case reports
THE CARE GUIDELINES

CASE REPORT

To encourage other practitioners to consider submitting a case report for the E – News, we have restructured the format in line with recommendations from July 2014 and have left in the key guides – should you be interested just e mail info@nutri-linkltd.co. We will send you the word doc.

Case reports are profesional narratives that outline the diagnosis, treatment, and outcomes of the medical problems of one or more patients. Information from case reports can be shared for medical, scientific, or educational purposes. They provide a framework for early signals of effectiveness adverse events, and cost. Case reports and the systematically collected data from which they are written also provide feedback on clinical practice guidelines.

Case Report of a 67-year-old man with Myelodysplasia who suffered from frequent infections that compromised his quality of life. Mr R.N. engaged in a therapeutic nutritional programme in September 2016 and has had markedly improved health since that time.

Abstract. *Summarise the following information if relevant: (1) Rationale for this case report, (2) Presenting concerns (eg, chief complaints or symptoms, diagnoses), (3) Interventions (eg, diagnostic, preventive, prognostic, therapeutic exchange), (3) Outcomes, and (4) Main lesson(s) from this case report.*

This case explores the case of a 67-year-old man who had been diagnosed a year before with myelodysplasia who suffered from a monthly cold or infection, which had a major impact on his quality of life, and that of his wife. Mr. R.N. had been taking medication for mild hypertension for some years prior, had hip pain which has been resolved with Bowen Therapy. He was otherwise in good health.

Myelodysplastic syndromes (MDS) are a type of rare blood cancer where your body does not have enough healthy blood cells. It's also known as myelodysplasia. There are many different types of MDS. Some types can stay mild for years and others are more serious. MDS can affect people of any age but is most common in adults over the age of 70.

Normally, the spongy tissue found inside bones (bone marrow) produces:

- red blood cells to carry oxygen around your body
- white blood cells to help fight infection
- platelets to help your blood clot

In MDS, the bone marrow doesn't make enough of these healthy blood cells. Instead, it makes abnormal cells that aren't fully developed (immature).

As the condition progress, the bone marrow is gradually taken over by the immature blood cells, which are increasingly compromised. They squeeze out the healthy ones, making the number of cells that manage to enter into the bloodstream lower and lower.

The condition can develop slowly (indolent) or quickly (aggressive), and in some people it can develop into a type of leukaemia called acute myeloid leukaemia (AML).

The symptoms will depend on the type of MDS. For most people, symptoms are mild at first and slowly worsen.

They can include:

- weakness, tiredness and occasional breathlessness (because of the low number of red blood cells)
- frequent infections (because of the low number of white blood cells)
- bruising and easy bleeding, such as nosebleeds (because of the low number of platelets)

MDS can affect just one type of blood cell or many, depending on the type of MDS.

Mr R.N. was not receiving any treatment for his condition when we met, when he was 67 years old.

Until 2016, the types of MDS were called:

- refractory anaemia – where you don't have enough red blood cells
- refractory cytopaenia – where you don't have enough red blood cells, white blood cells or platelets
- refractory anaemia with excess blasts – where you don't have enough red blood cells, white blood cells or platelets, and have a higher risk of developing AML.

In 2016, the World Health Organisation (WHO) changed the terms to:

- MDS with single lineage dysplasia (replacing refractory anaemia)
- MDS with multilineage dysplasia (replacing refractory cytopenia)
- MDS with excess blasts (replacing refractory anaemia with excess blasts).[1]

In the new nomenclature, Mr R.N. fits the description of refractory cytopaenia or MDS with multilineage dysplasia. Mr R.N.'s blood tests reflected the typical findings of those with this category of MDS in that there were low levels of white blood cells, platelets, red cell count, neutrophils, and monocytes.

As this is case is being written, Mr R.N. is now 72 years. We have had a total of 7 appointments in these 5 years, and he has blood tests at his doctor's every 6 months.

