Introduction

The WHO defines malnutrition as the lack of proper nutrition resulting from inadequate intake and insufficient nutrition for physical or psychological reasons (1). In Slovakia, malnutrition is defined as the patient's nutritional status conditioned by the balance of nutritional received with the nutritional needs of the organism, while malnutrition occurs when the supply of energy and building substrates is reduced compared to its output (2). Malnutrition can be the result of starvation, disease, or advanced age (> 80 years), alone or in combination with other health problems. A weight loss of 10-15 % in 6 months, a drop in BMI below 19 kg/m^2 and a low albumin level below 30 g/l are the parameters that define malnutrition according to ESPEN (3). The incidence of malnutrition is generally less than 10 % in independent living seniors and increases by up to 2/3 in hospitalized geriatric patients (4). An increased prevalence of malnutrition is present in frail seniors with comorbidities (5). Malnutrition has a negative impact on the general health of the patient and causes an increased incidence of infections, worsens wound healing, prolongs hospitalization and convalescence after acute illness, and increases costs associated with health care (6). In geriatric patients, malnutrition is considered one of the most important factors contributing to the complex aetiology of sarcopenia, osteopenia, and frailty (4). The studies on the issue under consideration emphasize the clinical positives of early identification of malnourished patients after admission to the hospital environment with subsequent individualized nutritional interventions. The clinical need for nutritional screening in hospitalized patients is emphasized given that rapid screening tools are available to identify patients at nutritional risk (7). The progression to malnutrition is often insidious and often undetected. Health care staff play a key role in the prevention and early intervention of nutritional problems (8).

Aim

The aim of the study was to find out the nutritional status in hospitalized geriatric patients in the internal ward, and at the same time, to find out if there is a statistically significant correlation between selected demographic data, health characteristics, and measurement tool.

Sample and methods

In the research, we used a quantitative, descriptive, and correlational study. Inclusion criteria included the patient's age ≥ 65 years, the patient's hospitalization in the internal medicine department, and the patient's signed informed consent to the implementation of the research. The excluded criteria included the presence of impaired consciousness in the patient, and the expressed disagreement of the patient with the implementation of the research. The collection of empirical data took place between November 2022 and June 2023.

The research protocol containing: 1. demographic data of the respondent (sex, age) was filled out; 2. health characteristics: BMI classification according to WHO (9), weight loss in the last 6 months, number and duration of hospitalizations, presence of other diseases (comorbidities) and polypharmacotherapy, number of medications/24 hours; 3. laboratory parameters: albumin, transferrin, haemoglobin, C-reactive protein (CRP), total cholesterol, and lymphocytes; were searched from the patient's medical records; 4. Mini Nutritional Assessment (MNA®). The screening version (MNA®-SF) used as a short form to identify patients at risk of malnutrition, consists of six items (food intake item, two anthropometric parameters, and three general parameters). Each item was scored between 0 and 3, resulting in a score of normal nutritional status (12-14 points), risk of malnutrition (8-11 points), and malnutrition (0-7 points). If patients get a score less than 12 points, it is recommended to complete the full version MNA® to avoid diagnostic accuracy errors (10). The MNA®-FF has twelve items in four groups (anthropometric, general, dietary, and subjective assessment). The resulting MNA®-FF score identifies nutritional status as with adequate nutrition (≥ 24 points), risk of malnutrition (17.5-23.5 points), and malnutrition (< 17 points) (11,12).

According to MNA®-SF, we found that in the entire group of patients n = 200 (100 %) 63 (31.5 %) had a normal nutritional status, 102 (51 %) were at risk of malnutrition and 35 (17.5 %) were malnourished. Subsequently, for these 137 patients, we performed an assessment according to the MNA-FF®, which specified the number of patients at risk of malnutrition n = 101 (74 %) and with malnutrition n = 23 (17 %). The Ethics Committee of the Jessenius Faculty of Medicine of Comenius University in Martin (EK 45/2022), as well as the management of the internal ward at the University Hospital in Martin, where the study was conducted, approved the implementation of the research, including the research protocol.

Statistical analysis

We evaluated empirical data using descriptive statistics methods: absolute (n) and relative (%) frequencies, mean values (median), variability characteristics (interquartile range, IQR). In the case of a comparison of mean values between three or more groups, we used a non-parametric version of the analysis of variance, i.e., Kruskal-Wallis analysis (KW-χ^2), which compares the medians of different groups. In the case

Tab. 1. *Demographic characteristics of the sample according to MNA®-FF (n = 137)*

Variable		MNA®-FF n/%	Normal nutritional status n/%	At risk of malnutrition n/%	Malnourished n/%	χ^2	p value
		137/100	13/9	101/74	23/17		
Gender	Male	66/48	5/8	52/79	9/14	1.745	0.43
	Female	71/52	8/11	49/69	14/20		
Age	65-74	70/51	6/9	53/76	11/16	2.111	0.715
	75-89	49/36	5/10	37/76	7/14		
	≥ 90	18/13	2/11	11/61	5/28		