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A retrospective review of antimicrobial use and risk stratification of patients with multiple myeloma admitted due to suspected infection

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INTRODUCTION

Infection remains a major cause of morbidity and mortality in patients with multiple myeloma. The risk of infection in multiple myeloma patients is due to both the immunodeficiency caused by the disease but also the treatment regimens. As treatment regimens are increasingly incorporating novel agents, rates of infection and early death related to infection is growing and thus is the need for risk stratification of first line antibiotic use[1].

Unlike other haemato-oncology patients, treatment in myeloma does not render the individual neutropenic[2] and therefore accepted neutropenic sepsis protocols are not formally applicable and the use of prophylactic antibiotics is not routine.

Early identification of high risk individuals and relevant microorganisms need to be incorporated into first line antibiotic treatment regimens alongside local antibiotic guidance.

AIMS

- To evaluate the antibiotic use in adult patients with multiple myeloma admitted due to suspected infection as compared with local guidelines.
- To discern common positive organisms and antimicrobial resistance, alongside identification of any patient or disease characteristics that are associated with adverse outcomes that may be used to risk stratify patients and support tailored first line antibiotic therapy.

METHOD

A retrospective study reviewing all patients diagnosed with multiple myeloma between January 2015 and October 2019 admitted to Hillingdon Hospital with suspected infection requiring antibiotic therapy.

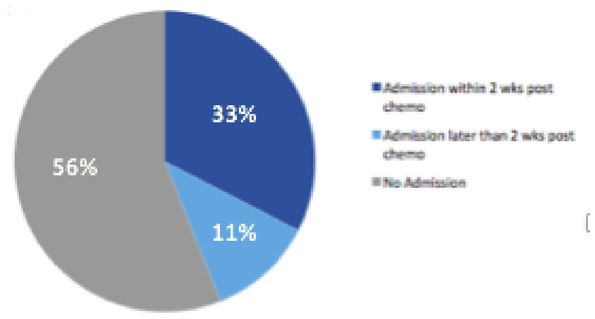
The clinical details were collated into a database from ICE and the available patient records. This included admission and discharge dates, duration of antibiotic therapy and relevant investigations completed throughout their inpatient stay. Potential adverse outcome factors including age, time from diagnosis, paraprotein and light chain level, percentage bone marrow infiltration and albumin were analysed.

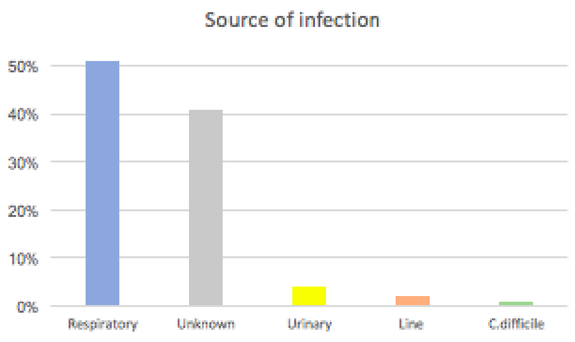
RESULTS

The total number of patients diagnosed with multiple myeloma from January 2015 to October 2019 is 97.

Of the 97 patients, 43 (44% required hospital admission for intravenous antibiotics due to suspected infection (median age 74.5, range 47-95 years). The median length of stay was 7 days (range 1-70 days, mean 9.5).

Of the 43 patients, 28% required multiple admissions (median age 76.5). This increased to 44% of cases where patients had an index admission within three months of diagnosis. Five patients had more than three admissions with suspected infection. 32 of the admissions were within two weeks of their last chemotherapy cycle.





The most likely source of infection was chest (51%) with identification of likely causative microorganism in only 17% of cases. There was one recorded admission with clostridium difficile.

All admissions were started on broad spectrum antibiotics. Tazocin was used as the first line agent in 41% of cases, despite only two presentations with neutrophil count on admission <1x10^9/l and less than 20% of admissions received first line antibiotics in accordance with trust policy.

As expected, the majority of admissions were not neutropenic, however there were five which had a neutrophil count of <1.5x10^9/l. The majority of patients, 81.3%, had a lymphocyte count of <1x10^9/l. Of the admissions, 12 had an albumin level >35g/l and four patients had an albumin <24g/l. Of the four blood culture growths, none of them were multi-resistant organisms.

Twelve patients went on to have cross-sectional imaging including chest and abdomen to localise a source of infection with no positive microbiology results,

Of the 43 patients, 90.7% were discharged from hospital but four patients (9.3%) unfortunately died during this admission.

CONCLUSIONS

1. Admission due to suspected infection in multiple myeloma results in significant length of stay and exposure to broad spectrum antibiotics despite infrequent identification of organism.
2. There was no significant association between paraprotein, beta-2-globulin or lymphocyte count and recurrent admission.
3. Index admission within 3 months following diagnosis increased the likelihood of recurrent admission without association of increased mortality.
4. **There is poor compliance with local antibiotic guidelines and frequent use of the neutropenic sepsis antimicrobial protocol, reflecting the recognition by clinicians of high risk morbidity and mortality in patients with multiple myeloma but without individualised protocols available or reliable risk stratification indices**.

REFERENCES

1 **Schutt P et al**. Immune parameters in multiple myeloma patients: influence of treatment and correlation with opportunistic infections. *Leuk Lymphoma 2006; 47(8);: 1570*

2 **Kumar SK et al.** Continued improvement in survival in multiple myeloma: changes in early mortality and outcomes in older patients. *Leukaemia 2014 28(5):1122-8*

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