

Blood transfusion and hepatitis: what does it take to prevent new infections?

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Viral hepatitis is a global public health problem affecting millions. Yet, the burden of disease as a consequence of infection with hepatitis B and C viruses is preventable. An estimated 240 million people are chronically infected with hepatitis B virus, and between 130 and 150 million people globally have chronic hepatitis C infection (1,2). Together, they cause the deaths of about 1 million people every year, the overwhelming majority as a result of the consequences of chronic infection: cirrhosis and primary liver cancer (3,4).

Death and disability from hepatitis B or C infections are preventable through prevention of new infections and treatment of chronic hepatitis. The hepatitis B vaccine provides protection against infection and its complications (5). Treatment for hepatitis B and C is improving in terms of efficacy, duration and cost. Most people with hepatitis C can be cured with direct-acting antiviral medicines (6–8).

The 63rd (2010) and 67th (2014) Sessions of the World Health Assembly recognized the serious burden of viral hepatitis on global health, and called for Member States of the World Health Organization to develop and implement national strategies for preventing, diagnosing, and treating viral hepatitis. These resolutions highlight the importance of ensuring safety of blood and blood products as one of the key strategies for prevention (9,10). Furthermore, in 2016, the World Health Assembly adopted the first global hepatitis strategy, which introduced the first-ever global targets for viral hepatitis. These include a 30% reduction in new cases of hepatitis B and C by 2020 and a 10% reduction in mortality. Blood safety is one of the key approaches to reducing new cases of hepatitis B and C (11).

The use of unsafe blood and blood products is one of the ways hepatitis B and C infections are transmitted. For example, the overall risks of becoming infected with hepatitis B and C viruses from a blood transfusion in sub-Saharan Africa were estimated to be 4.3 and 2.5 infections per 1 000 units respectively (12). A study in Pakistan also estimated the residual risk of transmission of hepatitis B and C infections was 62.5 and 4.4 per million first-time blood donors respectively (13).

Several studies have reported a high prevalence of hepatitis B and C infections in the blood donor populations in the Eastern Mediterranean Region, thus increasing the risk of transmission through blood transfusion. The prevalence of hepatitis B surface antigen is reported to be 1.5% to 4.3% in blood donors in Egypt and the prevalence of hepatitis C antibody to be 2.7% to 3.8% (14,15). In Pakistan, 2.2% and 4.2% of blood donors are reported to be positive for hepatitis B surface antigen and hepatitis C antibodies respectively (16). The burden of hepatitis infection in the Region among blood donors is not limited to Egypt and Pakistan. A study from Kuwait published 13 years ago showed a prevalence as high as 5.4% for hepatitis C antibodies and 3.5% for hepatitis B surface antigen in non-Kuwaiti Arab first-time blood donors. This study also indicated a higher prevalence of these markers in replacement and/or directed donors as compared to the prevalence in voluntary, unpaid blood donors (17).

About 7 million units of blood are donated annually in the Region. Only 51% of these donations are collected from voluntary unpaid blood donors from low-risk populations. All countries of the Region report that donations are screened for hepatitis B and C viruses using enzyme-linked immunoassays. Some countries perform a nucleic acid amplification test, in addition to conventional enzyme-linked immunoassays. However, quality of testing is a concern: only 13 of the 22 countries in the Region participate in a national external quality assessment scheme for transfusion-transmitted infection marker testing (18). There are many countries where rapid diagnostic tests are still in use which are a potential hazard for transfusion-transmitted infections (19). Effective pre-donation counselling, collection of blood from voluntary unpaid and regular blood donors from low-risk populations, and quality assured testing enhance blood safety, even in countries with a very high prevalence of transfusion-transmitted infections (20).

In January 2016, the global development community committed to the 2030 agenda for sustainable development goals (SDGs) with new targets, including combating hepatitis (21). The increasing global attention on the SDGs and the set targets provide an opportunity to highlight the importance of blood safety in combating

hepatitis infections. In addition, in order to implement the global hepatitis strategy, a regional action plan has been endorsed by Member States of the Eastern Mediterranean Region. The action plan prioritizes evidence-based effective interventions, including hepatitis B vaccination, blood and injection safety, harm reduction for injecting drug users and hepatitis B and C diagnosis and treatment, and has set regional targets (22).

However, success in achieving these targets depends on the commitment of governments and other partners, particularly in countries with high rates of hepatitis infection, to take real action to improve blood safety as part

of a comprehensive approach to reduce the burden of hepatitis. It also demands immediate and determined action by all involved to strengthen collaboration between hepatitis prevention and control programmes and blood transfusion services to: promote blood collection from voluntary, unpaid, regular donors from low-risk populations; ensure quality assured testing; reduce unnecessary transfusions; and provide counselling, care and treatment for those blood donors with hepatitis infections (23).

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