Dr Schär Institute

Common health problems in coeliac disease

Part of an education programme on coeliac disease and the gluten-free diet developed by

The Dr Schär Institute

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Learning Unit 2 *for pharmacists*

Glutafin GLUTEN FREE

os gluten free

Learning Unit 2
Common health problems in coeliac disease *for pharmacists*

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Section 1

Foreword

As you know these learning units have been developed by the Dr Schär Institute to help you optimise the service you provide to customers with coeliac disease. This learning unit will build on the knowledge you have gained from Learning Unit 1 : Coeliac disease by alerting you to the possible health problems commonly seen in coeliac disease. The Pharmacist is ideally placed to offer practical advice and to refer customers to their GP or dietitian for further investigation or support.

Learning Unit 2: Common health problems in coeliac disease can help you to meet the General Pharmaceutical Council requirement to undertake Continuing Professional Development (CPD) each year.

This learning unit has been accredited by the Royal Pharmaceutical Society (RPS) and it's successful completion can provide you with approximately 3.5 hours of CPD (please note this is for guidance only).

This learning unit is the second in a series of three and the full programme comprises:

Learning Unit 1 - Coeliac disease

Learning Unit 2 - Common health problems in coeliac disease

Learning Unit 3 - Diabetes and weight control in coeliac disease

As you may be aware more cases of this disease are now being recognised. Remember, understanding the long term needs of your customer with coeliac disease allows you to develop valuable customer loyalty.

You should be able to complete the following activity that focuses on the prevalence of coeliac disease in the population you serve.

Activity 1 - a reminder from learning unit 1

Can you quantify:

1. The number of customers with a diagnosis of coeliac disease who visit your pharmacy.

2. The number of people that you could estimate who visit your pharmacy who could have undiagnosed coeliac disease.

The cornerstone of management is adherence to a gluten-free diet and your customer with coeliac disease should be encouraged to eat a healthy diet. As you will remember the 'Eat Well Plate' was reviewed in the first unit and following a healthy diet can mitigate a number of conditions associated with coeliac disease.

How to use this learning unit

This programme of three learning units is for pharmacists; there is also a parallel programme available for pharmacy technicians provided by the Dr Schär Institute.

Working your way through the unit will also allow you to support your pharmacy technician(s) with their learning programme.

Learning Objectives

On completion of this module, you will be able to:

- Understand the common health problems associated with coeliac disease
- Define the occurrence of the health problems associated with coeliac disease.
- Appreciate the number of people presenting in the community pharmacy who are at risk of complications associated with coeliac disease. .
- Explain the importance of adhering to a well balanced gluten-free diet for people with coeliac disease or dermatitis herpetiformis.
- Explain dietary modifications that may reduce the risk of complications associated with coeliac disease.

Answers to the activities used in this learning unit are to be found on page 30.

Introduction

The first learning unit in the series explored:

- The clinical presentation of coeliac disease.
- The nutritional needs of customers with coeliac disease.
- The role of the pharmacist in supporting people with coeliac disease.

Additionally, the first learning unit highlighted:

- There can be many undiagnosed cases of coeliac disease.
- The ability to try to identify those who are at an increased risk of developing coeliac disease.

This unit will examine the common health problems that are associated with a diagnosis of coeliac disease. Early diagnosis may help to prevent many of these complications. A pharmacist has the opportunity to spot symptoms of undiagnosed disease or developing complications and refer patients to their GP. It will be evident from your every day practice that the most important aspect from a customer's viewpoint on any disease, and particularly chronic diseases, is their appetite for information.

As with any other condition (and particularly chronic conditions), your role also includes provision of unbiased information in an easy to understand format, for customers with coeliac disease this includes explanation of the importance of adhering to a gluten-free diet that meets healthy eating guidelines. As a pharmacist you are ideally placed to support customers in adhering to their treatment plan. This simple message delivered by a health care professional who clearly understands coeliac disease will go a long way to improving health and preventing complications. Gluten-free foods: a revised prescribing guide (2011)[1] can assist your input to the prescription needs of your customers. The provision of accurate information will help your customer maintain a healthy lifestyle and reduce worry and stress about their disease.

We will examine a number of common health problems associated with coeliac disease.
These include:

- Osteoporosis.
- Anaemia.
- Malignancy.
- Infertility.
- Ulcerative jejunoileitis.
- Dermatitis herpetiformis.
- Lactose intolerance.
- Diabetes *(This will be covered in Learning Unit 3).*

Activity 2

You may already be familiar with the pathophysiology of conditions associated with coeliac disease. Please take a few moments to jot down what conditions you already know something about and begin to fill in the table below.

