THE TREATMENT OF PATIENTS WITH PERIPHERAL VERTIGO – A RETROSPECTIVE QUALITATIVE STUDY

PACIENTŲ, SERGANČIŲ PERIFERINE VERTIGO, GYDYMAS – RETROSPEKTYVINIS, KOKYBINIS TYRIMAS

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ABSTRACT

Key words: peripheral vertigo, Meniere's disease, vestibular neuronitis, benign positional vertigo, acute peripheral vestibular syndrome.

Introduction. Peripheral vestibular syndrome is a compilation of diseases that arise from the inner ear and the vestibulocholear nerve, merging otolaryngological and neurological specialists' field of competence. In Latvia, these patients almost always are hospitalized in neurology departments. There are no accurate data about their treatment and the results.

Aim of the study was to acquire statistical information (data) about patients with these diagnoses: peripheral vestibular neuronitis, Meniere's disease, benign paroxysmal positional vertigo and acute peripheral vestibular syndrome.

Materials and methods. Data were acquired from the archive of medical histories of „Gailezers" Clinical Hospital from the section of department of neurology and a united information network „Ārstu birojs", with data taken from the 7 neurological department. The study consisted of patients diagnosed with: vestibular neuronitis, Meniere's disease, benign positional vertigo, acute peripheral vestibular syndrome. The chosen time period is from 01.12.2011 to 31.11.2012.

Results. Collected data contained information about 164 patients with previously averted diagnoses. Vestibular neuronitis was diagnosed 84 times. Benign positional paroxysmal vertigo was diagnosed in 52 patients; two patients were diagnosed with Meniere's disease and 26 with acute peripheral vestibular syndrome.

Conclusions. 8 % of hospitalised patients of one neuroligy department were diagnosed with a peripheral vestibular disorder from 01.12.2011 to 31.11.2012. Details follow.

INTRODUCTION

In a recent study, coming from USA dizziness and vertigo, has been reported to be the primary complaint of 3.3 % of all emergency department visits [10]. In the same study the conclusion was made: of 9 472 patients, presenting with vertigo, instability, dizziness 32.9 % suffered from a vertigo of otogenous origin [10]. In Latvia, most of the patients suffering from peripheral vertigo are treated in neurology departments. The treatment of these patients requires a multidisciplinary approach from neurologists, ENT specialists, physiotherapists and other specialists. Despite the the common nature of these patients in Latvian hospitals, almost no data are available about their numbers, period of treatment, diagnostic procedures, consultations by specialists, and types of diseases that cause peripheral vertigo.

AIM OF STUDY

To acquire information (which included: age, sex, time of hospitalisation, diagnostic procedures, ENT and other specialists' consultations, pharmacological treatment, other diseases of studied patients and results of treatment) about the patients with diagnoses: peripheral vestibular neuronitis (H81.2 ICD-10 classification). Meniere's disease (H81.0), benign positional vertigo (H81.1), acute peripheral vesti-

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bular syndrome in one neurological department (department number 7) in Clinical Hospital „Gailezers" in a time period of 01.12.2011 to 31.11.2012.

MATERIALS AND METHODS

Design – a retrospective qualitative study. Data were acquired from the archive of medical histories of „Gailezers" Clinical Hospital from the department of neurology and a united information network „Ārstu birojs", with data taken from to the 7 neurological department. The study consisted of patients diagnosed with: vestibular neuronitis, Meniere's disease, benign positional vertigo, acute peripheral vestibular syndrome (not in ICD-10, can be derived to H81.3 – other peripheral vertigo. The chosen time frame is from 01.12.2011 to 31.11.2012.

The gathered information included: patient's initials, sex, age, clinical diagnosis, other diseases, date of admission, date of discharge, the consultation of an ENT specialist (if there was one) and it's conclusion ,other specialists' consultations, diagnostic procedures, treatments used and their results. Information network „Ārstu birojs" was used to acquire information about the exact number of patients within the studied time period.

RESULTS

In the process of study, 1968 medical histories were inspected – which is the exact number of patients treated in the chosen time period, 164 of them contained the information about the patients with the diagnoses mentioned – which is 8 % of all the treated patients (*Figure 1*).

84 patients were diagnosed with peripheral vestibular neuronitis (51 % of all the studied diseases and 4 % of total number of hospitalized patients within a year), 52 patients were diagnosed with benign positional vertigo (31 % of all the studied diseases and 2.6 % of total number of hospitalized patients in a year), Meniere's disease was diagnosed in 2 patients and acute peripheral vestibular syndrome was diagnoses in 26 patients (1 % and 14 % respectively). (*Figure 2*).

