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We don’t know what causes most cases of myeloma. But there are some risks factors that can increase your risk of developing it. These include being older, being overweight and having certain medical conditions. Anything that can increase your risk of getting a disease is called a risk factor. Different cancers have different risk factors. Having one or more of these risk factors doesn't mean you will definitely get that cancer. Being overweight or obese The risk of myeloma is higher in people who are overweight or obese . This is compared to people with a healthy body weight. Age As with most other cancers, the risk of myeloma increases as you get older. It is very rare in people under 40. Monoclonal gammopathy of undetermined significance (MGUS) Some people with myeloma already have a rare medical condition called MGUS. MGUS stands for monoclonal gammopathy of undetermined significance. MGUS means there are too many large protein molecules (immunoglobulins) in the blood. Doctors often find MGUS by chance as it can show up in routine blood tests. In most people MGUS doesn't cause any symptoms or need treatment. MGUS does not usually need treatment. Some people with MGUS go on to develop myeloma, so your specialist or GP will see you regularly for check ups. About 1 out of 100 people with MGUS (1%) develop myeloma each year. Family history You have a higher risk of myeloma or MGUS if you have a close relative with myeloma or MGUS. A close relative means a parent, brother, sister or child. This is compared to people with no close family members with these illnesses. It is not clear as to why there is an increased risk. We need more research to fully understand how family history affects your risk of myeloma. Myeloma is rare. It is unusual for a family to have more than one member of a family with myeloma. Some medical conditions An autoimmune condition called pernicious anaemia appears to increase the risk of myeloma and MGUS. Gender Myeloma is slightly more common in men than women. It's not clear why this is and there may be many factors involved including genetics and lifestyle. Ethnicity There is some evidence that myeloma is more common in Black people than in White people. It’s not clear why this is. Other possible causes Stories about potential causes are often in the media and it isn’t always clear which ideas are supported by evidence. There might be things you have heard of that we haven’t included here. This is because either there is no evidence about them or it is less clear. For detailed information on myeloma risks and causes The fraction of cancer attributable to known risk factors in England, Wales, Scotland, Northern Ireland, and the UK overall in 2015 K Brown and others British Journal of Cancer, 2018. Volume 118, Pages 1130-1141 The population impact of familial cancer, a major cause of cancer C Frank and others International Journal of Cancer, 2014. Volume 134, Issue 8, Pages 1899-906 Risk of MGUS in relatives of multiple myeloma cases by clinical and tumor characteristics A Clay-Gilmour and others Leukaemia 2019. Volume 33, Issue 2, Pages 499-507 HIV Infection, Immunosuppression, and Age at Diagnosis of Non-AIDS-Defining Cancers M Shiels and others Clinical Infectious Diseases, 2017. Volume 64, Issue 4, Pages 468-475 Anthropometric characteristics, physical activity and risk of hematological malignancies: A systematic review and meta-analysis of cohort studies T Psaltopoulou, TN Sergentanis and others International Journal of Cancer, 2019. Volume 145, Issue 2, Pages 347-359 The information on this page is based on literature searches and specialist checking. We used many references and there are too many to list here. If you need additional references for this information please contact patientinformation@cancer.org.uk with details of the particular risk or cause you are interested in. 03 Nov 202303 Nov 2026 Myeloma does not always cause symptoms in its early stages. It might be picked up on a routine blood test. The main signs and symptoms of myeloma are: bone pain - often in your back, hips, shoulders or ribs broken bones (fractures) tiredness (fatigue), shortness of breath and weakness - these are symptoms of low red blood cells (anaemia) pain, changes in sensation or weakness - these are symptoms of spinal cord compression lots of infections or infections that don't go away feeling thirsty, passing urine more frequently, confusion and drowsiness - these are all symptoms of high calcium levels in the blood Your symptoms are unlikely to be cancer but it is important to get them checked by a doctor. Symptoms and problems