive Care | 22 | 49 | 50 | 47 | 42 | 65 | 35 | 23 | 13 | 15 | 0.0% |
| Oncology | 31 | 35 | 25 | 15 | 21 | 23 | 14 | 17 | 13 | 11 | 0.0% |
| General medicine | | | 10 | 12 | 15 | 24 | 14 | 6 | 13 | 10 | 0.0% |
| Rheumatology | 10 | 4 | 8 | 4 | 9 | 9 | 4 | 3 | 3 | 10 | 0.0% |
| Hematology | | | | | | | | 11 | 9 | 8 | 0.0% |
| Radiotherapy | | 2 | 5 | 1 | 2 | 4 | 1 | 1 | 9 | 5 | 0.0% |
| Endocrinology | 12 | 3 | 6 | | 1 | | 1 | 1 | 1 | 2 | 0.0% |
| HIV/SIDA | 6 | 7 | 3 | 3 | | | | | 2 | 2 | 0.0% |
| Gynaecological oncology | | | 1 | | | 1 | | | | 2 | 0.0% |
| Others | | | 1 | | | 1 | | | | 2 | 0.0% |
| Immunology and allergology | 3 | 1 | 7 | 3 | 8 | 5 | 2 | 2 | 1 | 1 | 0.0% |
| Toxicology | 7 | 7 | 4 | 5 | 1 | 1 | | | | | 0.0% |
| Family medicine | 10 | 9 | | | | | | | | | 0.0% |
| Acute psychiatry | 2 | | | 2 | | 1 | 2 | | 1 | | 0.0% |
| Osteoarticular TB | | 2 | | 1 | | | 1 | | 1 | | 0.0% |
| Parasitology | 1 | 2 | | | | | | | | | 0.0% |



Table 4. Evolution of hospitalisations by discharge ward, 2014-2023, paediatric wards

| TYPE OF WARD | Year 2014 | Year 2015 | Year 2016 | Year 2017 | Year 2018 | Year 2019 | Year 2020 | Year 2021 | Year 2022 | Year 2023 | % 2023 |
|---|-------------|-------------|-------------|-------------|-------------|-------------|------------|------------|-------------|-------------|-------------|
| CHILDREN CASES | 1550 | 1492 | 1487 | 1604 | 1371 | 1395 | 729 | 871 | 1146 | 1436 | 3.6% |
| Pediatric surgery and orthopedics | 763 | 622 | 567 | 559 | 396 | 457 | 271 | 365 | 410 | 475 | 1.2% |
| Pediatric surgery | 301 | 363 | 439 | 498 | 531 | 461 | 215 | 242 | 329 | 414 | 1.0% |
| Paediatrics | 404 | 426 | 396 | 450 | 351 | 398 | 198 | 212 | 334 | 470 | 1.2% |
| Hematology | 30 | 29 | 31 | 29 | 41 | 30 | 10 | 4 | 13 | 32 | 0.1% |
| Cardiology | 11 | 8 | 8 | 17 | 16 | 14 | 17 | 12 | 19 | 15 | 0.0% |
| Neurology | 2 | 1 | | | | | 1 | 1 | 3 | 7 | 0.0% |
| Urology | 3 | 3 | 6 | 3 | 3 | 1 | 1 | 2 | 7 | 6 | 0.0% |
| Infectious diseases | 6 | 12 | 6 | 8 | 15 | 12 | 2 | 2 | 15 | 5 | 0.0% |
| Paediatrics and paediatric rehabilitation | 5 | 10 | 9 | 10 | 2 | 6 | 8 | 17 | 8 | 4 | 0.0% |
| Nephrology | 3 | 3 | 6 | 5 | 1 | 3 | 2 | 6 | 1 | 3 | 0.0% |
| Immunology and allergology | 7 | 3 | | 10 | 5 | 2 | 2 | | | 2 | 0.0% |
| Neonatology | | 3 | 2 | 2 | 3 | 2 | | 1 | | 2 | 0.0% |
| Pulmonology | 9 | 1 | 6 | 2 | 6 | | | 1 | 5 | 1 | 0.0% |
| Orthopaedic | | 5 | 5 | 6 | 1 | 2 | | 1 | | | 0.0% |
| Otorhinolaryngology | | | 1 | 1 | | 1 | 1 | 2 | | | 0.0% |
| Oncology | 6 | 3 | 5 | 4 | | 6 | 1 | 3 | 2 | | 0.0% |

Table 5. Situation of continuous hospitalisations by place of residence and type of admission, year 2023

| Type of admission | Rural | Urban | Total | Rural% | Urban% | Total% |
|-------------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| GP's referral | 7449 | 10026 | 17475 | 40.6% | 45.5% | 43.3% |
| Without referral | 6795 | 7698 | 14493 | 37.0% | 34.9% | 35.9% |
| Specialist's referral | 3891 | 4057 | 7948 | 21.2% | 18.4% | 19.7% |
| On request | 98 | 148 | 246 | 0.5% | 0.7% | 0.6% |
| Others | 65 | 78 | 143 | 0.4% | 0.4% | 0.4% |
| Inter-hospital transfer | 44 | 38 | 82 | 0.2% | 0.2% | 0.2% |
| Total | 18342 | 22045 | 40387 | 100.0% | 100.0% | 100.0% |