Male/Female ratio is illustrated in *Figure 3* – with a clear female predominance in all four groups, both of Meniere's disease cases were women, the biggest ratio being that of benign positional vertigo (82 % women – 18 % men).

The average time of treatment being 8 days for patients with vestibular neuronitis (the shortest stay being 3 days, the longest – 27 days), 7 days of patients with benign positional vertigo (the shortest stay being 4 days, the longest – 16 days) and acute peripheral vertigo (the shortest stay being 5 days, the longest – 24 days).

The median age of patients being: 51 years in vestibular neuronitis (the youngest patient being 18 years of age and the oldest – 79), 57 years in benign positional vertigo (the youngest patient being 24 years of age and the oldest 59), 59 years in acute peripheral vestibular syndrome (the youngest being 23 years of age and the oldest being 87 years of age). Patients with Meniere's disease were 64 and 71 years of age.

The flow of patients distributes evenly throughout the year, with a slight decrease in number during the late spring – summer – early autumn period (*Figure 4*).

Figures 5 and *6* depict the consultations of ENT specialists and the overlap of their conclusions with the clinical diagnosis mentioned in the official discharge papers. As seen in the figures, 79 % of studied cases received ENT specialists' consultations (92 % of vestibular neuronitis patients, 88 % of benign positional vertigo patients, both of Meniere's disease patients, 76 % of acute peripheral vertigo patients). Regarding the diagnosis overlap: 69 % of conclusions made by ENT specialists matched the final clinical diagnosis mentioned in the discharge papers (76 % in vestibular neuronitis, 80 % in benign positional vertigo, 0 % in acute peripheral verigo, 100 % in Meniere's disease). In the case of acute peripheral vestibular syndrome, 18 times the ENT specialist was not able to find any data about a pathology localised in the middle or inner ear, or in any other ENT specific organ. Furthermore, two times his/her conclusions were – vestibular neuronitis despite that the final clinical diagnosis still remained as acute peripheral vertigo. Commenting on

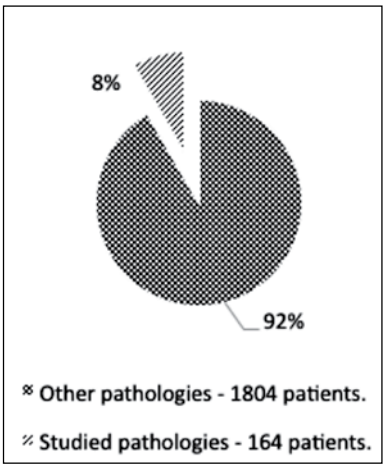


Figure 1

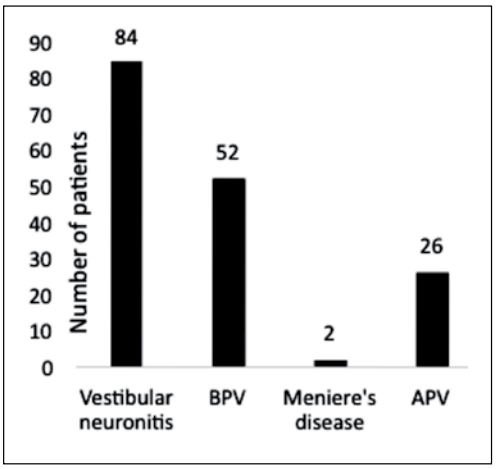


Figure 2

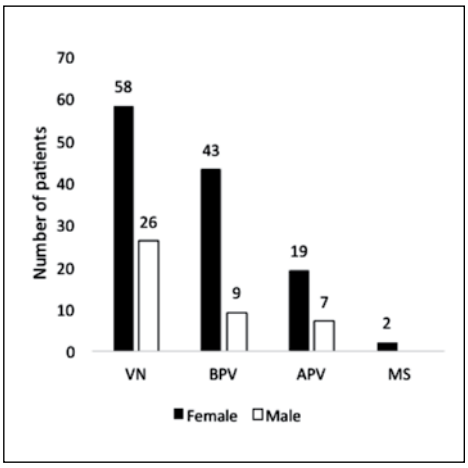


Figure 3

the other cases of mismatch – most common cause is either the case when the ENT specialist is not able to find any evidence of ENT specific organ lesion or naming the lesion on the opposite side of the final clinical diagnosis.