caused by myeloma Most of the symptoms and problems of myeloma are caused by abnormal plasma cells building up in the bone marrow. These cells make abnormal types of antibodies called paraproteins, which also causes problems. Bone pain and damage It is common to have pain when you are diagnosed. People mostly describe the pain as dull or aching. It is often felt in the lower back or ribs. It might feel like there is pain in your muscles too. Pain in the bones is caused by a lot of plasma cells collecting there. The large numbers of plasma cells damage the bones. Occasionally, a bone breaks (fractures). Feeling tired due to anaemia Breathlessness and tiredness can happen because you do not have enough red blood cells (anaemia). This happens because there are abnormal plasma cells in your bone marrow. The abnormal plasma cells damage the bones and crowd out the normal blood cells. Infections You might be more prone to infection, such as chest infections. Once you have an infection, it might take longer to get better. This is because you do not have enough healthy white blood cells to fight the bacteria or viruses. Too much calcium in your blood When the bones are damaged, they release calcium into the bloodstream. Too much calcium in the blood is called hypercalcaemia. This makes you feel very thirsty, sick and tired. You might also pass a lot of urine, as your body tries to get rid of the extra calcium. If hypercalcaemia is not treated and gets worse, it can make you drowsy and difficult to wake. Spinal cord compression Spinal cord compression happens when pressure on the spinal cord stops the nerves working normally. The symptoms depend on where the pressure is in the spinal cord. Pain is often the first symptom and more than 9 out of 10 people (90%) with spinal cord compression have it. The pain could be: anywhere in your back or neck or it may feel like a band around your body worse when you cough, sneeze or go to the toilet getting worse or doesn’t go away stopping you sleep or wakes you up at night Other symptoms are: changes to sensations in your body, such as pins and needles or numbness weakness in your legs or arms not being able to open your bladder or bowels difficulty controlling your bladder or bowels erection problems Spinal cord compression is an emergency. Contact your doctor straight away if you have any symptoms of spinal cord compression. Damage to your kidneys Abnormal plasma cells make a large amount of antibody protein (immunoglobulin). This can damage your kidneys as it passes through from the bloodstream to the urine. This leads to a number of different symptoms including: nausea loss of appetite and weight loss dehydration tiredness and lack of energy swollen ankles, feet and hands Bruising and bleeding Abnormal bruising and bleeding can happen because the large numbers of plasma cells in your bone marrow have stopped platelets from being made. But this is quite rare in myeloma. Cancer: Principles and Practice of Oncology (12th edition) VT DeVita, TS Lawrence, SA Rosenberg Wolters Kluwer, 2022 Early detection of multiple myeloma in primary care using blood tests: a case-control study in primary care C Koshiaris and others The British Journal of General Practice 2018. Volume 68, Issue 974, Pages 586 - 593 Prevalence of symptoms in patients with multiple myeloma: a systematic review and meta-analysis C Ramsenthaler and others European Journal of Haematology, 2016 .Volume 97, Issue 5, Pages 416-429 Multiple myeloma: what a non-haematologist should know K Taran and others Clinical Medicine, 2022. Volume 22, Issue 3, Pages 230 - 233 Advances in the management of myeloma: an update T Meenaghan and others British Journal of Nursing, 2023. Volume 31, Issue 17, S1 - S12 06 Oct 202306 Oct 2026 There is no UK screening programme for myeloma because: this type of cancer is uncommon, so many people would have unnecessary tests the benefits don't outweigh the costs See your GP if you have any symptoms or are worried about your cancer risk. What is cancer screening? Screening means testing people for early stages of a disease. This is before they have any symptoms. For screening to be useful the tests: need to be reliable at picking up cancersoverall must do more good than harm to people taking partmust be something that people are willing to do Screening tests are not perfect and have some risks. The screening programme should also be good value for money for the NHS. What to do if you think you're at risk of myeloma Talk to your GP if you think you are at higher than average risk of myeloma. MGUS You have regular appointment to check for signs of myeloma if you have a medical condition