Key Words. Myelodysplasia (MDS), leucopaenia, white blood cells, neutrophils, monocytes,

Introduction. *Briefly summarise the background and context of this case report.*

A year before we first met, in 2015 at the age of 66, Mr R.N. began to suffer from frequent infections, and this prompted him to ask his GP for blood tests and to help explain why this was occurring. He had no other signs or symptoms of MDS. He was, however, taking anti-hypertensive medication which kept his blood pressure in the normal range. He also had a painful left hip.

The blood tests that confirmed the multiple low levels of both white and red blood cells and platelets and prompted a consultation with a haematology specialist who said the presentation indicated MDS. However, no treatment was offered and there was no support for Mr R.N.'s immune system other than to recommend antibiotics if they were needed. Mr R.N. did take a few courses of antibiotics in those early days but they made no difference, so he stopped after the second prescription.

[1] https://www.nhs.uk/conditions/myelodysplasia/

The infections occurred every month and significantly interrupted his well-being and life. He put up with this for a over 6 months before he sought my help to support his immune system. He had been told that there was nothing he could realistically do to alter the course of the MDS, which had meant that he delayed seeking help sooner.

Mr R.N. was not concerned at all about his blood pressure, which was now normal whilst taking the medication which had no side effects. His right hip had troubled him for some years. I recommended he seek out Bowen Therapy and this proved effective.

Mr R.N.'s sole focus in seeking nutrition guidance was to minimise the frequency of the monthly infections.

Presenting Concerns. *Describe the patient characteristics (eg, relevant demographics—age, gender, ethnicity, occupation) and their presenting concern(s) with relevant details of related past interventions.*

Mr. R.N. is 6'1" and weighed 13 st 10 lbs. When we first met in 2016, he was 67 years old. He is Caucasian, English and retired since the age of 60. He lives with his wife and they have 3 adult children in their late 30's. He has a brother who is 5 years younger. None of these family members have any health issues, although his wife did require unexpected major surgery (Whipple's procedure, also known as a pancreaticoduodenectomy) in February 2020, some three and a half years after our first appointment.

R.N. expressed his desire and personal need to stop getting ill, and then he wanted to raise his WBCs and then to resolve his arthritic left hip symptoms.

His health goals were these:
To be free of infection and not get ill
To have optimal levels of WBCs
To be free of arthritic left hip pain

Clinical Findings. *Describe: (1) the medical, family, and psychosocial history including lifestyle and genetic information; (2) pertinent co-morbidities and relevant interventions (eg, self-care, other therapies); and (3) the physical examination (PE) focused on the pertinent findings including results from testing.*

R.N.'s medical history uneventful. He had enjoyed very good health all of his life, being relatively active, preferring long walks and cycle rides to any form of formal exercise or sport. R.N. had not suffered any life-altering accidents or injuries. He is relatively tall (6'1") and now carried a small adiposity around his middle, but it was not noticeable.

His parents lived into their old age, his father succumbing to bowel cancer in his 90's and his mother had vascular dementia for the last two years of her life but lived to the age of 89. His younger brother was well and had no health issues and used no medications.

He ate what might be called a healthy western diet with muesli and yogurt for breakfast. He ate wheat once or twice a day. He drank 3 glasses of wine on two nights a week (Saturday and Sunday) and had done all of his adult life. This did not seem to adversely affect his health, at least symptomatically.

R.N. came across as a down-to-earth, no-nonsense gentleman who did not engage in any excesses in lifestyle or diet.

The onset of being ill very often from November 2015 was what prompted the blood testing that led to the diagnosis of MDS.

Timeline. *Create a timeline that includes specific dates and times (table, figure, or graphic).*

2009, age 60 – arthritic left hip developed a persistent discomfort.

2010, age 61 – other than his left hip, R.N. had been fit and well for all of his life. Now it was discovered that his blood pressure was raised. Commenced and maintained low doses of these medications: Ramipril (ACE inhibitor) and Atenolol (beta blocker). No known side effects experienced, and blood pressure normalised.

2015, age 65 – November 2015 to July 2016 had a series of 6 infections, 3 of which were severe and antibiotics were prescribed for the first 2 of them, but as it was not certain that they were needed they were not prescribed or taken again. R.N.'s left hip is now painful every day.

