Case report

Last Name: Summerfield	**First name:** Geoffrey
Job title: Consultant Haematologist	
Hospital/organisation: Queen Elizabeth Hospital, Gateshead	
Email: geoffrey.summerfield@ghnt.nhs.uk	

Case report

The aim and scope of a Myeloma Academy Case Report is to provide a platform for reporting unique, unusual and rare cases in myeloma which enhance the understanding of the disease process, its diagnosis, and the treatment and management of it.

Title: Prolonged survival in myeloma using α-interferon as a single agent

Abstract:

A 49 year old woman presented with IgG lambda myeloma (Hb 97, paraprotein 41g/L) in January 1996. She failed to respond to six cycles of MP and was started on alfa interferon in January 1997. β-epoetin was added for symptomatic anaemia in October 2004. Her paraprotein has been continuously < 10g/L since September 2000 and Hb has been normal since November 2004, expect after surgery for fractured femur in October 2013. Despite multiple co-morbidities her performance status in January 2015 at the age of 67 is 1. Therapy with interferon and erythropoietin has been well tolerated over many years

Case presentation:

AP Female 24/11/1947 Myeloma (IgG lambda) - January 1996 (age 49, now 67) Hb 97, WBC 7.6, platelets 331, paraprotein 41g/L, beta-2 mcg 3.5mg/L

Co-morbidities: Chronic kidney disease, stage 3A/B, Raised ferritin, Gout, Osteoarthritis, Seropositive rheumatoid arthritis - June 2012, Extra-capsular fracture, neck of right femur - December 2013, Death of husband - April 2014, Pseudo gout, right knee - July 2014, Right lower lobe bronchiectasis - October 2014, Bilateral hallux valgus osteotomies

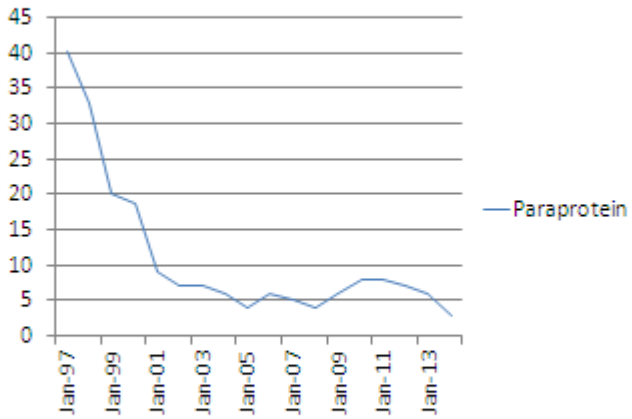
Treatment: Rx Melphalan 10mg daily, Prednisolone 40mg daily both for one week (MP) x 6, June 1996 - paraprotein 37.4, Jan 1997 - paraprotein 40.3, Rx Alpha interferon 3megau s.c. M/W/F, Jan 1998 - paraprotein 32.8, Jan 1999 - paraprotein 20.0, Jan 2000 - paraprotein 18.6

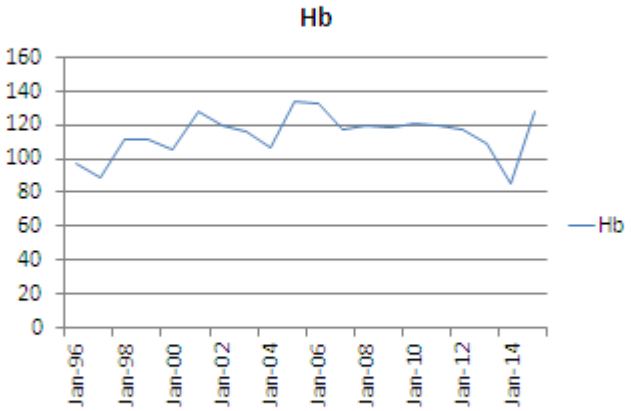
Anaemia: Hb at presentation 97g/L, fell to 89 Jan 1997, slowly rose to 128, Dec 2000 (paraprotein 8g/L), Hb 10.6 Sept 2004 with ferritin 2168, Oct 2004 - started on beta epoetin 10,000u s.c. weekly, Nov 2004 - Hb 12.2, ferritin 1504