called MGUS. MGUS stands for monoclonal gammopathy of undetermined significance (MGUS). MGUS is not cancer. But some people with it can go on and develop myeloma. If you have MGUS, your plasma cells make too many abnormal immunoglobulins. Doctors call these paraproteins or M protein. These show up in your blood test. This condition does not usually cause any problems. Sometimes it is only picked up by chance when you have blood tests for another reason. Some people with MGUS go on to develop myeloma. So your specialist or GP do blood tests every 6 to 12 months to monitor you. About 1 out of 100 people with MGUS (1%) develop myeloma each year. Myeloma: diagnosis and management National Institute of Health and Care Excellence (NICE), 2016 Advances in MGUS diagnosis, risk stratification, and management: introducing myeloma-defining genomic events. O Landgren Haematology American Society of Haematology Education Program, 2021 Volume 1, Pages 662-672. What is the significance of monoclonal gammopathy of undetermined significance? C Atkin and others Clinical Medicine (London), 2018. Volume 18, Issue 5, Pages 391-396 Changing paradigms in diagnosis and treatment of monoclonal gammopathy of undetermined significance (MGUS) and smoldering multiple myeloma (SMM). M Ho and others Leukemia 2020. Volume 34, Issue 12, Pages 3111-3125 08 Nov 202308 Nov 2026 Myeloma is the 19th most common cancer in the UK, accounting for 2% of all new cancer cases (2017-2019).[1-4] In females in the UK, myeloma is the 18th most common cancer (1% of all new female cancer cases). In males in the UK, it is the 16th most common cancer (2% of all new male cancer cases). 42% of myeloma cases in the UK are in females, and 58% are in males. Myeloma incidence rates (European age-standardised (AS) rate) for persons are significantly lower than the UK average in Scotland and Wales and are similar to the UK average in all other UK constituent countries. For myeloma, there are few established risk factors therefore differences between countries largely reflect differences in diagnosis and data recording. Myeloma (C90), Average Number of New Cases Per Year, Crude and European Age-Standardised (AS) Incidence Rates per 100,000 Population, UK, 2017-2019 England Scotland Wales Northern Ireland UK 2,226 204 118 75 2,623 7.9 7.3 7.4 7.8 7.8 7.9 7.0 6.7 8.4 7.7 7.7 6.4 6.0 7.3 7.6 8.1 7.5 7.4 9.5 7.9 3,090 271 152 105 3,617 11.2 10.2 9.8 11.3 11.0 12.8 11.4 10.0 13.8 12.5 12.5 10.6 9.1 12.3 12.3 13.0 12.2 10.9 15.3 12.8 5,316 475 270 179 6,240 9.5 8.7 8.6 9.5 9.4 10.1 8.9 8.2 11.0 9.9 9.9 8.5 7.6 10.0 9.8 10.3 9.4 8.8 11.9 10.1 Download this data [xlsx] Data is for UK, 2017-2019, ICD-10 C90. In the UK in 2017-2019, on average each year more than 4 in 10 new cases (43%) were in people aged 75 and over.[1-4] Age-specific incidence rates rise from age 35-39 more steeply for males than females and drop in the oldest age groups. The highest rates are in the 80 to 84 age group for females and the 85 to 89 age group for males. Incidence rates are significantly lower for females than males in a number of (mainly older) age groups. The gap is widest at age 90+, when the age-specific incidence rate is 2.1 times lower for females than males. Myeloma (C90), Average Number of New Cases per Year and Age-Specific Incidence Rates per 100,000 Population, UK, 2017-2019 Download this data [xlsx] For myeloma, like most cancer types, incidence increases with age. This largely reflects cell DNA damage accumulating over time. Damage can result from biological processes or from exposure to risk factors. A drop or plateau in incidence in the oldest age groups often indicates reduced diagnostic activity perhaps due to general ill health. Data is for UK, 2017-2019, ICD-10 C90. Myeloma European age-standardised (AS) incidence rates for females and males combined increased by 36% in the UK between 1993-1995 and 2017-2019.[1-4] The increase was larger in males than in females. For females, myeloma AS incidence rates in the UK increased by 25% between 1993-1995 and 2017-2019. For males, myeloma AS incidence rates in the UK increased by 40% between 1993-1995 and 2017-2019. Over the last decade in the UK (between 2007-2009 and 2017-2019), myeloma AS incidence rates for females and males combined increased by 10%. In females AS incidence rates increased by 7%, and in males rates increased by 11%. Myeloma (ICD-10 C90), European Age-Standardised Incidence Rates, Persons Population, 1993 to 2019 Download this data [xlsx] Myeloma incidence rates have increased overall in most broad age groups in females and males combined in the UK since the early 1990s, but have remained stable in some.