2016, age 66-67 – February to May 2016 had a series of blood tests which show low WBCs. May 2016, blood tests and bone marrow biopsy conducted but consultant unable to confirm a diagnosis because the abnormalities were small. However, the consultant believed that the most likely explanation for the low WBCs was myelodysplasia. Left hip painful everyday but not sufficiently so to require pain killers.

2016, aged 67, R.N. commences a therapeutic nutritional programme and every day takes immune supportive and other supplements and continues to the current day, September 2022. He also recieves Bowen Therapy which alleviates the left hip pain.

Diagnostic Focus and Assessment. *Provide an assessment of the (1) diagnostic methods (eg, PE, laboratory testing, imaging, questionnaires, referral); (2) diagnostic challenges (eg, financial, patient availability, cultural); (3) diagnostic reasoning including other diagnoses considered, and (4) prognostic characteristics (eg, staging) where applicable.*

The doctor's blood tests led to the presumptive diagnosis of MDS by the specialist consultant, albeit that the abnormalities in the bone marrow were small. The blood tests have been repeated every 6 months and show a very stable level of analytes, but always with low WBCs, low neutrophils, low monocytes, low platelets and low red blood cells. These have not changed over the 5+ years that R.N. has been a client. However, his health has improved dramatically, as will be discussed.

In order to rule out the presence of reactivated viruses, in the first appointment I recommended that R.N. have a test for Epstein Barr Virus (HHV-4) and HHV-6. This was to help inform the recommendations to support his immunity. A copy of the results is shown on the next page. There was a raised level of IgG antibodies to EBV-CA, a mildly raised Elispot (or Lymphocyte Transformation Test) to EBV, both lytic (reproducing virus) and latent (non-reproducing virus). There was a raised IgG antibody result to HHV-6. Both viruses could have been reactivated due to the reduced WBCs and as a consequence further reduced R.N.'s immune protection from circulating bacteria and viruses. It is not known how long before R.N. became ill in November 2015 that he had low levels of WBCs.

This was the only laboratory test I recommended. Every 6 months, R.N. attended his doctor's in order to have his WBCs and RBCs monitored. There was very little change in the blood tests, but there was a significant change in his vulnerability to developing cold or flu from the time that R.N. commenced the supplement programme. This highlights that it was not just the low WBCs that had led to the frequent illnesses, and the likely conclusion to draw is that the nutritional recommendations inhibited the viral burden along and with the immune-supportive supplements is what made the difference, albeit not by directly influencing the level of WBCs.

Sex	Date of Receipt	Reporting Date
M	10/14/2016 11:20	10/20/2016 18:42

Collection Date/Time: 12.10.2016

Material: CPDA-Blut, Serum, CPDA-Blut, CPDA-Blut, EDTA-Blut, Heparin Blut, Serum,

FINAL REPORT

Analysis	Result	Units	Reference Range	Chart
Epstein-Barr-Virus antibodies				
EBV-CA-IgG (ELISA)	+ 4.20	Ratio	< 0.80	
			<0,80=neg. 0,80-1,09=borderl. >1,10=pos.	
EBV-EBNA-IgG (ELISA)	0.54	Ratio	negative< 0.80	
			<0,80=neg. 0,80-1,09=borderl. >1,10=pos.	
EBV-CA-IgM (ELISA)	0.63	Ratio	< 0.80	
			<0,80=neg. 0,80-1,09=borderl. >1,10=pos.	
EBV-CA IgG antibodies detected. Serological evidence for a previous EBV infection.				
Epstein-Barr-Virus Elispot				
Epstein-Barr-Virus (lytic) Elispot	+ 3	SI	< 2	
Test result EBV-LY:				
The Elispot indicates borderline cellular activity against Epstein-Barr-Virus.				
Epstein-Barr-Virus (latent) Elispot	+ 3	SI	< 2	
Test result EBV-LA:				
The Elispot indicates borderline cellular activity against Epstein-Barr-Virus.				
Hamane Herpesvirus Typ 6				
Human herpesvirus6 IgG*	+ 1:64		< 1:16	
Human herpesvirus6 IgM*	<1:16		< 1:16	

