SA4

Characterisation of Demography and Comorbidity in Newly Diagnosed Multiple Myeloma Patients in the UK

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Introduction

- There is **an increased risk of comorbidity** in people with MM due to their advanced age at diagnosis [1].
- A patient's comorbidities are known to have a **significant impact on treatment decisions** such as the **dosing of chemotherapy and suitability for autologous stem cell transplantation** [2].
- Heavily **comorbid patients are underrepresented** in clinical trials, therefore more RWE evidence studies are needed to improve understanding of this patient group [3].
- We look towards a **real-world data cohort of adult newly diagnosed MM (NDMM) patients** to assess the levels of comorbidity in newly diagnosed patients and their survival.

Objectives

1. **Describe the baseline characteristics** of the NDMM cohort, including assessment of comorbidity using the **Charlson Comorbidity Index (CCI).**
2. Compare **overall survival** between patients with no significant comorbidity at the point of diagnosis (CCI = 0); patients with a mild/moderate comorbidity profile (CCI = 1-2) and patients with a more sever comorbidity status (CCI = 3+), over **a 10-year follow up period.**

Methods

1. **Patients with MM** (ICD-10 code: C90.0) were retrospectively identified between 2013 and 2023 from the Arcturis UK dataset (Figure 2) using de-identified secondary care electronic health records
2. Identify **newly diagnosed MM patients** using the inclusion/exclusion criteria described in Figure 1.
3. **Impute birthdate where partially missing**. Here a missing month was set as June and a missing day set as 1st of month.
4. **Analyse patient non-MM comorbidity score (CCI)** based on the 3 years prior to each patient's primary MM diagnosis.
5. **Stratify patients based on comorbidity score**. Categories are: CCI = 0 , CCI = 1-2 and CCI = 3+.
6. **Assess median survival** over a maximum 10 year follow-up and plot Kaplan Meier survival plots.

- Patients with C90.0 diagnosis
- Patients with available diagnosis date
- Patients with primary MM diagnosis
- Patients with at least 6 months prior data
- Patients aged ≥ 18 at primary diagnosis
- Patients with no prior malignancy up to and including 6 months prior

Figure 1. Inclusion and Exclusion Criteria, as applied, to generate the UK NDMM Cohort .

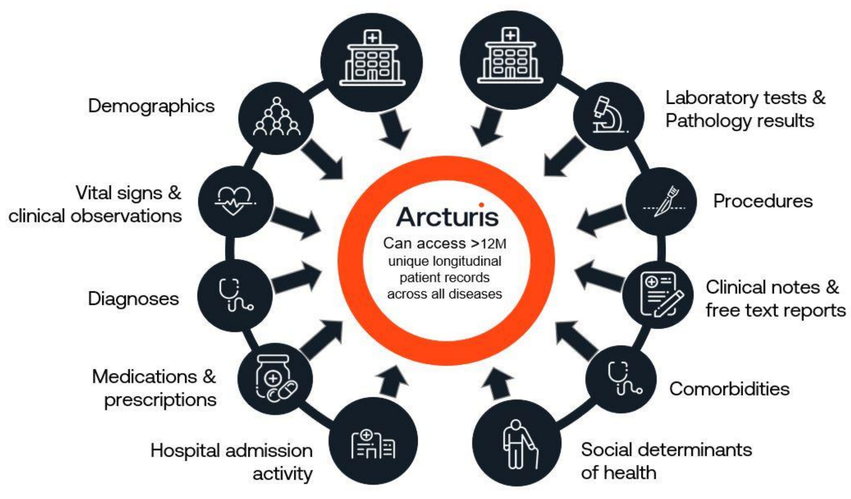

Figure 2. Types of data included in the Arcturis UK dataset.

Results

Demographic Characterisation of NDMM Cohort

Variable	Units	Result
N		1722
Male	N (%)	757 (44.0)
Age at Diagnosis (Mean (SD))	Years	68.5 (11.6)
Ethnicity		
White	N (%)	1311 (76.1)
Not Stated	N (%)	195 (11.3)
Black or Black British	N (%)	33 (1.9)
Mixed	N (%)	86 (5.0)
Unknown	N (%)	97 (5.6)
Asian or Asian British	N (%)	0 (0)
CCI at Diagnosis		
0	N (%)	1096 (63.6)
1	N (%)	293 (17.0)
2	N (%)	156 (9.1)
3+	N (%)	177 (10.3)

Table 1. Descriptive Statistics of Demographics in NDMM Cohort.

- From a total of 4,493 total patients with MM, we were able to successfully identify a cohort of **1,722 NDMM patients.**
- **Mean age at diagnosis of 68.5 years** echoes previous studies that suggest most MM cases are diagnoses between the ages of 65 and 75 [4].
- The most common ethnicity within the cohort is white, followed by a high proportion of patients whose ethnicity is "Not Stated".
- Most patients in the cohort (63.6%) have **no significant comorbidity (CC1 = 0)**, at time of initial diagnosis. However, there is a **significant proportion (10.3%) that have a high comorbid disease burden**, as indicated by a CCI of 3+.