[1-4] Rates in 0-24s have remained stable, in 25-49s have increased by 63%, in 50-59s have increased by 41%, in 60-69s have increased by 29%, in 70-79s have increased by 36% and in 80+s have increased by 38%. Myeloma (ICD-10 C90), European Age-Standardised Incidence Rates per 100,000 Persons Population, By Age, UK, 1993-2019 Download this data [xlsx] For myeloma, like most cancer types, incidence trends largely reflect changing prevalence of risk factors and improvements in diagnosis and data recording. Recent incidence trends are influenced by risk factor prevalence in years past, and trends by age group reflect risk factor exposure in birth cohorts. Data is for UK, 1993-2019, ICD-10 C90. The number of new myeloma cases on average each year in the UK is projected to rise from around 6,800 cases in 2023-2025 to around 8,300 cases in 2038-2040.[1] Myeloma incidence rates are projected to rise by less than 1% in the UK between 2023-2025 and 2038-2040, to 10 cases per 100,000 people on average each year by 2038-2040.[1] This includes a similar increase for males and females. For females, myeloma European age-standardised (AS) incidence rates in the UK are projected to rise by 1% between 2023-2025 and 2038-2040, to 8 cases per 100,000 per year by 2038-2040.[1] For males, AS rates are projected to rise by less than 1% between 2023-2025 and 2038-2040, to 12 cases per 100,000 per year by 2038-2040.[1] Myeloma (C90), Observed and Projected Age-Standardised Incidence Rates, by Sex, UK, 1993-2040 Download the data table (xlsx) There are different types and subtypes of myeloma. These include: light chain myeloma non secretory myeloma myeloma without symptoms (smouldering myeloma) There are also some other conditions related to myeloma. For example, MGUS, plasmacytoma and amyloidosis. Some of these conditions can develop into myeloma. To understand about the different types of myeloma, it is helpful to know about plasma cells, paraproteins and immunoglobulins. Plasma cells, immunoglobulins, paraproteins and myeloma In myeloma, the bone marrow makes lots of abnormal (cancerous) plasma cells . Normal plasma cells make proteins called antibodies that protect us from infection. These antibodies are also called immunoglobulins. The abnormal plasma cells (myeloma cells) make abnormal types of antibodies (immunoglobulins) called paraproteins . Doctors use different names for paraproteins. They might also call them: abnormal proteins monoclonal proteins myeloma proteins a monoclonal spike. Each paraprotein is made up of: 2 long protein chains - these are also called heavy chains 2 shorter protein chains – these are also called light chains This is important because sometimes the myeloma doesn’t make the whole paraprotein. It sometimes only makes large amounts of the light chain part of the paraprotein. These are called free light chains or Bence Jones proteins. Light and heavy chains There are different types of heavy and light chains. These are described below: Heavy chain - there are 5 types, G, A, D, E and M Light chain – there are 2 types, kappa and lambda The types of myeloma Your myeloma will only make one type of paraprotein (so either G,A,D,E or M). Your doctor names your myeloma after the type of: abnormal immunoglobulin (paraprotein) it is making (G, A, D, E or M) light chain (kappa or lambda) Based on this your doctor might say you have, for example, IgG kappa myeloma. IgG myeloma, is the most common type, followed by IgA myeloma. IgM, IgD and IgE are very rare. There are other subtypes of myeloma, which we describe below: Light chain myeloma (Bence Jones myeloma) About 15 out of 100 people with myeloma (15%) have light chain myeloma. This means their myeloma cells only produce the light chain part of the immunoglobulin. They do not produce the heavy chain part. Doctors call this Bence Jones myeloma after the doctor who discovered it. There is a urine test which can detect the light chains (Bence Jones protein) in your urine. A blood test can also pick up small increases in the amount of free light chains in the blood. This is called a serum free light chain test. Doctors use this test to: measure the amount of each of the light chains in your blood to compare the amount of kappa light chains to the amount of lambda light chains – this is known as the ratio Your doctor can use the test to diagnose and monitor your myeloma. Read about tests for myeloma Non secretory myeloma In around 3 out of every 100 people with myeloma (around 3%), the myeloma cells produce little or no paraprotein. This makes it harder to diagnose and monitor. Doctors call this non secretory myeloma. Doctors use bone marrow tests and