Therapeutic Focus and Assessment. *Describe: (1) the type(s) of intervention (eg, preventive, pharmacologic, surgical, lifestyle, self-care) and (2) the administration and intensity of the intervention (eg, dosage, strength, duration, frequency).*

Diet-wise, there were not many things to change or improve because R.N.'s wife was very into wholesome food, a varied diet, and it contained no sugar, no ultra-processed food and very little processed food. I did recommend four fundamental things to Mr R.N.: consume high quality protein with breakfast giving suggestions, have a greater variety of sources of carbohydrate and not just wheat in order to avoid wheat on every other day, have more vegetables at lunch in particular, and to drink less alcohol at the weekend with a max of 2 glasses per evening. I also provided lists of foods rich in immune-supportive nutrients of selenium and zinc and vitamin C to help support the choices he and his wife could make. The high quality or biologically available essential amino acids from animal proteins are also vital for immune cells and immunity.

From a dietary analysis, he appeared to be consuming sufficient vitamin B12, which was not in the supplement programme, but I was aware of the potential need, given the bone marrow involvement in MDS.

Regarding supplements, I present below what was recommended to R.N. in the short appointment on 3rd November 2016 with the EBV & HHV-6 test results received. Three of the supplements possess specific

anti-viral activity (Humic Acid, Takuna and Vitamin D), whilst three confer specific benefit to the immune system (Vitamin D, Simply Immune and Mico-Five mushroom mix).

Supplement (& brand) (3.11.2016)	Dose
Humic Acid (AR) (natural anti-viral)	1 with breakfast & dinner
Takuna (Cecropia) (Nutra-Medix) (anti-HHV-6 remedy)	5 drops in a little water twice daily
Simply Immune (AR) (probiotic with Vits A, C, D)	1 with breakfast & dinner
Bio-D-Mulsion (BR) (emulsified vit D, 400 iu per drop)	3 drops with dinner
Mico-Five (HdT) (mushroom immune support)	2 first thing in the morning

We agreed that we would have a follow up appointment after a period whilst on this supplement programme especially if the infections persisted. Neither of us anticipated that the next appointment would be in April 2017, some five and a half months later. The reason for this was that he did not develop any infections and felt more robust as a result, so he simply carried on taking these supplements every day.

I learned that R.N. applied himself diligently to the task at hand, and the supplements made a rapid and significant impact on his health, allowing him and his wife to resume normal activities without the fear of being stopped or interrupted by the symptoms associated with his prior frequent infections.

Follow-up and Outcomes. *Please describe the clinical course of this case including all follow-up visits as well as (1) intervention modification, interruption, or discontinuation, and the reasons; (2) adherence to the intervention and how this was assessed; and (3) adverse effects or unanticipated events. Please describe (1) patient-reported outcomes, (2) clinician-assessed and -reported outcomes, and (3) important positive and negative test results.*

Dates of appointments & test results with Mr R.N.	Description
19th September 2016	First Appointment
14th October 2016	Viral test results for EBV & HHV-6
3rd November 2016	Appointment to discuss test results
12th April 2017	Review of supplements due to out of stock items
23rd September 2019	Follow up appointment after 3 years
23rd March 2021	Follow up appointment after 18 months
19th May 2021	Follow up appointment to address first infection since first appointment in 2016
30th June 2022	Follow up appointment

Above is the schedule of appointments, with one of the dates simply marking the arrival of the viral blood tests. The 12th April 2017 appointment was not predicated in terms of R.N.'s health but rather because some of the supplements were out of stock. As you might imagine, R.N. had become attached to the specific,effective supplements.

The Lactobacillus Plantarum / Rhamnosus / Salivarius (AR) probiotic replaced the discontinued Simply Immune (AR). From the time that we had arranged the short appointment, the Humic Acid (AR) had

returned into stock and it was not necessary to find an alternative Otherwise, the supplement programme remained the same as that prepared on 3rd November 2016.

