ASH Registry Offers Insights on COVID-19 in Patients with Hematologic Malignancies

Coronavirus disease 2019 (COVID-19), the illness resulting from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, has dramatically altered every aspect of cancer care. Many patients with hematologic malignancies have underlying immune dysregulation due to their blood cancer and/or its treatments, potentially increasing their risk for worse COVID-19 outcomes.

On April 1, 2020, the American Society of Hematology Research Collaborative (ASH RC) launched the ASH RC COVID-19 Registry for Hematology to collect data on patients with COVID-19 and underlying hematologic disorders. Researchers recently published an analysis of the first 250 patients with blood cancers reported to the registry [1]. At the 62nd ASH Annual Meeting, William A. Wood, M.D., M.P.H., of University of North Carolina at Chapel Hill, presented an updated analysis on a total of 656 patients [2].

**ASH COVID-19 Registry for Hematology**

The ASH RC COVID-19 for Hematology registry provides de-identified, open-access, real-time summaries of submitted COVID-19 cases, with the goal of informing risk stratification, resource allocation, and patient care. Hematology/oncology professionals who are treating patients who have tested positive for COVID-19 are encouraged to submit patient case data to the registry [3].

ASH also provides guidelines and other resources for managing patients with blood cancers and other hematologic disorders during the COVID-19 pandemic on their COVID-19 Resources page [4].

**Key Findings**

The analysis included data from 656 patients submitted from more than 100 centers worldwide, including 396 patients from North America. The majority of patients (77%) were aged 40 years or older and 60% were male. Among those who reported ethnicity, 43% were White/Caucasian, 27% were Asian, 17% were Hispanic/Latino/Latina, and 13% were Black/African American. More than half of patients (57%) had comorbidities, including hypertension (50%) and diabetes (30%).

The most common underlying hematologic malignancy was leukemia (57%), followed by lymphoma (25%) and plasma cell malignancies (18%). Prior to their COVID-19 infection, 80% of patients had a cancer-related life expectancy exceeding 12 months. The most common symptoms attributed to COVID-19 were fever, cough, shortness of breath, and fatigue. Approximately 50% of patients received COVID-19-directed therapy, including azithromycin and/or hydroxychloroquine.

Patients were categorized into 3 groups of COVID-19 severity defined by treatment setting: mild, requiring outpatient care (n = 227); moderate, requiring hospitalization (n = 228); and severe, requiring intensive care unit (ICU) admission (n = 136). Patients with unknown illness severity were excluded from this analysis.

The COVID-19 mortality rate was 20% for all patients, but differed markedly by illness severity (Table 1). The mortality rate was 33% for those who required any hospitalization, including ICU care.

The prevalence of moderate or severe illness increased with increasing age: 47%, 62%, and 70% among patients aged 19–39 years, 40–69 years, and ≥70 years, respectively. The mortality rate for patients with moderate or severe illness also increased with age: 6%, 18%, and 33%, respectively.

Researchers also found a relationship between cancer-related life expectancy and mortality, with better outcomes in patients who had a better pre-COVID prognosis. Among patients who were expected to live >12 months, 58% developed moderate or severe illness and 13% died. By comparison, among those with a shorter life expectancy, 79% developed moderate or severe illness and 51% died.

In addition, the research team found a link between COVID-19 mortality and the lack of ICU care, with some patients opting for palliative care rather than intensive treatment. Patients who declined ICU care had a mortality rate of 73%. In contrast, the mortality rate was 13% for patients who did not forgo ICU care. According to the investigators, these results suggest that there is no reason to withhold ICU care from patients with favorable cancer-related prognoses.

Overall, these findings highlight the value of the ASH RC COVID-19 for Hematology registry and similar registry efforts in responding to the rapidly evolving clinical landscape associated with COVID-19.

**Table 1. COVID-19 deaths in patients with hematologic malignancies and known illness severity**

| Status, n | Mild: Outpatient-level severity (n = 227) | Moderate: Hospitalization-level severity (n = 228) | Severe: ICU-level severity (n = 136) |
|-----------|------------------------------------------|-----------------------------------------------|------------------------------------|
| Recovered | 225                                      | 196                                           | 47                                 |
| Died      | 2                                        | 32                                            | 89                                 |
| Mortality rate | 0.8%                                   | 14.0%                                         | 65.4%                              |

Abbreviation: ICU, intensive care unit.

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