Distribution of Comorbidity in NDMM Cohort

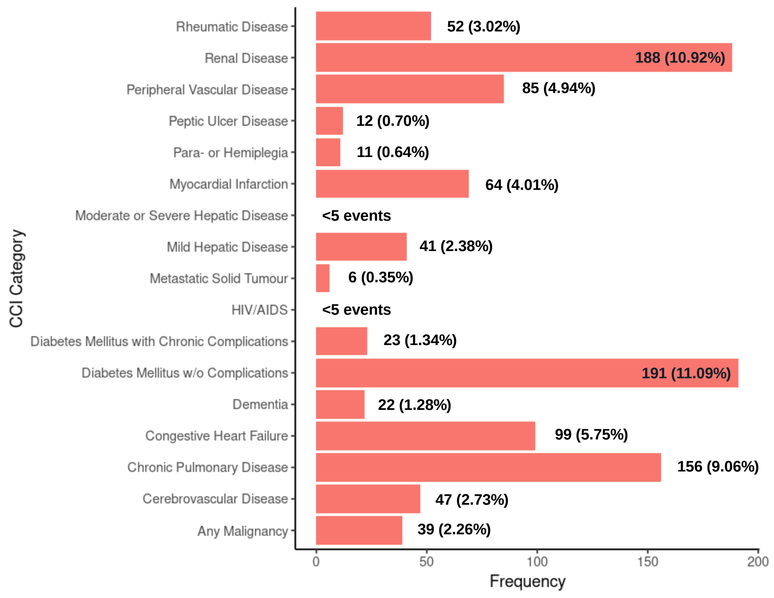

Figure 3. Summary of Comorbidity in NDMM cohort. Comorbid diagnoses are from the 3 years prior to MM Diagnosis date and are grouped into CCI categories. Note: cancer diagnosis are only captured 3 years – 6 months prior to MM diagnosis.

- The most prevalent CCI category amongst NDMM patients is **Diabetes Mellitus** without complications (11.09%), followed closely by **Renal Disease** (10.92%).
- The CCI Category with fewest patients is HIV/AIDS.

10-Year Survival by CCI Group

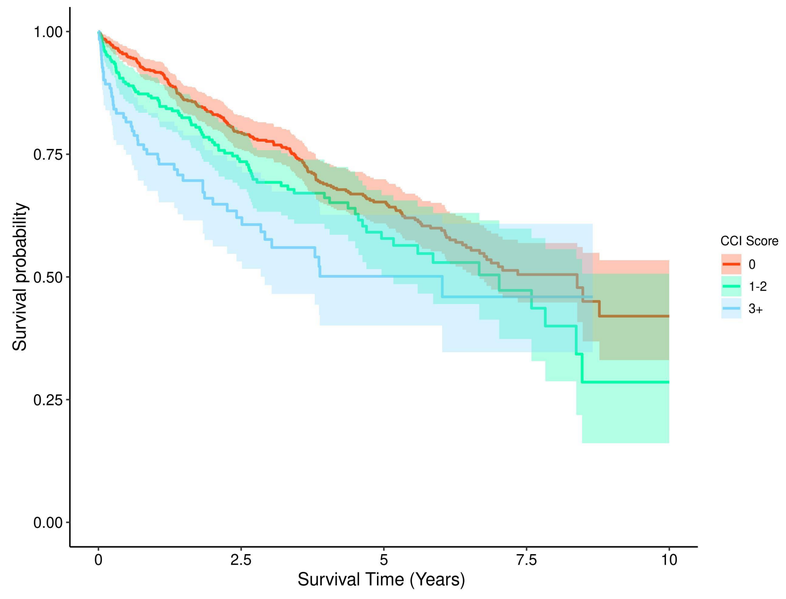

Figure 4. Kaplan-Meier Plot of 10-Year Overall Survival by CCI Group.

- **Median Survival time** for the CCI = 0 group was **8.39 years**, compared to **7.02 years** for patients with for CCI = 1-2 and **6.02 years** for patients with CCI = 3+.

Conclusions

- **A UK cohort of NDMM patients is available from the UK Arcturis Dataset**, which can provide insight into the demographic characteristics and the distribution of comorbidities in this patient group.
- **Patients in the NDMM cohort have higher rates of Congestive Heart Failure, Renal Disease, Diabetes (both with and without complications), Chronic Pulmonary Disease and any malignancy** when compared to the general UK population [5].
- Investigation of 10-year overall survival across three levels of comorbidity severity indicates that **patients with a more severe comorbidity burden at the time of diagnosis with MM tend to have poorer survival outcomes** and live on average for nearly 2.5 years less than patients with no comorbidity.

Acknowledgements

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