Supplement (& brand) (12.4.2017)	Dose
Humic Acid (AR) (natural anti-viral)	1 with breakfast & dinner
Takuna (Cecropia) (Nutra-Medix) (anti-HHV-6 remedy)	5 drops in a little water twice daily
Lactobacillus Plantarum / Rhamnosus / Salivarius) (AR) (probiotic for mucosal immune support)	1 with each meal, & 1 at bed-time
Bio-D-Mulsion (BR) (emulsified vit D, 400 iu per drop)	3 drops with dinner
Mico-Five (HdT) (mushroom immune support)	2 first thing in the morning

The first scheduled follow up took place on 23rd September 2019, nearly 3 years after R.N. had been recommended the therapeutic supplement programme. R.N. reported that he met with the MDS consultant regularly and that things were very stable in terms of his myelodysplasia. In all that time, R.N. reported that he only developed a single cough, He was going to contact me but it was so short-lived that he did not. He did report that he experienced quite sudden bouts of tiredness, which could readily be associated with the MDS, and low levels of RBCs. He would then sleep for a few hours in the day and this would usually resolve. This was "annoying" but not nearly as interruptive or as uncomfortable as getting ill.

The recommendation to seek Bowen Therapy had proven to be very helpful and after 5 or 6 sessions over some months, the hip pain was considerably less.

Based on this feedback, and given how successful this programme had been, I made subtle amendments only to the supplement programme, as shown below. I reduced the Humic Acid (AR) to 1 per day from 2, I increased the Takuna tincture from 7 drops to 10 drops, I increased the vitamin D to 6 drops (2,400 iu) from 3 drops (1,200 iu) and swapped the Mico-Five (HdT) for S. Boulardii.

Supplement (& brand) (23.9.19)	Dose
Humic Acid (AR) (natural anti-viral)	1 with dinner
Takuna (Cecropia) (Nutra-Medix) (anti-HHV-6 remedy)	10 drops in a little water twice daily
Lactobacillus Plantarum / Rhamnosus / Salivarius) (AR) (probiotic for mucosal immune support)	1 with each meal, & 1 at bed-time
Bio-D-Mulsion (BR) (emulsified vit D, 400 iu per drop)	6 drops with dinner
S. Boulardii (AR) (mucosal immune support)	1 with breakfast & 1 with dinner

There was another long gap between appointments, of two and a half years, which meant that things were going well for Mr R.N.in terms of being free of illness and infection.

However, R.N. reported that the sudden onset tiredness that he was experiencing now demanded rest for 24 hours, and not just a two hour nap in the day. He reported that the consultant was not at all worried about the MDS, and the blood tests continued to show very similar results each time.

In addition, R.N. had developed gastrointestinal symptoms after eating fatty meals, reflecting a need to support his bile production. The onset had been gradual, and now he avoided anything more than a small

amount of cheese and found that he needed to choose lean cuts of meat and could no longer eat pork, presumably because of its fat content. Even a larger helping of olive oil made him feel nauseous. He would also have loose stools which were paler in colour than usual.

It was not possible from all the information I could glean as to why this had happened. It occurred to me that possibly the longer-term use of the medications (Ramipril and Atenolol) could somehow have an impact on the liver. He had been drinking less alcohol so I was not convinced this was involved. It is possible that this development could have been related to aging or even linked to the MDS condition.

Nonetheless, I introduced new supplements to his programme to support bile and the liver. Beta Plus (BR) is a bile with lipase remedy and Berberine 500 (AR) can improve a fatty liver and stabilise blood sugar and support commensal gut bacteria. At this appointment, having taken vitamin D on its own, I recommended the four fat-soluble vitamins together in the form of Bio-ADEK-Mulsion (BR). I added a low dose but active form B Complex (Bio-B Complex (BR) to support R.N.'s energy and hoped that this could make a difference to the sudden tiredness that overcame him, which we acknowledged was likely due to the low count in red blood and other cells. To support R.N. further I added in the nutrients of vitamin C and zinc for their multiple functions including immune support.

These changes represented the most notable change in R.N.'s supplement programme since November 2016.