Table 6. The average length of stay (ALOS) in hospitals by disease group, year 2023

| Code | Disease Group Name | ALOS |
|---------|---|------|
| I81 | Portal vein thrombosis | 7.52 |
| I82 | Other venous embolism and thrombosis | 6.74 |
| I85 | Oesophageal varices | 5.95 |
| I80 | Phlebitis and thrombophlebitis | 5.93 |
| I89 | Other noninfective disorders of lymphatic vessels and lymph nodes | 5.57 |
| I83 | Varicose veins of lower extremities | 4.78 |
| I87 | Other disorders of veins | 4.44 |
| I84 | Haemorrhoids | 3.64 |
| I88 | Nonspecific lymphadenitis | 3.09 |
| I86 | Varicose veins of other sites | 2.62 |
| Average | | 4.66 |

thrombosis (6.74 days), I85 Oesophageal varices (5.95 days), I80 Phlebitis and thrombophlebitis (5.93 days), and I89 Other noninfective disorders of lymphatic vessels and lymph nodes (5.57 days). The other average lengths of stay analysed were less than 5 days.

The lowest ALOS was recorded in patients with I86 Varicose veins in other sites (2.62 days) such as: I86.0 Sublingual varices; I86.1 Scrotal varices, Varicocele; I86.2 Pelvic varices; I86.3 Vulval varices (Excludes: complicating: childbirth and the puerperium (O87.8), pregnancy (O22.1)); I86.4 Gastric varices; I86.8 Varicose veins of other specified sites; Varicose ulcer of nasal septum – Table 6.

97% of patients hospitalized with venous and lymphatic vessel and lymph node diseases recovered or improved their health, which shows the quality of the specific care during continuous hospitalization.

Only 2.3% had a stationary status at discharge, while only 3 out of 100 hospitalised patients died during continued hospitalisation. Most of the deaths were caused by the

Table 7. Discharge status (no. and % of hospitalisations) by disease group, year 2023

| Code | Disease Group Name | Deceased (nr.) | Clinical deterioration (nr.) | Clinically stable (nr.) | Clinically improved (nr.) | Cured (nr.) | Total (nr.) | Deceased (%) | Clinical deterioration (%) | Clinically stable (%) | Clinically improved (%) | Cured (%) |
|--------------|---|----------------|------------------------------|-------------------------|---------------------------|--------------|--------------|--------------|----------------------------|-----------------------|-------------------------|--------------|
| I80 | Phlebitis and thrombophlebitis | 16 | 16 | 70 | 3890 | 507 | 4499 | 0.4% | 0.4% | 1.6% | 86.5% | 11.3% |
| I81 | Portal vein thrombosis | 4 | 2 | 43 | 145 | 13 | 207 | 1.9% | 1.0% | 20.8% | 70.0% | 6.3% |
| I82 | Other venous embolism and thrombosis | 30 | 9 | 77 | 1417 | 87 | 1620 | 1.9% | 0.6% | 4.8% | 87.5% | 5.4% |
| I83 | Varicose veins of lower extremities | 21 | 13 | 220 | 11758 | 5373 | 17385 | 0.1% | 0.1% | 1.3% | 67.6% | 30.9% |
| I84 | Haemorrhoids | 4 | 4 | 260 | 4169 | 3239 | 7676 | 0.1% | 0.1% | 3.4% | 54.3% | 42.2% |
| I85 | Oesophageal varices | 49 | 3 | 52 | 701 | 15 | 820 | 6.0% | 0.4% | 6.3% | 85.5% | 1.8% |
| I86 | Varicose veins of other sites | 4 | | 26 | 329 | 583 | 942 | 0.4% | 0.0% | 2.8% | 34.9% | 61.9% |
| I87 | Other disorders of veins | 7 | 1 | 133 | 3995 | 1489 | 5625 | 0.1% | 0.0% | 2.4% | 71.0% | 26.5% |
| I88 | Nonspecific lymphadenitis | | | 25 | 1023 | 316 | 1364 | 0.0% | 0.0% | 1.8% | 75.0% | 23.2% |
| I89 | Other noninfective disorders of lymphatic vessels and lymph nodes | | 1 | 21 | 170 | 57 | 249 | 0.0% | 0.4% | 8.4% | 68.3% | 22.9% |
| Total | | 135 | 49 | 927 | 27597 | 11679 | 40387 | 0.3% | 0.1% | 2.3% | 68.3% | 28.9% |

clinical condition associated with I85 Oesophageal varices; the in-hospital mortality in these hospitalized patients was 6% (49 deaths out of 820 hospitalizations with oesophageal varices) _ Table 7.

CONCLUSIONS

The progress made in the prevention, diagnosis and the effective and efficient treatment of varicose vein disease needs to be capitalised and implemented within an organisational and functional framework that allows for the systematisation of the operationalisation of such diagnostic and treatment tools and methods.

Thus, duplex scanning is an effective tool and method for postoperative diagnosis and monitoring [2,3] that should be widely used for these patients, along with comprehensive assessment of the influence of venous pathology on the patient's quality of life using specialized questionnaires [4].

Venous, lymphatic vessel and lymph node disease is a complex pathological entity with many specificities, and the therapeutic approach to these pathologies is carried out in various clinics and departments of hospital units. The evidence provided in this paper can be used to assess the current status of venous and lymphatic pathology case management in Romanian hospital units.

The provision of clinical, administrative or financial data on hospitalised morbidity due to venous and lymphatic diseases needs to be continued and complemented by in-depth, detailed research on relevant issues that can thus support policy and strategic decision-making in the field of phlebology, an area that deserves a more consistent attention from policy makers, researchers and other stakeholders.

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