Condition	Cause	Treatment (if applicable)
Osteoporosis		
Anaemia		
Malignancy		
Infertility		
Ulcerative jejunoileitis		
Dermatitis herpetiformis		
Lactose intolerance		

We will now look at the common health problems listed above in turn . . .

Notes

Section 2

Osteoporosis

Definition and presentation

Osteoporosis literally means porous bones and is a common condition in the general population. It is estimated that some 1 in 3 women and 1 in 12 men are affected. Peak bone mass is achieved between 20 and 35 years of age and then bone density (bone mass per unit of volume) naturally declines by about 1% per year. This is accelerated in women after the menopause putting them at greatest risk of developing osteoporosis.

David Gifford/Science Photo Library

Osteoporosis can be detected by scanning and measuring bone density, however the first sign is usually a fracture, the most common site of fracture being the wrist. In addition customers may present with back pain, spinal curvature, or loss of height, as illustrated here.

Pain and changes in stature make osteoporosis a very debilitating condition. Pain is particularly associated with the back and this may be caused by abnormal stresses on the spinal muscles, giving rise to the characteristic chronic, dull aching pain in the thoracic and lumbar areas. It is not uncommon for there to be sudden collapse of the individual vertebrae leading to severe local pain and deformities such as scoliosis. An adequate calcium intake can help.

Studies have shown that more than 75% of adults with untreated coeliac disease suffer from osteopenia or osteoporosis. Even in people with few symptoms of coeliac disease, bone mineral density can be significantly lower than the general population[2]. People with coeliac disease who are on a gluten-free diet show a lower level of bone loss than those not following a gluten-free diet, therefore the gluten-free diet may improve bone mineral density (BMD). However, research shows BMD may not return to that seen in a matched population[3,4]. The prevalence of reduced BMD after one year of following a gluten-free diet is similar to that after three years. This suggests that the extent of bone mass gain in the first year of dietary treatment is indicative of overall BMD improvement[5].
An increased dietary calcium intake remains important throughout life for patients diagnosed with CD[6].

Patients with coeliac disease 'at-risk' of developing osteoporosis include those who[7]:

- Do not adhere to a gluten-free diet.
- Have continuing malabsorption even after diagnosis and treatment. (may present as unresolved diarrhoea, lethargy or poor immunity).
- Have a low dietary calcium intake.
- Have bone pain.
- Have had previous fractures.
- Have reached or gone through the menopause.
- Weigh less that 50kg.

- Do less than four hours/week outdoor activity.
- Have a family history of osteoporosis.
- Have an associated autoimmune condition e.g. Type 1 diabetes, hypothyroidism.
- Have had previous corticosteroid treatment.

Role of calcium and vitamin D

Preventative measures against osteoporosis include an adequate calcium intake, regular exercise and the avoidance of smoking and excessive consumption of alcohol.

Calcium is the most abundant mineral in the body. Approximately 99% of the body's calcium is in the bones and teeth. Only 20-30% of calcium in the diet is normally absorbed but this can be less in coeliac disease. Calcium absorption is dependent on vitamin D.

Vitamin D is actually a hormone (a compound made in one part of the body that exerts its effects at a remote part) and has three main functions in relation to calcium and bone growth.

- It stimulates the absorption of calcium from the intestine.
- It mobilises calcium from bones into the blood.
- It stimulates the reabsorption of calcium by the kidneys.

Good dietary sources of vitamin D include oily fish, eggs, margarine, dairy products and cod liver oil. Most vitamin D is synthesised in the skin from exposure to sunlight.

As you are aware the diagnosis of coeliac disease is often delayed and many customers will have experienced reduced calcium absorption for many years leading to osteoporosis or osteopenia (low bone density).

Dietary calcium

The Recommended Daily Allowance (RDA) for calcium is 800mg/day for men and woman[8]. You may recall seeing reference to this figure in the nutrition information panel on food packets such as the one shown here.