Supplement (& brand) (23.3.21)	Dose
Takuna (Cecropia) (Nutra-Medix) (anti-HHV-6 remedy)	6 drops in a little water twice daily
Humic Acid (AR) (natural anti-viral)	1 with breakfast & dinner
Beta Plus (BR) (bile & lipase)	1 with lunch & dinner
Berberine 500 (AR) (anti-microbial, liver & blood glucose supportive)	1 with dinner
Bio-ADEK-Mulsion (BR) (emulsified vits)	5 drops with dinner
Bio-B-100 (BR) (low dose active B vits)	1 with each meal
Bio-C Plus (BR) (500mg vit C with bioflavanoids)	1 with food per day
Zn-Zyme (BR) (15 mg of zinc)	1 with dinner

The next follow up appointment was not 2 years later, it was 2 months later, in May 2021, and this was prompted by the first infection that R.N. had suffered since the start, and in spite of taking the expanded supplement programme. I learned that it was not a cold or flu or a cough but rather a urinary tract infection (UTI) during which his temperature rose to 38.9^0 C. The advice from the MDS Triage Unit was to go into hospital and he went in and was given intravenous antibiotics which resolved infection. He was also prescribed a week's worth of oral antibiotics too. As R.N. reiterated to me, "it's the first infection I have had since 2016, not a bad record!" I recommended D-Mannose Powder (BioTech) as a preventative for any future UTIs.

We explored why the UTI may have occurred, checking on his water intake and hydration status and so on, but we could identify a reason why it occurred. He could not recall every having had a UTI in his life before. To me, this highlighted the ongoing need for continued immune support.

In addition to including the D-Mannose (BioTech), I recommended the very well-studied and effective probiotic strain Lactobacillus Rhamnosus GG to help correct any negative effects on the gut microbiota from the antibiotics. I decided to have R.N. stop the Berberine 500 (AR) as R.N. has existing bile support and the probiotic.

Supplement (& brand) (19.5.21)	Dose
Takuna (Cecropia) (Nutra-Medix) (anti-HHV-6 remedy)	7 drops in a little water twice daily
Humic Acid (AR) (natural anti-viral)	1 with breakfast & dinner
Beta Plus (BR) (bile & lipase)	1 with lunch & dinner
Bio-ADEK-Mulsion (BR) (emulsified vits)	10 drops with dinner for 30 days, then reduce to 5 drops
Bio-B-100 (BR) (low dose active B vits)	2 with each meal
Bio-C Plus (BR) (500mg vit C with bioflavanoids)	1 with breakfast & dinner for 30 days, then reduce to 1 with dinner
Zn-Zyme (BR) (15 mg of zinc)	1 with dinner
S. Boulardii (AR) (mucosal immune support)	1 with each meal for 14 days, then reduce to 1 with dinner for 14 days
L. Rhamnosus GG (AR)	1 with breakfast & dinner for 30 days

The most recent appointment with R.N. was, gratifyingly over a year since the previous, reflecting the lack of need on his part, and therefore the success of the programme. Instead of the first enquiry being about infection and illness, this time it was about R.N.'s energy levels. He reported that they were pretty good and that he had not had any fatigued days since starting the last programme. However, he said he felt that his overall levels had dropped a good 10% despite not having any specifically problematic days.

An observation here is that with both the issues of frequent infections and the sudden-onset-tired days, nothing in the blood tests changed, but with the help of selected nutritional supplements, R.N. overcame both. Both states of health were pinned to the MDS, perhaps understandably, but both states were rapidly and significantly improved by taking appropriate nutrients and supplements. R.N. had effectively been told to "live with it", that it was just part of the MDS and yet there was a relatively safe and straightforward solution from a nutritional perspective.

R.N. did share that he had been experiencing cramps in his feet and sometimes his hands. We discussed the possibility that the beta blocker Atenolol could have these effects, but also questioned that possibility because he had been taking this medication for years without this effect. I wondered if he did not need the medication anymore, or at a lower dose. He agreed to speak to his doctor about this.

R.N. also told me that sometimes he would awaken in the night and lie awake for hours. This seemed to occur without any rhyme or reason. For both the cramps and the sleep issue, the mineral magnesium came to mind. He was already taking zinc which may be the most important mineral in terms of sleep regulation. I also wondered if there was a blood sugar imbalance or possibly a liver function change and for this reason I added back in the Berberine 500 (AR). The most recent and ongoing supplement programme is shown below.

