

Clinical pathology selected abstracts

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Trends and risk factors in SARS-CoV-2 infection in asymptomatic blood donors

March 2022—Many people infected with SARS-CoV-2 do not develop severe symptoms and, therefore, may not know they are infected. Serological testing may help identify those who are asymptomatic and, thereby, reduce transmission. Depending on the population measured, the prevalence of asymptomatic SARS-CoV-2 may range from 13 to 31 percent. Understanding the prevalence of the infection in otherwise healthy asymptomatic blood donors may help in evaluating the spread of COVID-19, informing disease immunization, and identifying convalescent plasma donors. This is particularly important because the pandemic has had a significant negative impact on the blood supply. The authors conducted a study to prospectively examine trends and risk factors related to SARS-CoV-2 infection in a cohort of asymptomatic blood donors in Italy. They screened 8,798 repeat asymptomatic blood donors ages 18 to 70 years who were enrolled in the Fondazione COVID-19 Donor Study and presented for blood donation at the Milan Blood Center from July 2020 to February 2021 (before the country's mass vaccination campaign). These blood donors were evaluated at least once during the second wave of the COVID-19 outbreak in Italy. They were screened for anti-nucleoprotein (NP) antibodies and spike receptor-binding domain (RBD) antibodies, and those blood donors who tested antibody-positive for SARS-CoV-2 underwent nasopharyngeal swab PCR. Their results showed that the prevalence of anti-NP+/RBD+ tests increased progressively up to approximately 15 percent over time. Anti-RBD titers were higher in those who were anti-NP IgG+/IgM+ than in those who were IgG+/IgM-. The increase in seroprevalence was preceded by an increase in the number of donors who had evidence of active SARS-CoV-2 replication in the upper airways, which reached about five percent at the peak of COVID in December 2020. This suggests that screening donors for a lack of symptoms and no contact with infected individuals in the two weeks prior to blood donation cannot rule out infection during times of high viral circulation in the community. Anti-RBD titers were high in donors who had a previous infection, regardless of whether they had anti-NP antibodies. The probability of testing positive for SARS-CoV-2 via serological tests increased over time and was higher for older donors and donors who had a history of prior infection and higher body mass index. The authors also determined that risk factors for seroconversion were a later presentation date and non-O blood group. And they found positive SARS-CoV-2 polymerase chain-reaction test results in 0.7 percent of asymptomatic blood donors. The authors concluded that during the second wave of SARS-CoV-2 infection in Northern Italy, seroprevalence in healthy blood donors increased from approximately four to 15 percent. Furthermore, the persistence of anti-RBD antibodies was short, with a time-dependent decrease in the titers, falling below the positive threshold after 16 weeks in about half of the rescreened donors. This information may help inform infection rates in blood donors, who are likely to resemble the general population. The authors also noted that this data may help blood-management programs better cope with the pandemic.

Valenti L, Pelusi S, Cherubini A, et al. Trends and risk factors of SARS-CoV-2 infection in asymptomatic blood donors. *Transfusion*. 2021;61:3381-3389.

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Differences in pediatric lab test ordering patterns between naturopathic and general practitioners

Naturopathic medicine emphasizes the use of natural therapies to treat human diseases and promote disease prevention and self-healing. Naturopathic practitioners are trained as primary care providers and take a holistic approach to health care, typically avoiding the use of surgery and synthetic medications when possible. This is one of the largest and fastest growing areas of the medical field. Naturopathic doctors are licensed in 18 states to

prescribe drugs and perform minor surgeries as general practitioners (GPs). Their ability to order laboratory tests also varies by state. Naturopathic practitioners commonly use laboratory tests for wellness screening and diagnosis and to monitor treatment plans by evaluating nutritional status, metabolic functioning, and toxicities. The authors conducted a study to evaluate the test-ordering patterns of naturopathic practitioners and GPs in a pediatric setting to gain insights that may help the laboratory target interventions that improve laboratory stewardship. They performed a retrospective analysis at a tertiary care pediatric hospital. The authors analyzed laboratory tests ordered by naturopathic practitioners and compared their test-ordering patterns with those of GPs from family medicine, adolescent medicine, and pediatric clinics. They categorized 1,000 tests into 10 groups: allergens, general chemistry, hematology, endocrinology, immunology, infectious disease, trace elements, toxic metals, vitamins, and others. The authors found that naturopathic practitioners ordered more tests per patient per date of specimen collection than GPs. The tests most frequently ordered by naturopathic practitioners were trace elements and toxic metals (23.2 percent of total), allergens (21.8 percent), and general chemistry (15.3 percent). When comparing the same test, the percentage of tests with an abnormal result was significantly lower for naturopathic practitioners than GPs. The authors also found that naturopathic practitioners ordered more esoteric tests than GPs. They concluded that these two types of practitioners have different ordering patterns. The authors suggested that this may be because they use laboratory tests in different manners. For example, naturopathic practitioners focus on preventative medicine and wellness testing, for which single tests or panels of tests are performed on well or asymptomatic patients. These populations typically have lower abnormal test rates and higher rates of false positives. Understanding the key drivers behind naturopathic practitioner ordering practices may help the laboratory better serve this population and develop targeted interventions to improve the laboratory test-ordering process.

Liao H-C, Astion M, Dickerson J. Laboratory test ordering patterns in pediatrics from naturopaths and general practitioners. *Am J Clin Pathol*. 2021;156:787-793.

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