Nutrition Information

Typical Values	Per 100g	Per 4 slices (daily serving)
Energy	900kJ	972kJ
	212kcal	229kcal
Protein	3.6g	3.9g
Carbohydrates	45g	49g
of which sugars	6g	6.5g
Fat	2g	2.2g
of which saturates	1g	1.1g
Fibre	3g	3.2g
Sodium	0.4g	0.4g
Calcium	380mg(48% RDA**)	410mg(51% RDA**)

**Recommended Daily Allowance

In 2007 the British Society of Gastroenterology (BSG) published guidelines for osteoporosis in IBD and coeliac disease[7]. These recommended an intake of 1000mg/day for coeliac patients and 1200mg/day for postmenopausal woman and men over 55 years. However, the BSG Guidelines relating to the management of adults with coeliac disease (published in 2010) advised that a daily intake of 1500mg calcium has been shown to have maximal benefit for bone density and that calcium supplements (combined with vitamin D) may be used to ensure an intake up to 1500mg where dietary intake is insufficient[6]. Based on these guidelines, Coeliac UK recommend that adults with coeliac disease should have between 1000mg and 1500mg/day.

The major source of calcium in the diet is milk and milk products e.g. cheese and yoghurt. Bread and crereals contribute approximately 25% of dietary calcium[9]. The gluten-free diet therefore has potential to reduce calcium intake as a result of eating less bread, milk (eating less breakfast cereals) and cheese (avoiding pizza and pasta dishes containing cheese). Did you know there is 672mg calcium in a pint of whole milk? Many of your customers may find it difficult to meet these requirements and this is particularly the case for people who don't like dairy products or have a lactose intolerance.

Some gluten-free foods are enriched with calcium and should therefore be the products of choice for those with a low calcium intake. The pharmacist can advise on the selection of calcium enriched gluten-free foods and the inclusion of calcium and vitamin D rich foods in the diet. Where calcium intake from food is insufficient to meet requirements, a supplement may be prescribed on the advice of a State Registered Dietitian. Calcium supplements are better absorbed if taken in divided doses.

Dairy Sources of Calcium

Food	Calcium content per individual serving
Semi-skimmed milk	234mg / 1/3 pint
Whole milk	224mg / 1/3 pint
Low fat fruit yoghurt	188mg / 1 small pot
Greek yoghurt, cows	338mg / 225g 1 average pot
Cheddar cheese, average	288mg / 40g average in a sandwich
Cheddar cheese, vegetarian	276mg / 40g average in a sandwich
Cottage cheese, plain reduced fat	82mg / 112g small pot
Dairy Vanilla ice cream*	78mg / 60g average portion

Non-dairy Sources of calcium

Food	Calcium content per individual serving
Sardines, canned in oil, drained	550mg / 100g 1 small can
Sardines, canned in tomato sauce*	460mg / 100g 1 small can
Pilchards, canned in tomato sauce*	165mg each
Spinach, boiled	120mg / 75g average serving
Brazil nuts	95mg / 56g serving
Curly Kale, boiled	113mg / 75g average serving
Sesame seeds	80mg / 1 tablespoon (12g)
Oranges	75mg / medium

*Check the Coeliac UK Gluten-Free Food and Drink Directory for suitable brands

Activity 3

Do you eat enough calcium?

Using the information given below, work out your own calcium intake and check to see if it is adequate.

Comment below on your intake and if it is low how could you increase it?

Count up the number of times per day you have:

tea with milk		x 40mg =	
coffee with milk		x 50mg =	
glass of milk		x 250mg =	
milk with cereal		x 140mg =	
slices of white or brown bread		x 30mg =	
slices of wholemeal bread		x 10mg =	
portions of cheese		x 320mg =	
portions of cottage cheese		x 50mg =	
portion of ice-cream, yoghurt, milk pudding		x 100mg =	
Total		=	
Calcium intake/day (mg calcium)		=	
Recommended Daily Allowance (RDA) for calcium		=	800mg

Recommended daily intake of calcium for customers with coeliac disease 1000-1500mg

Comments: (remember, if you don't consume many dairy foods, you can include non-dairy sources of calcium in your calculation, see pg 11 for ideas).

Activity 4

a. Look at the gluten-free foods you currently dispense and provide over the counter (OTC). What levels of calcium are in them and do you know if any are enriched with calcium.

b. How can you advise your customers with coeliac disease on optimising the calcium content of their diet?