R.N. told me that he needed Bowen Therapy every 4 to 6 months to maintain the freedom from pain, but felt that his hip joint was still close to discomfort and he had consciously protected it in terms of choice of physical activity. Cycling was just fine, whereas longer walks were more problematic.

Supplement (& brand) (30.6.22)	Dose
Humic Acid (AR) (natural anti-viral)	1 with dinner
Gallbladder Salts (AR) (ox bile)	1 with dinner
Berberine 500 (AR)	1 with dinner
Bio-ADEK-Mulsion (BR) (emulsified vits)	4 drops with dinner every other day
Bio-B-100 (BR) (low dose active B vits)	2 with each meal
Bio-C Plus (BR) (500mg vit C with bioflavanoids)	1 with dinner
Zn-Zyme (BR) (15 mg of zinc)	1 with dinner
S. Boulardii (AR) (mucosal immune support)	1 with dinner
Lactobacillus P / R / S (AR)	1 with dinner
Liquid Magnesium (BB) (mg chloride)	12 drops in a little water at breakfast & dinner time
Mitochondrial Cofactors (AR)	1 with each meal

As a reminder, R.N.'s health goals were these:

To be free of infection and not get ill
To have optimal levels of WBCs
To be free of arthritic left hip pain

From the start, the first goal was achieved and maintained almost unbroken for the 5 years over which this case is described. The second goal was not achieved, and the blood tests showed the same level of WBCs in each test which was conducted ever 6 months. However, stabilising the WBCs may also be considered a positive outcome. The third goal, with the help of Bowen Therapy, was largely achieved.

R.N. has followed the supplement programme very closely and considered it to be a very sound investment from which he has had measurably positive outcomes to which his wife attests.

There was no attempt to directly treat the MDS, for which there is currently no known successful treatment, but rather the provision of nutritional support for immunity and energy, , proved to be very effective.

Discussion. *Please describe (1) the strengths and limitations of this case report including case management, (2) the literature relevant to this case report (the scientific and clinical context), (3) the rationale for your conclusions (eg, potential causal links and generalizability), and (4) the main findings of this case report: What are the take-away messages?*

The strengths of this case are the careful case history taking, notwithstanding the clean health history of this client. Perhaps the main strength is the knowledge, which may be very commonly known in the nutrition world, of what supplements to choose to achieve immune support and energy improvements. That R.N. was such a willing client and complied with everything that was recommended is also fundamental.

The limitations of this case could include the lack of wider testing and repeat testing of the viral burden. Using a wider array of markers, it may have been possible to observe positive changes that had a stronger association with the absence of illness and improved energy that R.N. experienced when taking the supplements. T-cell or NK-cell or SIgA levels and function may have been more helpful to understand how the supplements worked, as compared to the regular blood testing for his WBCs. Levels of key nutrients such as vitamin D and zinc, for example, could have been assessed prior to any nutritional changes and

supplements. With regard to energy, one may have been able to assess mitochondrial function before and after, or even cortisol and thyroid hormones. This would have involved private funding of such tests, and due to the ongoing positive outcome, this was not considered needed.

Patient Perspective. The patient should share his or her experience or perspective of the care in a narrative that accompanies the case report whenever appropriate.

"From the first moment I began the nutrition programme I felt that I was getting better, and it very soon turned out to be manifestly true. Not being ill meant I could carry on with my life as I wished and gave myself and my wife confidence to plan ahead. With my wife's surgery, it has been especially important that I have remained well to support her but also not to be a source of illness myself. I could not have hoped for more. Whatever issues I have, I just know that they can be resolved with the right nutritional input".

Informed Consent. *Did the patient give the author of this case report informed consent? Provide if requested.*

The patient, Mr R.N. is not aware that his case is being described in this case report and his identity has been concealed.

Case Report Submission Requirements for Authors

1. Competing interests. Are there any competing interests?

No

2. Ethics Approval. Did an ethics committee or Institutional Review Board give approval? If yes, please provide if requested.

No

3. De-Identification. Has all patient related data been de-identified?

Yes