INTRODUCTION

Myeloproliferative neoplasms are a group of clonal disorders that arise from a transformation in a hematopoietic stem cell. When determining treatment strategies for these patients, one must consider long-term survival, morbidity from thrombotic complications, development of myelofibrosis or transformation into acute leukemia, and the effect of specific therapies on the incidence of leukemic transformation and on pregnancy. At Drexel University, a significant number of patients were treated with busulfan and were thought to have a more favorable clinical course and possibly increased survival in comparison to other agents. In our study we analyzed the outcomes of patients treated in the practice of I. Brosky Associates diagnosed with essential thrombocytosis (ET), polycythemia vera (PCV), primary Myelofibrosis (PMF), and Myeloproliferative disorder NOS, who received a variety of treatment modalities, and compared their clinical courses to determine if there is a superior treatment.

PATIENTS AND METHODS

This study is a retrospective cohort study in which we examined the modalities, and compared their clinical courses to determine if there is a Brodsky Associates diagnosed with essential thrombocytosis (ET), our study we analyzed the outcomes of patients treated in the practice of I. Brosky Associates diagnosed with essential thrombocytosis (ET), polycythemia vera (PCV), primary Myelofibrosis (PMF), and Myeloproliferative disorder NOS, who received a variety of treatment modalities, and compared their clinical courses to determine if there is a superior treatment.

RESULTS

One hundred eighteen patients charts were reviewed and categorized based on treatment.

<table>
<thead>
<tr>
<th>Complications of treatment groups</th>
<th>Busulfan</th>
<th>Hydroxyurea</th>
<th>Busulfan+Hydroxyurea</th>
<th>Aspirin/Plavix only</th>
<th>Aspirin only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>25</td>
<td>25</td>
<td>34</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

GRAPH 1: Complications of groups based on treatment.

Thrombotic events were most common in the Busulfan and Hydroxyurea combination group (56%). Second malignancy was diagnosed in 31% of patients treated with Hydroxyurea alone. Leukemic transformation occurred in 19% of patients treated with Hydroxyurea alone. Hemorrhage occurred in 11% of patients in busulfan group. "Other" were considered to be transfusion dependent anemia, progression to myelofibrosis, and development of varices without bleeding.

GRAPH 2: Overall Survival by Treatment Group in Essential Thrombocytosis

Patients that were treated with a combination of Busulfan and Hydroxyurea had the longest survival of 398 months, while Busulfan alone had the longest survival of 455 months.

GRAPH 3: Overall Survival by Treatment Group in Polycythemia Vera

Patients that were treated with combination of Busulfan and Hydroxyurea had the longest survival of 462 months, while Busulfan alone had the longest survival of 457 months.

DISCUSSION

Our retrospective study showed that busulfan used alone showed longest survival as well as having less complications. The significant amount of complications from thrombotic events noted in the dual treatment with busulfan and hydroxyurea occurred mostly prior to starting treatment with busulfan. Given longest median survival in this group, busulfan may provide the optimal disease control in patients with myeloproliferative neoplasms, and thus most effectively reduce the risk of thrombosis. Moreover, increased risk of second malignancies, including transformation to acute leukemia, was not seen in the busulfan treated patients. This suggests that physicians should consider the use of busulfan in treating myeloproliferative neoplasms.

REFERENCES