C. List suitable gluten-free calcium rich foods here as a reminder.

The BSG guidelines for osteoporosis in IBD and coeliac disease (mentioned earlier in this section), includes the following recommendations for reducing the risk of fractures in those suffering from coeliac disease[7]:
The main recommendations are;

General Advice

- **Adhere to a strict and nutritious gluten-free diet.**
- **Ensure an adequate dietary calcium intake.**
- **Frequent weight bearing exercise.**
- **No smoking.**
- **Avoid excessive alcohol intake.**
- **Offer DEXA scan to those at higher risk of osteoporosis and appropriate treatment if indicated on DEXA or if prior fragility fracture.**

Activity 5

Remember Evelyn our case study from Learning Unit 1?

She has popped in to pick up her prescription.Your pharmacy assistant asks you to have a chat with Evelyn as she has some questions about osteoporosis and her calcium intake.

How would you discuss the risk of osteoporosis with her? List what topics you would cover and where she could get more information.

(Do also consider the environment in which the discussion could take place e.g.is it appropriate, quiet,private? Your Medicines Use Review (MUR) consultation room would be perfect).

Notes

Section 3

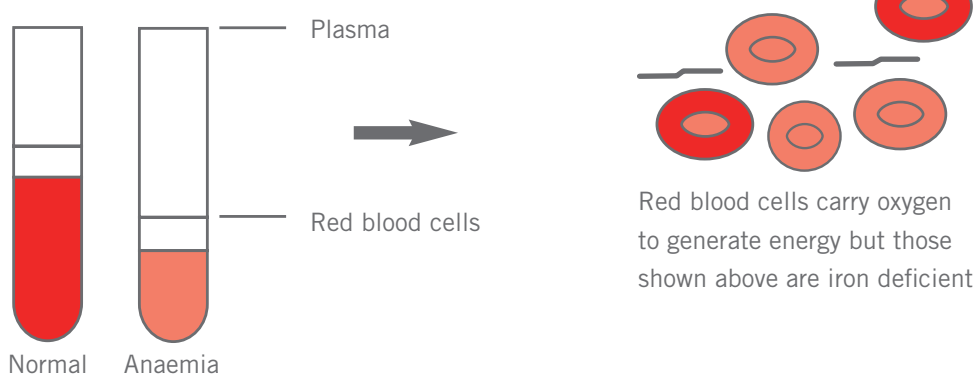
Anaemia

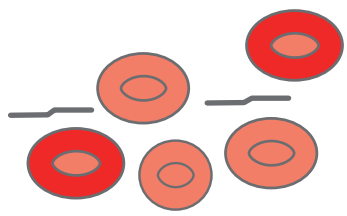
Definition and symptoms

Anaemia is defined as a lowered concentration of haemoglobin. The normal range for haemoglobin concentration in the blood is 13.5-17.5g/dl for men and 11.5- 15.5g/dl for women.

Haemoglobin is the constituent responsible for carrying oxygen in the red blood cells. Haemoglobin consists of two globin chains. Each chain is attached to a haem molecule. Iron is an essential component of the haem molecule and in a state of reduced iron uptake the red blood cells cannot be produced in sufficient numbers to fulfil the body's needs.

Anaemia = reduced number of red blood cells





Red blood cells carry oxygen to generate energy but those shown above are iron deficient

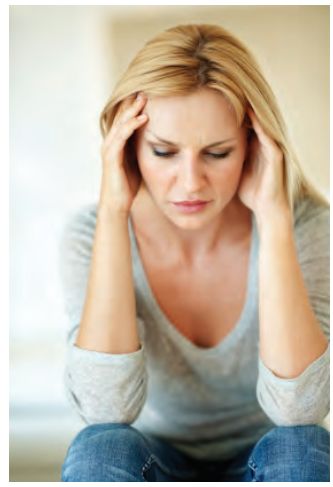
The symptoms of anaemia are listed on the following page, patients exhibiting these symptoms should be advised to visit their GP for a blood test in order to confirm the cause.

Anaemia may be caused by either a loss of blood through internal or external bleeding for example in:

- Malignancy.
- Heavy menstrual bleeding.
- Bleeding from the gastro-intestinal tract (ulcers, Crohn's disease).
- Malabsorption of iron through disorders which affect the replenishment of the free iron stores in the body e.g. coeliac disease.

Iron deficiency is the most common cause of anaemia where there is a reduction in the production of red blood cells because the body's reserves of stored iron are depleted.

In a patient with coeliac disease a reduced absorption of iron may result in the development of anaemia. Customers may present with some of the symptoms of this disorder as listed below:



- Fatigue.
- Weakness.
- Headaches.
- Apathy.
- Pallor.
- Poor tolerance to cold.
- Pica (a strange condition seen in some iron deficient customers which manifests as an appetite for ice, clay, paste and other non-nutritious substances).

