Safety

Hepatitis B screening before treatment with rituximab

Key Messages

- Across the Rossy Cancer Network (RCN), 45% of cancer patients receiving rituximab, a common anti-cancer therapy for patients with cancers of the blood, bone marrow, lymph or lymphatic system, are appropriately tested for hepatitis B virus before starting treatment.
- 29% of patients were not optimally tested. Either the panel of tests for hepatitis B virus were not all performed or the testing was not done at the right time.
- 26% of patients were not tested at all for hepatitis B virus before starting rituximab therapy.

Background

Hepatitis B virus (HBV) infects the liver and can be easily detected with a blood test. A person can be infected with HBV but not show any symptoms. For people with cancer who are receiving certain anti-cancer therapies that weaken the immune system, there is a risk that HBV can become active. This has the potential to be life-threatening, but it is also preventable if screening is properly done and patients are treated appropriately.

Rituximab is a common anti-cancer therapy that is mainly used to treat patients with hematologic cancers (cancers of the blood, bone marrow, lymph or lymphatic system). HBV reactivation is an important risk of rituximab therapy. Patients should be screened for HBV before starting this type of therapy. Appropriate screening consists of a panel of blood tests that measure both the presence of hepatitis B surface antigen (HBsAg) and hepatitis B core antibody (anti-HBc). Depending on the results, patients who are actively infected should be started on antiviral therapy. Patients whose blood test show that they are at risk for reactivation should be followed-up more closely by frequent blood tests or they can receive preventative antiviral therapy.

Clinical practice guidelines, updated in 2015 by the American Society for Clinical Oncology (ASCO), recommend that all patients be screened by an HBV panel of blood tests before starting rituximab therapy. A more realistic target defined by the RCN Hematology Disease Site Group is that over 80% of cancer patients receiving rituximab should be appropriately screened for HBV. Although timing of screening is not covered in the published guidelines, we have been working with a definition of appropriate screening in which the panel of HBV tests must be done in the six-month period before rituximab therapy. Patients who were screened with only one of the tests, or who were tested more than six months before or anytime after starting rituximab therapy, were considered to have received suboptimal screening.
Safety

Charts and Tables

Figure 1: Percentage of cancer patients treated with rituximab therapy across the RCN who were appropriately, sub-optimally, or never screened for HBV.

![Pie chart showing percentage distribution of cancer patients treated with rituximab therapy across the RCN who were appropriately, sub-optimally, or never screened for HBV.]

Source: Hospital cancer registry, pharmacy and laboratory systems

What do the results mean?

Overall, across the partner hospitals of the RCN, 45% of cancer patients treated with rituximab were appropriately tested for HBV.

We observed that 29% of patients were not optimally tested. Either the panel of tests for HBV were not all performed or patients were not tested within 6 months prior to starting rituximab therapy.

Importantly, 26% of patients were not tested at all for the presence of HBV before starting rituximab therapy.

Measuring how the guidelines are followed allows us to identify variations in clinical practice, which could be addressed through quality improvement strategies.

Efforts in this area

The RCN Hematology Disease Site group has determined that there are variations in appropriate screening rates across the partner hospitals of the RCN and also in management of patients at risk for HBV reactivation.

To harmonize practice, improve safety of cancer patients receiving treatment with rituximab, and achieve appropriate screening in over 80% of patients, the RCN Disease Site Group aims to:

- Develop RCN guidelines to standardize HBV testing and management of patients at risk for HBV reactivation
- In close collaboration with virologists, provide targeted education sessions to specialties who are known prescribers of rituximab to improve compliance with guidelines
- Implement pharmacy-based interventions, such as coupling rituximab prescription with standard orders for HBV testing and providing pharmacist autonomy to order HBV testing.
Data Specifications

<table>
<thead>
<tr>
<th>Definition</th>
<th>Percentage of patients with hematologic malignancies appropriately screened for Hepatitis B virus (HBV) before administration of rituximab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Cancer registry, hospital pharmacy, laboratory systems</td>
</tr>
<tr>
<td>Numerator</td>
<td>Number of patients with a hematologic malignancy who received their first dose of rituximab between April 2014 and March 2016 and were either appropriately screened, sub-optimally screened or not screened at all for HBV (see definitions in Notes)</td>
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<tr>
<td>Denominator</td>
<td>Number of patients with a hematologic malignancy who received their first dose of rituximab between April 2014 and March 2016</td>
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<td>Exclusions</td>
<td>Patients &lt;18 years of age</td>
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<td>Measurement timeframe</td>
<td>April 2014 to March 2016 (2 years)</td>
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<tr>
<td>Notes</td>
<td>The following definitions were used:</td>
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<tr>
<td></td>
<td><strong>Appropriate screening:</strong> Patients were tested for both hepatitis B surface antigen (HBsAg) and hepatitis B core antibody (anti-HBc) within 6 months prior to the first dose of rituximab</td>
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<tr>
<td></td>
<td><strong>Suboptimal screening:</strong> Patients were tested for either the hepatitis B surface antigen (HBsAg) or hepatitis B core antibody (anti-HBc), but not both, within 6 months prior to the first dose of rituximab, and/or were not tested within 6 months prior to starting rituximab</td>
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<tr>
<td></td>
<td><strong>Never screened:</strong> Absence of HBV test results in hospital laboratory system</td>
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<td></td>
<td>Per the 2015 ASCO guidelines, there is limited evidence to support using the presence or absence of antibody against hepatitis B surface antigen (anti-HBsAg) in determining the risk of HBV reactivation. Therefore, it does not factor into any of the definitions above</td>
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References

**Disclaimer:** The Rossy Cancer Network has attempted to ensure the accuracy of the data that it is reporting for each of its partner hospitals. Values posted on this web page may change as new information becomes available or corrections are made; this may alter accumulated values.