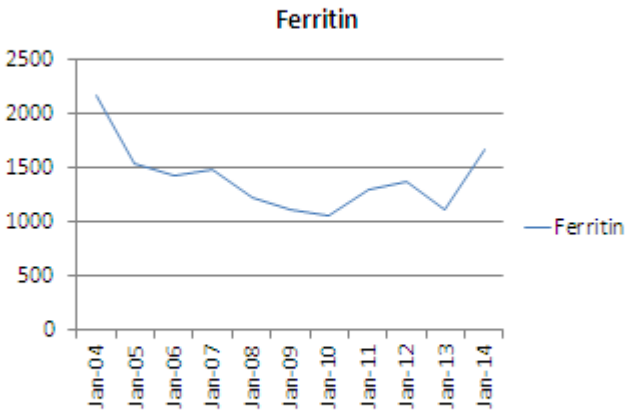
Iron stores: Ferritin 2168 June 2004, HFE screen negative, liver biopsy no parenchymal iron, Started on epoetin Oct 2004 for symptomatic mild anaemia and to utilise excess iron stores.

Latest results: Hb 128, WBC 4.5, platelets 218; eGFR 47, paraprotein 3g/L, serum free kappa LC 51mg/L, lambda 126mg/L, ratio 0.4, ferritin 1209 (Sept 2014).

Current medication: α-interferon 3megau s.c. M/W/F, β-epoetin 6,000 units s.c. weekly, hydroxychloroquine 200mg daily, allopurinol 300mg daily, carbocisteine 375mg b.d., salbutamol inhaler 2 puffs q.d.s. as required, fluoxetine 20mg daily, gabapentin 600mg t.d.s., codeine 30-60mg q.d.s. as required, paracetamol 1g as required







Myeloma UK Broughton House, 31 Dunedin Street, Edinburgh EH7 4JG
Tel: 0131 557 3332 | Fax: 0131 557 9785 | Email: myelomauk@myeloma.org.uk
www.myeloma.org.uk | Charity No. SC 026116

Discussion:

The possible beneficial effect of α-interferon in myeloma was first reported in 1979 [1]. Since then multiple reports have been published and the overall response has been modest. A meta-analysis of 24 randomized trials involving 4000 patients showed that IFN produced a moderate improvement in relapse-free survival and a minor improvement in overall survival [2].

In this individual patient however, treatment with α-interferon was highly successful following the failure of standard oral melphalan and prednisolone in 1996. The patient has never received more modern treatments such as thalidomide, bortezomib or lenalidomide - these were not available at the time α-interferon was started.

Because of the success of the drug in controlling her myeloma, the patient and her physicians have been reluctant to discontinue the medication. Likewise, erythropoietin has improved her anaemia and is also being continued long term. The current annual cost of α-interferon at this dose is £1945 plus VAT and of β-epoetin at 6,000 units weekly is £2184 plus VAT. The patient enjoys a good quality of life and performance status, which appears to justify the continued cost of treatment.

The cause of her raised iron stores is unclear. She has only received six units of transfused blood since diagnosis (five of these in 2013 to cover orthopaedic surgery). Interferon inhibits iron absorption through upregulation of hepcidin [3] and the most likely cause in this patient is chronic inflammation associated with her rheumatoid arthritis. As a haemochromatosis gene screen was negative and there was no increase in parenchymal iron on liver biopsy the need to reduce her iron stores to preserve organ function is debatable.

Learning Points:

Almost 19 year survival thus far despite co-morbidity, currently in near CR
Role of interferon in MM? Clearly effective in this case over a very long period. Perhaps should still be considered as an option for treatment of refractory myeloma
Role of epoetin in MM? Of value in this case in correcting symptomatic anaemia and reducing iron stores
Need to reduce ferritin? The need for this is unclear as there was no parenchymal iron on a liver biopsy
Would you change anything?

References:

1) Mellstedt, H., Ahre, A., Bjorkholm, M., Holm, G., Johansson, B. & Strander, H. (1979) Interferon therapy in myelomatosis. *Lancet*, i, 245-247

2) Wheatley J. Which myeloma patients benefit from interferon therapy? (1998) An overview of 24 randomized trials with 4000 patients. *Br J Haem*. 102:140.

3) Ichiki K, Ikuta K, Addo L, Tanaka H, Sasaki Y, Shimonaka Y, Sasaki K, Ito S, Shindo M, Ohtake T, Fujiya M, Torimoto Y, Kohgo Y. (2014) Upregulation of iron regulatory hormone

hepcidin by interferon α. *J Gastroenterol Hepatol*. 29(2):387-94