Activity 6

Do you know or have you known anyone who has suffered from anaemia? What were their symptoms?

Remember, anaemia can be one of the most important indicators of coeliac disease. The prevalence of coeliac disease in patients with iron-deficiency anaemia is reported to be between 2.3 and 15%[10].

Dietary iron

As a pharmacist, you are in a position to identify customers who are purchasing or who are prescribed iron supplements. Some people may be just ensuring their iron intake is adequate by taking supplements (e.g people who are following a vegetarian or vegan diet and therefore avoid red meat, a good source of iron).

For customers with coeliac disease it is important to emphasise compliance to their gluten-free diet as a reduction in iron absorption can be apparent when compliance is compromised.

In some cases obtaining an adequate intake of iron from the diet is not sufficient to correct a profound lowering of the free iron stored in the body. Iron tablets may be prescribed or sold over the counter. In very severe cases of anaemia a transfusion of whole blood may even be required (haemoglobin concentration <8g/dl).

Sources of dietary iron

Good	Medium	Poor
Liver, red meat, pulses (peas, beans), tofu, iron fortified breakfast cereals.	**Poultry, fish, green vegetables, dried fruit.**	**Cows' milk, cheese, yoghurt, tomatoes, carrots, potatoes, celery, cucumber, fruit. (These foods do provide other essential nutrients).**

Remember

Vitamin C aids iron absorption, so to maximise iron uptake foods rich in vitamin C should be included at the same meals. Foods rich in vitamin C are fruit, fruit juices and vegetables.

Activity 7

A. How many customers regularly visit your pharmacy with a history of anaemia?

B. What should you discuss with them?

C. Would you offer to provide a MUR for this patient? If not please indicate why?

Notes

Section 4

Malignancy

Introduction

Malignancy is probably the best-documented and most serious complication of coeliac disease. Although this complication is not as common as previously thought, patients with coeliac disease do have an increased risk of developing lymphoma and carcinomas of the mouth, pharynx and oesophagus.

As you may already know lymphoma is a disease of the lymph system.
Lets recap . . .

- The lymph system consists of thin vessels that branch throughout the body. They carry colourless fluid called lymph that is a vehicle for the white blood cells (lymphocytes).
- Throughout the system are small organs called lymph nodes. Cancer of the tissue that makes up these lymph nodes is called lymphoma.
- Lymphoma is classified into two types. The type is determined Hodgkin's disease or Non-Hodgkin's lymphoma.

Lymphoma in customers with coeliac disease can present in different ways.

1. The patient has a primary diagnosis of coeliac disease, which has responded to a gluten-free diet. At a later date they deteriorate with a diagnosis of lymphoma.
2. Lymphoma and coeliac disease may present at the same time (or very closely together).

Factors other than the development of a malignancy may cause the return of symptoms. These are listed below (look back at Learning Unit 1: Coeliac disease to recap on symptoms.)

- Voluntary or inadvertent ingestion of gluten.
- Food intolerance.
- Pancreatic insufficiency.
- Ulcerative jejunoileitis.
- Presence of another condition such as ulcerative colitis or Crohn's disease.

What's the risk?

Two studies relating to the risk of malignancy were considered in the recent NICE clinical guideline on recognition and assessment of coeliac disease. The first, a study conducted in the USA considered the standardised mortality ratio (SMR) of observed to expected deaths attributed to cancers that were diagnosed before or simultaneously with coeliac disease diagnosis[11]. Although numbers were small, this study identified significant SMRs for non-Hodgkin's lymphoma (4 observed cases compared with 0.7 expected, SMR=5.3, $p<0.001$), small bowel cancer (3 vs. 0.1, SMR=45, $p<0.001$), oesophageal cancer (3 vs. 0.2, SMR=16, $p<0.001$) and melanoma (4 vs. 0.8, SMR=5, $p<0.001$). It did not identify a significant difference in SMR for colon cancer, breast cancer and total cancers. A further study conducted in Italy and involving over 1900 adults with coeliac disease considered the impact of delayed diagnosis of coeliac disease on cancer risk using a standardised incidence ratio (SIR)[12]. The SIR was used to highlight observed versus expected cases of cancer (not only deaths) in the sample population. Overall 55 people were diagnosed with cancer before or simultaneously with coeliac disease diagnosis, compared to 42.1 expected cases (SIR=1.3, $p<0.001$ ie 30% increased risk of cancer overall). The study also identified 20 observed cases of non-Hodgkin's lymphoma compared with 4.2 expected cases (SIR=4.7, $p<0.001$), and 5 cases of small bowel cancer compared with 0.19 (SIR=25, $p<0.001$). A lower risk was identified for breast cancer in people with newly diagnosed coeliac disease (3 vs. 14, SIR=0.2, $p=0.01$). However, the authors noted that the results of this study were limited by the sample size. The NICE evidence statement in relation to this evidence states:

"Undiagnosed coeliac disease is associated with an increased risk of non-Hodgkin's and Hodgkin's lymphoma and small bowel cancer, but overall rates are low".

Protective effect of the gluten-free diet

The protective effect of a strict gluten-free diet is illustrated by a study by Holmes et al, 1989. They showed that those who followed a gluten-free diet for 5 years or more have an overall cancer risk that is not significantly higher than the general population[13].

The task of the community pharmacist when asked by a patient with coeliac disease about the return of symptoms is to refer the customer to their GP. Explore the nature of the symptoms with your customer. This will allow you to make appropriate referrals supported by accurate and relevant information.

Activity 8

Prepare a Pharmaceutical Care Plan for a patient with coeliac disease to encourage compliance with a gluten-free regimen. If you need some suggestions for your care plan see page 31.

Hints:
Wide variety of foods (all the foods pictured below are gluten-free)
Encouragement to try new foods and recipes
Explanation in an empathetic way of some of the complications of the disease.
Ensure the customer is receiving sufficient quantities of gluten-free foods.

Notes

Section 5

Other health problems associated with coeliac disease

Infertility

Fertility problems, sexual dysfunction and obstetrical complications are more frequently observed in customers with coeliac disease[14,15]. Furthermore there is evidence to suggest that undiagnosed maternal coeliac disease has a negative effect on intrauterine growth and birth weight, and is associated with increased preterm birth weight and caesarean section rates[10].

As a pharmacist you are well aware of the importance of folic acid before and during pregnancy. This is particularly important with customers who have coeliac disease as the absorption of vitamins and minerals can be impaired. In the absence of symptoms (or when they are mild) the diagnosis of coeliac disease can be missed. If the aetiology of the reproductive disorder is unknown investigation for other conditions including coeliac disease should be considered by the doctor.

Emphasise, again, the role of adherence with a strict gluten-free diet (augmented by folic acid) for those customers with coeliac disease who you know are wishing to conceive.

Dermatitis herpetiformis

Dermatitis herpetiformis was briefly alluded to in the first learning unit. It affects 1 in 10,000 of the UK population. The condition is more common in men than in woman and most commonly appears between the ages of 15 and 40 years[16].

The disease presents as patches of itchy red papules and blisters on the skin around joints and other pressure areas. The small intestine shows jejunal villous atrophy in about 80% of customers however, many do not complain of gastrointestinal symptoms. This may be due to mild or patchy gut damage. Customers with dermatitis herpetiformis have a similar risk of developing lymphoma. All patients must therefore follow a strict lifelong gluten-free diet.

First line treatment is usually with Dapsone (25mg-50mg daily). With the introduction of a gluten-free diet a reduction in the need for Dapsone therapy is common. As a pharmacist you should encourage patients to persevere with the diet as it may take 6 months following a gluten-free diet before an improvement in the condition is seen.

Lactose intolerance

Lactose (sometimes called milk sugar) intolerance arises from a deficiency of the enzyme lactase, which breaks this disaccharide (lactose) down to galactose and glucose. Lactase is produced by the cells that form the lining of the small intestine and the absence of lactase renders the gut unable to digest lactose.

Secondary lactase deficiency may occur in coeliac disease owing to the damage caused to lactase producing cells within the villi. A study conducted in 2005 found that 24% of people with lactose intolerance had villous atrophy, confirming coeliac disease[17]. A more recent study conducted amongst Eastern European children diagnosed with coeliac disease found that 19% of patients had secondary lactose intolerance, diagnosed by a lactose tolerance test[18]. With secondary lactose deficiency patients may need to follow gluten-free and lactose free diets. This means that milk products and foods containing milk products must also be excluded from the diet. Individual advice from a state registered dietitian is vital so that patients eliminate all obvious and hidden sources of lactose, and follow a nutritionally balanced diet with advice on calcium supplements if required.

