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Rise in incidence of emerging arthropod-borne viruses: Eastern equine encephalitis and Oropouche

Public health officials[1-4] recently released notifications regarding the rise in incidence of two emerging arthropod-borne viruses: Eastern equine encephalitis virus (EEEV) and Oropouche virus (OROV). EEEV and travel-related OROV cases have been reported in 5 states/US territories to-date.[4,5]

Both EEEV and OROV cause febrile illnesses that include clinical symptoms such as fever and nausea.[6,7] Though rare, EEEV has been reported as fatal in 30% of serious cases;[7] OROV has been implicated in pregnant mother-to-child transmission with potential adverse pregnancy outcomes.[6]

Further study is needed to assess the potential threat to blood transfusion safety for both viruses; however, CDC and FDA recommend donor deferrals for those recently diagnosed with EEEV or OROV, respectively.[2,8] Transmission through solid organ transplantation of EEEV has been reported.[8] Commercially licensed blood screening tests are not available for EEEV or OROV.

EEEV and OROV are examples of emerging arboviruses which emphasize the importance of proactive blood safety and sustainability. The INTERCEPT Blood System has demonstrated the effective inactivation of Chikungunya virus[9] which falls within the same classification (Alphavirus) as EEEV. A published study has also shown a >2.9 log reduction in plasma for Crimean-Congo Hemorrhagic Fever Virus (CCHFV);[10] OROV and CCHFV are taxonomically related.

Learn more.

References

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3. State health officials announce season's first human case of Eastern Equine Encephalitis in Massachusetts," Massachusetts Department of Public Health, August 2024, https://www.mass.gov/news/state-health-officials-announce-seasons-first-human-case-of-eastern-equine-encephalitis-in-massachusetts
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6. "About Oropouche," US Centers for Disease Control and Prevention, August 2024, https://www.cdc.gov/oropouche/about/index.html
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9. The INTERCEPT Blood System for Platelets Package Insert, Cerus Corporation; December 19, 2023.
10. Arslan O, et al. "Inactivation of Crimean-Congo Hemorrhagic Fever Virus (CCHFV) in Full Units of Human Plasma Using Amotosalen and UVA," 23rd Regional Congress of the International Society of Blood Transfusion, Netherlands, June 2013.

INTERCEPT® Blood System for Platelets Pathogen Reduction System:

Rx only. See package insert for full prescribing information.

INTENDED USE
The INTERCEPT Blood System for Platelets is intended to be used for ex vivo preparation of pathogen-reduced Amicus apheresis platelet components suspended in 65% PAS-3/35% plasma, and Trima apheresis platelet components suspended in 100% plasma in order to reduce the risk of transfusion-transmitted infection (TTI), including sepsis, and as an alternative to gamma irradiation for prevention of transfusion-associated graft versus host disease (TA-GVHD).

CONTRAINDICATIONS
Contraindicated for preparation of platelets intended for patients with a history of hypersensitivity reaction to amotosalen or other psoralens. Contraindicated for preparation of platelet components intended for neonatal patients treated with phototherapy devices that emit a peak energy wavelength less than 425 nm, or have a lower bound of the emission bandwidth <375 nm, due to the potential for erythema resulting from interaction between ultraviolet light and amotosalen.

WARNINGS AND PRECAUTIONS
Only INTERCEPT Processing Sets for platelets are approved for use in the INTERCEPT Blood System. Use only the INTERCEPT INT100 Illuminator for UVA illumination of amotosalen-treated platelet components. No other source of UVA light may be used. Please refer to the Operator's Manual for the INT100 Illuminator. Discard any platelet components not exposed to the complete INT100 illumination process. Tubing components and/or container ports of the INTERCEPT Blood System contain polyvinyl chloride (PVC). Di(2-ethlhexyl)phthalate (DEHP) is known to be released from PVC medical devices, and increased leaching can occur with extended storage or increased surface area contact. Blood components will be in contact with PVC for a brief period of time (approx. 15 minutes) during processing. The risks associated with DEHP released into the blood components must be weighed against the benefits of therapeutic transfusion.

INTERCEPT® Blood System for Plasma Pathogen Reduction System:

Rx only. See package insert for full prescribing information.

INTENDED USE
The INTERCEPT Blood System for Plasma is intended to be used for the ex vivo preparation of pathogen-reduced, whole blood derived or apheresis plasma in order to reduce the risk of transfusion transmitted infection (TTI), and as an alternative to gamma irradiation for prevention of transfusion associated graft versus host disease (TA-GVHD).

CONTRAINDICATIONS
Contraindicated for preparation of plasma intended for patients with a history of hypersensitivity reaction to amotosalen or other psoralens. Contraindicated for preparation of plasma intended for neonatal patients treated with phototherapy devices that emit a peak energy wavelength less than 425 nm, or have a lower bound of the emission bandwidth <375 nm, due to the potential for erythema resulting from interaction between ultraviolet light and amotosalen.

WARNINGS AND PRECAUTIONS
Only INTERCEPT Processing Sets for plasma are approved for use in the INTERCEPT Blood System for Plasma. Use only the INT100 Illuminator for UVA illumination of amotosalen treated plasma. No other source of UVA light may be used. Please refer to the Operator's Manual for the INT100 Illuminator. Discard any plasma not exposed to the complete INT100 illumination process. Tubing components and container ports of the INTERCEPT Blood System for Plasma contain polyvinyl chloride (PVC). Di(2-ethylhexyl)phthalate (DEHP) is known to be released from PVC medical devices, and increased leaching can occur with extended storage or increased surface area contact. Blood components will be in contact with PVC for a brief period of time (approximately 15 minutes) during processing. The risks associated with DEHP released into the blood components must be weighed against the benefits of therapeutic transfusion. Amotosalen-treated plasma may cause the following adverse reaction: Cardiac Events In a randomized controlled trial of therapeutic plasma exchange (TPE) for TTP, five patients treated with INTERCEPT Blood System processed plasma and none with conventional plasma had adverse events in the cardiac system organ class (SOC) reported. These events included angina pectoris (n=3), cardiac arrest (n=1), bradycardia (n=1), tachycardia (n=1) and sinus arrhythmia (n=1). None of these events resulted in documented myocardial infarction or death. Monitor patients for signs and symptoms of cardiac events during TPE for TTP.

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