INTRODUCTION

Pressure ulcers (PUs) are a major problem in medical, social and health care costs (1). They are often found in healthcare settings, including in relation to the increase in the average age of the hospitalized population and the presence of comorbidities. PUs are lesions of the skin and/or subcutaneous layers, usually located at a bony prominence as the effect of pressure or a combination of pressure, friction and shearing (2). Multiple risk factors may be involved in the onset of PUs: impaired mobility and bed rest; impaired skin integrity; advanced age; poor nutritional status; factors linked to perfusion and oxygenation; body temperature; and general clinical conditions (2).

There is scientific evidence that malnutrition is related to the incidence and the severity of PUs and to the healing time (3, 4). Malnutrition is not only an energetic deficiency but also regards low protein supply and/or vitamin and mineral deficiency (5, 6). There are many nutritional markers associated with the risk of developing PUs. These include involuntary weight loss, protein-calorie malnutrition, dehydration, a low body mass index,
Nutritional supplements in elderly patients with pressure ulcers

We used an assessment form that considered the site and the size of PUs, the US National Pressure Ulcer Advisory Panel (NPUAP) stage (2, 13), the Braden scale for predicting pressure sore risk (14, 15), and the PU characteristics (wound bed, exudate, surrounding skin, presence of infection and pain). All patients were monitored at baseline (T0), after 7 days (T7) and after 14 days (T14). Photographic documentation was recorded for each time point.

We considered only the evolution of ulcers to the sacrum for the sake of sample homogeneity, although some patients had lesions at other sites including the heel (4 patients), back (1 patient) and trochanter (2 patients).

We assessed the nutritional status by nutritional intake estimates, weekly measurements of body weight and blood tests, and the Mini Nutritional Assessment Short-Form (MNA-SF) at T0 and T14 (16-18). In light of the nutritional screening, 4 patients were orally supplemented with protein-calorie supplements because the intake of diet alone did not satisfy the requirements.

All 11 patients received W-care® with dose adjustments according to the degree of ulcer: 1 bag/day in patients with stage I ulcers, 2 bags/day in patients with stage II ulcers, and 3 bags/day in patients with stage III and IV ulcers. One bag of W-care® contains L-arginine (2 g), omega-3 (500 mg), vitamin C (100 mg), collagen type II (100 mg), zinc (4 mg), vitamin E (4 mg), vitamin A (400 µg), vitamin B6 (0.4 mg), vitamin B1 (0.25 mg), vitamin K1 (15 µg), and vitamin B12 (0.05 µg).

Descriptive statistics were used to display the characteristics of the sample and the distribution of the applied scores. The difference between the mean lesion areas at T0 and T14 were analyzed using the paired Student’s t-test. P values of 0.05 or less were accepted as statistically significant.

RESULTS

In the treatment period with W-care® we found a statistically significant reduction (p=0.018) of the mean lesion areas at T0 and T14 (Fig. 1). This was also evident when we considered for each patient the evolution of the lesion in time. Therefore the stage of PUs decreased (Fig. 2). In fact, the 63.7% of stage II and III lesions at baseline dropped to 18.2% after 2 weeks of treatment, with a parallel increase in stage I lesions (from 0.0% to 54.5%). Furthermore, considering the characteristics of PUs,
Although a cause-effect relationship has never really been defined, the presence of PU is frequently shown in partnership with a condition of malnutrition. The demonstration that a nutritional approach can lead to an improvement in the nutritional condition in association with a quicker healing process could indirectly support the importance of considering this therapy as one of the hinges of the cure process (2, 7, 19, 20). In fact, as early as 2000 a randomized controlled trial (21) reported that the use of nutritional supplements can contribute to preventing the development of PUs; the study has been regularly mentioned and cited by other authors since (20, 22). Moreover, Heyman et al (23), based on monitoring and measuring the area of the lesions, demonstrated that the use of specific hyperproteic and hypercaloric oral supplements for the treatment of PUs brings about an improvement. The results of our study confirm the literature data. In fact, the use of W-care®, a supplement containing specific nutrients able to stimulate tissue repair (arginine, zinc and vitamins), resulted in a significant reduction of lesion areas and a decrease in stage II and III lesions with a parallel increase in stage I lesions. Moreover, our patients had an improvement of PU characteristics, especially the wound bed and surrounding skin. In conclusion, we demonstrated that, in addition to the prevention and treatment of malnutrition, nutritional support must be part of a holistic approach adopted for patients with PUs (20). These findings substantiate the information already available in the literature and point to the need for additional, more extensive investigations to confirm the efficacy of this dietetic product.
Nutritional supplements in elderly patients with pressure ulcers

Conflict of interest statement: none declared.
Financial support: none.

Address for correspondence:
Dr Francesca Monteferrario
S.O.S. Dietologia e Igiene della Nutrizione
Ospedale degli Infermi
Via Caraccio 5
13900 Biella, Italy
e-mail: francescamontef@libero.it

REFERENCES