As calcium is so essential to customers with coeliac disease, a diet with no milk products can reduce even further the calcium in the diet. Look back to the section on osteoporosis to refresh your memory about the recommended calcium intake.

Symptoms

Lactose intolerance exhibits itself within 1-2 hours after eating or drinking foods containing lactose. Symptoms include:

- Nausea.
- Cramps.
- Bloating.
- Flatulence.
- Diarrhoea.

Activity 9

List some good non-dairy sources of dietary calcium.

Do you stock any calcium supplements that do not contain lactose?

Notes

Section 6

Frequently asked questions

This learning unit has been developed to allow you to understand the needs of customers with coeliac disease. To help you respond to customers questions we have compiled a list of frequently asked questions and of course the answers. Additional space has been left for you to add any other questions you're asked about on gluten-free foods. It can provide a useful ***aide memoir.***

Q ***Are all customers with coeliac disease liable to develop osteoporosis?***

A Coeliac disease reduces the absorption of calcium from the diet. It is important that adequate dietary calcium is consumed to protect against this potentially debilitating disease. Current recommendations suggest that people with coeliac disease should consume between 1000 and 1500mg calcium/ day. If additional calcium is required to supplement dietary intake, divided dosage will help to maximise absorption. Post menopausal woman and men over 55 should aim for at least 1200mg/day. In Activity 3 you looked at the gluten-free foods you can obtain that are calcium enriched.

Q ***Is anaemia a common problem in coeliac disease?***

A Yes indeed. A very common first indicator in coeliac disease is iron deficiency anaemia. This is caused by reduced absorption of iron from the diet. Once the patient is stabilised on a suitable gluten-free diet stored iron is replenished and the anaemia resolves.

Q ***Does coeliac disease lead to the development of a malignancy?***

A Patients who do not adhere to a gluten-free diet are more prone to malignancy. It is important for pharmacists and pharmacy technicians to be aware of their customers need for support in complying with a strict diet. Any change in gastrointestinal symptoms should prompt a referral for investigation.

Q ***Can a patient with a diagnosis of coeliac disease have a "holiday" from a strict gluten-free diet?***

A No! It is important to adhere conscientiously to a gluten-free diet. This learning unit should have allowed you to develop an understanding of the problems that can arise with a less than strict regimen.

Q ***A patient with coeliac disease asks your advice about dietary requirements as she wants to start a family.***

A You need to again emphasise the need for a strictly controlled gluten-free diet. There is also a need for an adequate folic acid intake. This patient should be referred to her GP and dietitian for appropriate monitoring and advice at the pre-conception stage if possible.

Q ***Is coeliac disease a cancer?***

A NO! It is not. It is an auto-immune condition. There is an increased possibility of lymphoma but this can be reduced significantly by following a gluten-free diet.

Notes

Answers to activities

Activity 1

The incidence of coeliac disease is 1 in 100 people. Many may have no symptoms of the disease (silent coeliac disease) and would be diagnosed as a result of screening. Refer back to the epidemiology section in Learning Unit 1.

Activity 2

The contents page will help you identify where in the learning unit these conditions are discussed. If you filled in the table before working through the unit you might want to go back and check your answers or add to them.

Activity 3

Compare your calcium intake to recommended intakes. An intake of 500mg per day could for example be augmented to the RDA by including a low fat fruit yoghurt and a portion of curly kale (113mg) at dinnertime. Calcium is found in many foods, the boxes on page 11 list particularly good sources.

Activity 4

1. Review the gluten-free foods you stock. If the food is enriched with calcium the calcium content will be listed in the nutrition information panel. It may also say 'contains calcium' or 'good source of calcium' on the front of the packet.

2. Increase calcium content of the diet by:
   - (i) eating good dietary sources of calcium.
   - (ii) using calcium enriched gluten free foods and.
   - (iii) consider a calcium supplement.

Activity 5

Explain why she is at risk of osteoporosis. Find out if Evelyn has any particular risk factors and whether she has discussed these with her GP. Her GP may refer her for a DEXA scan to measure bone density. You can also advise her on suitable high calcium foods to include in her diet. Remember that some gluten-free foods are enriched with calcium. Consider also that you do not want to alarm Evelyn, so think about how you could discuss the risks in a sensitive way. Do you have a quiet or private area where you can chat with Evelyn? Use your MUR consulting room.

