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CORR Insights®: Is Hepatitis C Infection Associated With a Higher Risk of Complications After Total Shoulder Arthroplasty?

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Where Are We Now?

Medical advances including oral direct-acting antivirals, now the mainstay of treatment regimens, have enabled many patients with hepatitis C, who comprise approximately 3% of the

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world population, to live longer and not develop cirrhosis.

However, the increased risk of complications among patients with hepatitis C who undergo THA and TKA is well-established, and now Cancienne and his colleagues have shown through a retrospective case-controlled analysis of the Pearl Diver database that an increased risk exists for patients with hepatitis C who undergo total shoulder arthroplasty. This is an important, if intuitive finding, and I support their recommendation to include this information with the up to two-fold risk of postoperative complications (infection, dislocation, fracture, revision total shoulder arthroplasty, systemic complications, and need for blood transfusion compared to matched controls) during counseling of patients with hepatitis C in advance of shoulder arthroplasty.

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Where Do We Need To Go?

Given that total shoulder arthroplasty is being performed more commonly and the general population is living longer, some of these patients likely will present for shoulder arthroplasty. With the increased risks identified in this manuscript, the natural question arises: Should we preoperatively test for hepatitis C infection in our patients who do not have a known infection?

The answer is not clear, but universal screening will likely be an expensive proposition. Winkelmann and colleagues [3] examined a population of patients undergoing elective joint replacement to determine whether preoperative screening was worth the costs of identifying infections. In the 1534 patients screened, they found 21 patients with hepatitis C, 10 patients with hepatitis B, and one patient with HIV infection. Each newly diagnosed infection cost 7250 euros. The authors estimated “the risk of hepatitis C transmission from an index patient with unknown status of infectiousness to health care worker after percutaneous contact to blood is

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0.008% and of HIV transmission is 0.000054%” [3].

Given this relatively high cost of testing, and the small risk to healthcare providers who are using universal precautions, preoperative hepatitis C screening of all patients is not recommended in order to “protect” the operative team. Preoperative screening may be more cost-effective in caring for special populations with a known high prevalence of hepatitis C, such as prisoners where prevalence ranges from 3% to 38% [4], as well as those patients with a history of intravenous drug abuse or sexually-transmitted disease.

To help our future patients with hepatitis C, in addition to informing them of their increased risks, we need more information about how the disease physiologically complicates their recovery. By doing so, we can mitigate the risks and reduce their postoperative morbidity. Can the small-vessel vasculitis and the immune-mediated manifestations be addressed with steroids or other novel medications to reduce wound healing problems and the rate of postoperative infections? Could these patients benefit from platelet stimulating agents to help maintain their hematocrit and preclude the need for allogenic blood transfusion? The answers to these questions await further study and from bench and

clinical researchers including hepatologists and immunologists.

How Do We Get There?

Although early identification of patients with hepatitis C certainly will increase their chances of preventing the sequelae of untreated infection, screening tests in low-prevalence scenarios are likely not a particularly wise use of healthcare dollars. While universal screening has its merits and can be entertained in “resource rich” situations, this is impossible in many places in the world [1]. Current guidelines for preoperative evaluation do not mention routine screening for hepatitis C, hepatitis B, or HIV [2].

Differentiating patients with hepatitis C into cirrhotic versus noncirrhotic categories by assessing their portal hypertension and synthetic dysfunction with albumin, platelets and coagulations tests and assuring a normal Model for End-Stage Liver Disease score is useful, as it helps us confirm that we are not operating on patients with cirrhosis who have an increased risk of medical complications and have limited reserves. Ideally, this type of work up is better left to internists, but it may behoove us to know about it.

For now, we should ensure patients with hepatitis C undergoing total shoulder arthroplasty are well-informed of the aforementioned risks, medically prepared before surgery by their internists, and doing what they can to support their immune systems by being physically fit, regularly exercising, eating a balanced diet, and getting adequate rest before surgery.

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