Hematology discovery could lead to improved medical monitoring, preventive care for elephants

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Elephants are the natural carriers of a virus called Elephant Endotheliotropic Herpesvirus (EEHV) that can, for yet unknown

reasons, cause profound clinical signs in some young elephants and be rapidly fatal. For nearly two decades, zoos and university partners have been working to study the virus and develop early detection protocols and treatment options.

Veterinarians and clinical pathology researchers at San Diego Zoo Wildlife Alliance (SDZWA) and the University of Copenhagen, Denmark, have recently made an important discovery, which has been published in the *Journal of Zoo and Wildlife Medicine*. They found that population-based reference values for blood cell counts are not sensitive enough to detect critical deviations that frequently occur with active EEHV infection.

The researchers found that establishing baseline values for each elephant and comparing test results against that elephant's own individual baseline provides a more accurate interpretation of results, leading to earlier detection and intervention of clinical EEHV infection.

"Senior author and SDZWA senior veterinarian Dr. Kathryn Perrin completed an important study a few years ago, investigating cell count variability in Asian elephants," said Dr. Rob Browning, lead author and clinical veterinarian at SDZWA.

"This current research expands our understanding of blood parameter individuality to African elephants and will change how preventive medicine is applied at elephant care facilities that are routinely screening their elephants for clinical EEHV infection and other diseases. These results also provide a tool for elephant facilities that do not have established individual baseline blood values."

So-called "biological variation" studies have been minimally performed in veterinary medicine and this study would not have been possible without collaboration with Dr. Mads Kjelgaard-Hansen, a leading expert

in this field.

When it comes to EEHV detection and treatment, every minute counts, and this new discovery will lead to lifesaving treatment. The authors suggest, without individual baselines for each elephant, important early indicators of an oncoming infection may be missed.

More information: Biological variation of hematology parameters and clinical application in African elephants (Loxodonta africana), *Journal of Zoo and Wildlife Medicine* (2024).

Provided by San Diego Zoo Wildlife Alliance