Activity 6

This activity asks you to reflect on any personal experiences of anaemia.
Refer back to page 17 for a list of symptoms.

Activity 7

How long have they had anaemia? Have they consulted their GP? We recommend that pharmacists liaise with their local GP surgery to discuss appropriate referral patterns (criteria) for Hb check. This will vary all over the country but each surgery will have its own methods.

Activity 8

Suggestions

Pharmaceutical Care Plan to include:

- Diagnosis
- Treatment plan
- Gluten-free foods to recommend
- General dietary advice
- Adherence review (gluten free diet and supplements)
- Review dates with pharmacist
- Medication review
- Development of referral criteria
- Minimum monthly prescription requirements (Refer to Gluten-free foods: revised prescribing guide, 2011)

Activity 9

Refer back to the list of calcium rich foods on page 9. Check out the labels on the calcium supplements available in your pharmacy or check in the BNF or MIMS.

References

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18. Radlovic N et al. Lactose intolerance in infants with gluten-sensitive enteropathy: frequency and clinical characteristics. Srp Arh Celok Lek. 2009:137(1-2);33-7.

Useful Contacts

Coeliac UK

Coeliac UK, 3rd Floor, Apollo Centre,
Desborough Road, High Wycombe, Bucks HP11 2QW

Coeliac UK Helpline: 0845 305 2060

www.coeliac.org.uk

National Osteoporosis Society

National Osteoporosis Society,
Camerton, Bath BA2 0PJ

helpline: 0845 450 0230

www.nos.org.uk

Dr Schär; our brands and services.

Dr Schär UK is the leading European manufacturer of gluten and wheat free foods. Our brands Glutafin (available on prescription) and DS Gluten Free (available in retail outlets) offers patients a combination of choice, quality and superior taste.

The Dr Schär Institute is a dedicated healthcare professional resource specialising in coeliac disease and gluten sensitivity. Our online and written resources, produced in collaboration with leading experts in the field, provide the latest information and training on the diagnosis and management of gluten related disorders.

Address:
Dr Schär Uk Ltd,
Station Court,
442 Stockport Rd,
Warrington. WA4 2GW.

For medical and scientific support, healthcare professionals may visit:
www.drschaer-institute.com
email: professionals@drschaer.com
Tel: 0800 988 8470

For product information, technical advice, recipes and patient support relating to our prescription products, visit:
www.glutafin.co.uk
email: glutenfree@glutafin.co.uk
Tel: 0800 988 2470

For product information, technical advice, recipes and patient support relating to our retail brand, visit:
www.dsglutenfree.com
email: info@dsglutenfree.co.uk
Tel: 0800 954 1981

My local Dr Schär UK contact is:

Name:

Contact Number

Assessment

The local branch of Coeliac UK has invited you to speak on ‘coeliac disease and osteoporosis’. Outline (using topic headings) what you would want to include in your talk, where possible highlight any interactive elements in your presentation.

Please return this completed module by email to professionals@drschaer.com or print and post to the Dr Schar Institute, Dr Schär UK, Units 1-2 Station Court, 442 Stockport Road, Thelwall WA4 2GW

A certificate of completion can then be issued to you.

Notes

Evaluation Form

To enable us to meet your continuing education needs in future resources would you mind taking a few moments to complete this evaluation form. Please place a tick on the line at a point, which most represents your opinion.

For example:
I would rate my own Continuing Professional Development as being

1	2	3	4	5
Not Important		Fairly Important	✔	Very Important

1. Was this learning unit appropriate to your professional development needs?

1	2	3	4	5
Not very appropriate		Appropriate		Very appropriate

2. Will what you have learned from this module help you in your clinical practice?

1	2	3	4	5
Not at all		Some of it will		Definitely

3. How did you enjoy working through this learning module?

1	2	3	4	5
Did not enjoy		No strong feeling		Really enjoyed

4. Was the support you receieved in completeing this learning module adequate?

1	2	3	4	5
Insufficient		Adequate		Just right

Please complete the following and return by email to professionals@drschaer.com or print and post to the Dr Schar Institute Dr Schär UK, Units 1-2 Station Court, 442 Stockport Road, Thelwall WA4 2GW

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Job Title:

Work address:

Telephone Number (Optional):

Email:

Subscribe to healthcare professional newsletter (please tick): Yes ☐ No ☐

Thank you.

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