scans (such as PET-CT) to diagnose and monitor non secretory myeloma. Myeloma without symptoms (smouldering myeloma) Asymptomatic myeloma is also called smouldering or indolent myeloma. This means you don't have symptoms or any tissue or organ damage. But you have one or more of these: paraprotein in your blood that is more than 30 g/L level of abnormal plasma cells in your bone marrow that is between 10% and 60% no features of CRAB (including bone lesions on scans that are not causing symptoms) low light chain levels in your blood or urine You don't normally have treatment for smouldering myeloma. But your doctor will want to monitor you very regularly for any symptoms. Smouldering myeloma may progress to symptomatic myeloma, but your doctor won't be able to say when this will happen. The risk of myeloma progressing is highest in the first 5 years after diagnosis. About 50 out of 100 people (50%) with smouldering myeloma develop symptoms and need treatment within the first 5 years. However, after 5 years the risk decreases and some people never develop symptoms or need treatment. Types of myeloma depending on gene changes Myeloma develops when there is a change in the genes of the plasma cells. Genes are the instruction manuals for cells ‘telling’ them how to behave. There are subtypes of myeloma based on the gene changes in the myeloma cells. Knowing the genetic subtype can help doctors know how your myeloma might progress. Doctors are doing research to understand more about these genetic subtypes. In the future, treatment options might vary, depending on your genetic subtype. Your doctors usually do tests on your blood and bone marrow to look for changes in certain genes. You might hear these tests called cytogenetic tests or molecular analysis. The doctors give mutations names which are codes for the specific change. They refer to these genetic mutations as either high risk or low risk. They use this information, along with other factors, to decide what stage your myeloma is. This helps them understand how your myeloma might develop. Other conditions related to myeloma These are conditions that also affect plasma cells, and are related to myeloma: monoclonal gammopathy of undetermined significance (MGUS) plasmacytoma amyloidosis Monoclonal gammopathy of undetermined significance (MGUS) MGUS is not cancer. But some people with it can go on and develop myeloma. If you have MGUS, your plasma cells make too many abnormal immunoglobulins. Doctors call these paraproteins or M protein. These show up in your blood test. For most people, this doesn’t cause symptoms or affect your health. MGUS is often found by chance, in blood tests for a routine check up. Doctors might diagnose MGUS if they find paraprotein in your blood. They look at the level of the paraprotein and do other tests to rule out other conditions like myeloma. They diagnose MGUS if: the level of abnormal paraprotein in your blood is less than 30 g/l the level of abnormal plasma cells in your bone marrow is less than 10% there is no evidence of certain other related conditions there are no related problems with organs or tissues MGUS does not usually need treatment. Some people with MGUS go on to develop myeloma, so your specialist or GP will see you regularly for check ups. About 1 out of 100 people with MGUS (1%) develop myeloma each year. Plasmacytoma A plasmacytoma is similar to myeloma. But the abnormal plasma cells are in one place and form a lump (tumour). You can develop a plasmacytoma in bone or soft tissue. You might have: one area of plasmacytoma - a solitary plasmacytoma more than one plasmacytoma - multiple solitary plasmacytomas Plasmacytoma can develop in the bone, or outside the bone in the soft tissue. A plasmacytoma outside the bone is called an extramedullary plasmacytoma. More than 50 out of 100 (more than 50%) of people with bone plasmacytoma go on to develop myeloma later in life. Soft tissue (extramedullary) plasmacytoma can also develop into myeloma but is less common. Doctors usually treat plasmacytoma with radiotherapy . Amyloidosis This is a rare conditon. The plasma cells make an abnormal protein called amyloid. The amyloid collects in body organs, such as the kidneys or heart, and gradually causes damage. About 10 to 15 out of every 100 people with myeloma (10 to 15%) develop amyloidosis. But it doesn't always cause problems. However, it is rare for people with amyloidosis to develop myeloma. Doctors usually treat amyloidosis with chemotherapy, and use the same drugs that you would have for myeloma. Light-Chain Multiple Myeloma: A Diagnostic Challenge C Silva and others Cureus. 2021 Volume 13, Issue 10, e19131