

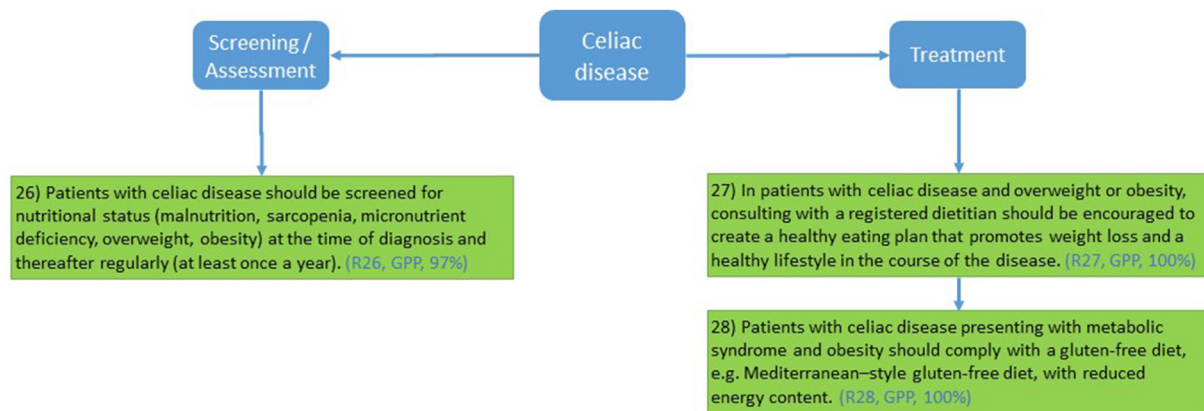


Fig. 5. Nutritional screening/assessment and obesity treatment in patients with Celiac disease and obesity. Abbreviations: see Fig. 1.

5.2. Treatment

- 27) In patients with celiac disease and overweight or obesity, consulting with a registered dietitian should be encouraged to create a healthy eating plan that promotes weight loss and a healthy lifestyle in the course of the disease. (R27, grade GPP, strong consensus 100%)**

Commentary

In contrast to the “classic” celiac presentation of malabsorption and weight loss, overweight and obesity have been respectively described in 40% and 13% of patients with celiac disease, at diagnosis [139]. Furthermore, a gluten-free diet often results in weight gain due to the improvement in mucosa absorption. Valletta et al. reported that the percentage of overweight subjects almost doubled while on a gluten-free diet [140]. This may be partially attributed to the hypercaloric content of commercially available gluten-free foods and bad dietary habits induced by unpalatable, expensive commercial gluten-free products, replaced by high-fat commercial gluten-free foods [141].

- 28) Patients with celiac disease presenting with metabolic syndrome and obesity should comply with a gluten-free diet, e.g. Mediterranean-style gluten-free diet, with reduced energy content. (R28, grade GPP, strong consensus 100%)**

Commentary

Nutritional profiles of gluten-free food products have been questioned for the last few decades, and the key inadequacies are low protein and dietary fiber, high calories, fat, sugar, and salt content [142]. Lately, gluten-free products are often reformulated to become more nutritionally balanced, namely with low simple sugars and high fiber [141,143]. A gluten-free diet may lead to nutritional deficiencies such as fiber, B vitamins, iron, and trace minerals [141], although the data are conflicting [144]. Mediterranean diet has been proven to be a gold standard for the prevention and therapy of the metabolic syndrome, obesity, and NAFLD [145–147], and although the data on patients with celiac disease are missing, it would be wise to advise patients with celiac disease and with obesity-related problems to adapt their gluten-free diet to Mediterranean-style diet.

To comply with a nutritionally balanced gluten-free diet, patients should be regularly monitored by skilled dietitians and diet therapy should be personalized [140]. The nutritionally balanced

gluten-free diet should be nutrient-dense, with a high intake of naturally gluten-free foods (e. g. pseudocereals), with appropriate macronutrient quality and ratios, and rich in micronutrients and phytochemicals [141].

6. Gastroesophageal reflux disease

6.1. Screening & assessment

- 29) Nutritional status screening should be performed for patients with GERD and overweight or obesity, encompassing basic anthropometric measurements (body weight, body height, body mass index, waist circumference) (R29, grade GPP, strong consensus 96%)**

Commentary

Obesity has been linked with increased symptoms of GERD [148] and esophageal acid exposure [149]. Epidemiological studies show that obesity is a risk factor for GERD development due to increased intra-abdominal pressure and gastroesophageal gradient, impaired gastric emptying, and hiatal hernia [150]. Complications connected to longstanding gastroesophageal reflux such as Barrett esophagus erosive esophagitis and esophageal adenocarcinoma are also associated with obesity, especially central obesity [151]. Therapy of patients with GERD and obesity implies higher dosages and longer courses of antisecretory drugs, and concomitant use of ursodeoxycholic acid (UCDA) [150] (Fig. 6).

Therefore, to detect the patients with risk of obesity and especially central obesity, simple procedures such as BMI calculation and waist circumference measurements should be routine screening methods at the time of diagnosis as well as during periodic follow-up.

- 30) Sarcopenia and sarcopenic obesity should be assessed, if there are indicators for sarcopenia, using body composition analysis (DXA or BIA) and dynamometry (handgrip strength) in GERD patients with overweight or obesity. (R30, grade GPP, strong consensus 93%)**

Commentary

Sarcopenia is associated with GERD, and sarcopenic obesity may be a predictive factor for erosive reflux disease [152]. Therefore, analysis of body composition using dual-x-absorptiometry or bioelectric impedance analysis and measurement of handgrip