The next topic of this study was the consultations of other specialists during the patients' stay in the hospital (depicted in *Table 1*). As seen from it, physiotherapists carried out the most visits (apart from the ENT specialists), consulting patients in physical and vestibular exercises, teaching benign positional vertigo patients Eplay manoeuvres. The ophthalmologists were mainly asked to consult patients with nystagmus whereas endocrinologists consulted patients with diabetes mellitus. As to psychiatrists, they consulted patients who had problems coping with frequent episodes of dizziness and vertigo.

The overview of diagnostic procedures is shown on *Table 2*. As seen in the table – almost every patient had a full blood count analysis as well as an electrocardiogram; 84 % of all studied patients received CT scan for the head, but from140 CT scans made, 130 times no data about a pathology in the organs of the head was found. Biochemical analysis of blood mostly consisted of ALAT, ASAT, creatinine, GFR, glucose level, potassium, sodium. As it is illustrated in the table, there is no considerable difference in diagnostic procedures among the four patient groups.

The information about the pharmacological treatment is seen in *Table 3*. As it is demonstrated in the table, the most common drug used in the treatment of patients with vestibular disorders is betahistine dihydrochloride (*Betaserc, Serc, Vertigon*) – a selective histamine-3 receptor blocker,

Table 1. Most common consultants (excluding ENT)

Specialist	VN	BPV	MS	APV
Physiotherapist	24	9	1	3
Ophtalmologist	8	8	0	4
Psychiatrist	1	3	0	0
Endokrinologist	3	0	0	0
Cardiologist	3	0	0	0

Table 2. Most commonly used diagnostic procedures

Diagnostic procedure	VN	BPV	MS	APV
Full blood count	84	52	2	26
Electrocardiogram	84	52	2	26
Biochemical analisis of the blood	79	47	2	14
Computed tomography of the head and brain.	79	46	2	13
Ultrasonography of the abdomen	20	15	1	7

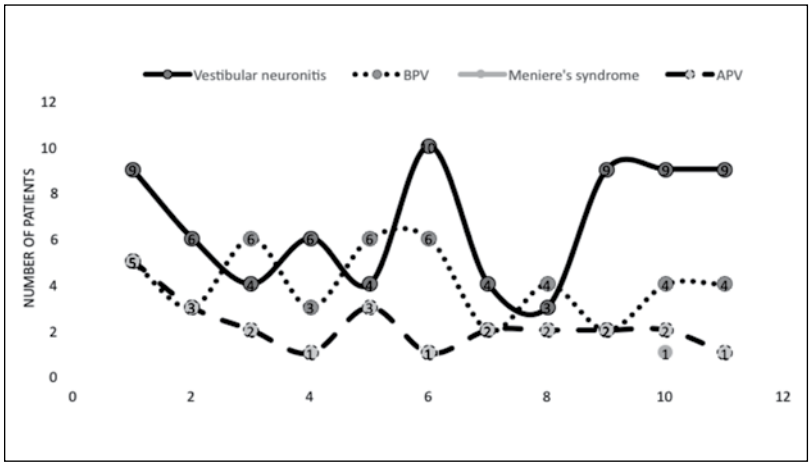


Figure 4

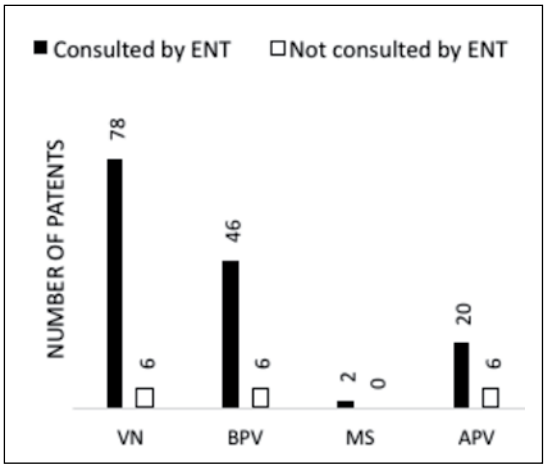
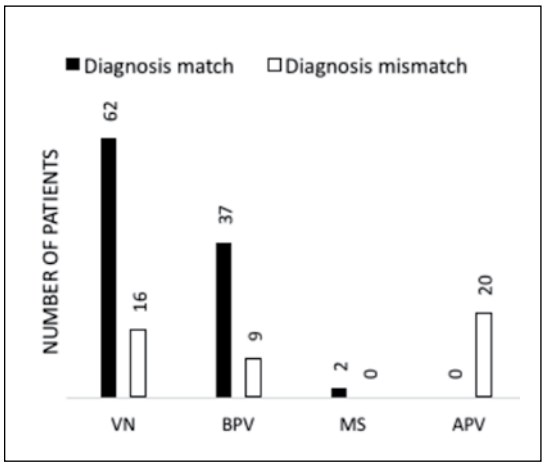


Figure 5



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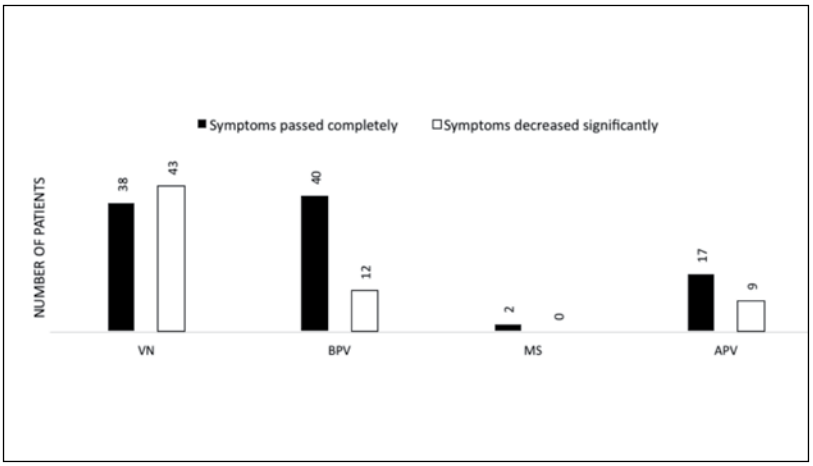

Figure 7

used in 85 % of all studied patients. The second most commonly used drug is Methylprednisolone, used in a specially developed scheme – initial dose being 100 mg p/o, lowering it by 20 mg every third day [13]. Other frequently used drugs were Omeprazole, Acetylsalicylic acid and Perindopril. Bromazepam was the most prescribed sedative drug, used only in treatment of vestibular neuronitis patients, as shown in the table (34 % of all VN patients received the drug). Actovegin was used in 30 % of all studied cases.

The information about studied patients' other diseases (not directly related to their vestibular disorder) is seen in *Table 4*. As it is shown in the table, the most common disease is primary arterial hypertention (76 patients or 46 %), diabetes mellitus (6 patients or 3 %) and dyslipidemia (33 patients or 20 %). Deforming spondilosis appears commonly throughout the medical histories (17 patients or 10 %), as does sensoneural hearing loss (10 patients or 6 %).

The results of treatment are extracted from the treating physicians' medical journals, where they document the progress of treatment. The results are shown in *Figure 7*. The figure shows that 59 % of studied patients experienced the complete passing of symptoms.

The biggest effect is seen in the treatment of benign positional vertigo (76 % experienced the complete passing of symptoms), 46 % of vestibular neuronitis patients experienced the passing of symptoms. Two patients refused to continue the treatment and were discharged (one patient with vestibular neuronitis, one patient with acute peripheral vestibular syndrome). No deaths among the hospitalised patients, with studied diagnoses, were documented.

DISCUSSION

Since the study covers many of the epidemiological topics, it is necessary to compare our data with existing international sources. To begin with, international studies state that the most common cause of peripheral vertigo remains benign positional vertigo [3], but as seen in our data, BPV patients are outnumbered by patients with vestibular neuronitis, making it the most frequent cause of peripheral vestibular disorders, with benign positional vertigo being second. Furthermore, studies show that vestibular neuronitis affects male and female population equally [9], but in our study, a clear female predominance is seen, but it can be explained by the the simple fact that there are more women living in Latvia in the category of over 50 years of age then men [5]. In another study it is noted that the median age of patients suffering vestibular neuronitis is 41 [12], but according to our study it is 51. Data concerning the median age of benign postional vertigo patients matched the data found in international sources – 51 to 57 years of age [7]. On the topic of epidemiology, we cannot make any conclusions about patients with Meniere's disease since there were only two cases studied.

The decrease in the number of patients in late spring/summer/early autumn, can probably be attributed to the decreased prevalence of upper-respiratory tract infections among the population within the relatively warm time of the year.

The data concerning ENT specialists' consultations shows that not all of the patients received those consultations, yet the studied hospital does not have a dedicated ENT department with a full staff of ENT specialists, and the lack of consultations can be attributed to inability of the attending ENT specialists to consult every patient simply because he/she lacks time. Commenting on the fact that only 69 % of ENT consultations' conclusions matched the clinical diagnosis in discharge papers – 0 % of ENT specialists diagnosed patients with acute peripheral vertigo, but such a diagnosis exists in discharge papers (despite ENT not confirming it). Most commonly used diagnostic procedure was blood analysis (full blood count and biochemical analysis) – these are easy to make, relatively cheap and safe for patients; also these are used for all patient groups (not exclusive to patients experiencing vertigo). Radiological procedures mostly consisted of CT scans of the head and X-rays of the spine. Commenting on the fact that out of 140 CT scans only 10 showed any pathology. In the study made in South Korea, a conclusion was made that nearly 10 % of all of subarachnoidal hemorrhages, present with symptoms mimicking vestibular neuronitis, so it is a common practice to use CT scans to exclude acute neurosurgical pathologies in patients experiencing vertigo [6]. X-rays of the spine (most commonly – the cervical segment) are assigned bearing in mind the so called „cervical vertigo" – a

Table 3. Most common pharmacological agents used in the treatement

Pharmacological agent	VN	BPV	MS	APV
Betahistine dihydrochloride 24mg. X2 p/o	74	46	2	22
Methylprednisolone 100 mg p/o initially	64	0	0	0
Omeprazole 40 mg p/o	56	19	0	8
Metoclopramide 10 mg i/v or 40 mg p/o	48	17	1	9
Bromazepam 1.5 mg p/o	29	0	0	0

Table 4. Patient's most common diseases not directly related to their vestibular disorder

Disease	VN	BPV	MS	APV
Primary arterail hipertension	37	23	1	15
Dyslipidemia	19	10	0	4
Deforming spondilosis	2	10	0	5
Senosoneural hearing loss	6	4	0	0
Diabetes mellitus	6	0	0	0

vertigo or dizziness that is provoked by a particular neck posture, no matter what the orientation of the head is, the most notable cause being – vascular compression (due to cervical spondylitis), cervical cord compression and other causes [1]. The high number of consultations from other specialists (*Table 1* shows only the most frequent sporadic consultations by such specialists as dermatologists or cardiologists are not mentioned), can be attributed to the wide range of other diseases of studied patients (*Table 4*) (also taking into account the median age being 50 years and over). Betahistine hydrochloride is considered to be the most effective drug for the treatment of vestibular disorders [14], and as seen from our data, it is the most widely used pharmacological agent during the patients' stay in the hospital. Actovegin is a highly filtered extract obtained from calf blood which enhances aerobic oxidation, commonly used to boost vestibular and cochlear circulation and blood perfusion. In a study made in China, Actovegin was used in patients with cerebral atherosclerosis and vertigo, its results showed that 93 % of studied patients experienced positive feedback [8]. Several small clinical studies found benefits of Actovegin administration in elderly patients with organic brain syndrome, in dyscirculatory encephalopathy [11]. Regarding the admission of glucocorticoids, the most commonly used one was prednisolone, its effectiveness was proven in clinical studies of vestibular neuronitis patients that showed improvements in recovery [4]. Another study shows that patients treated with prednisolone experienced better outcomes – short and long-term using prednisolone compared with placebo [2]. Tactics of pharmacological treatment depends mostly on the attending physician, his/her experience and personal preferences. The conclusions regarding the outcome of treatment are discussed lower.

Several problems were outlined during and after the conclusion of the study, most common being:

Despite a relatively high number of studied cases (164 cases), this particular study focused exclusively on one department in one clinical hospital, thus the authors cannot make any statements regarding the treatment of the patients with peripheral vertigo in Latvia as a whole. No information was gathered about the second clinical hospital in Riga, which has a specialised ear ,nose and throat department, where treatment tactics may be different from the tactics used in neurological departments.

Data regarding the age, sex, time of hospitalisation, diagnostic procedures, drugs used, consultations are accurate and easily verifiable, whereas data concerning the outcome of treatment is taken from medical journals and is based purely on subjective opinion of the physician and is relatively unreliable. But the fact that the patients were discharged (with no deaths or conveyances to other healthcare facilities) implies at least some sort of symptom reduction.

No follow up investigations of discharged patients was commenced, thus not making it able to make conclusions on long term results of the treatment.

CONCLUSIONS

8 % of hospitalised patients of one neurology department are diagnosed with a peripheral vestibular disorder in 2012. 79 % of them receive a consultation from ENT specialists, 84 % of studied patients received a CT scan of the head. Most widely used pharmacological agent was betahistine hydrochloride (used in 85 % of patients). 59 % of patients experienced complete passing of the symptoms as a result of treatment.

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