Peripheral Pulse Palpation & Systolic Blood Pressure

WSAVA Global Veterinary Community

Quick, accurate shock diagnosis is crucial for emergency patients. Shock results from impaired tissue oxygenation, which can lead to altered cellular function, organ failure, and, if not treated, death. Abnormal or absent peripheral pulses, among the many signs of shock, have been anecdotally correlated with low measured systolic blood pressure (SBP).

This study aimed to quantify the relationship between palpated peripheral pulses and measured SBP. Cats (n = 102) that were presented to a university emergency service were enrolled; those with aortic thromboembolism were excluded. Pulse quality was assessed by the enrolling clinician as strong, moderate, poor, or absent. Blood pressure was measured by trained veterinary nurses with a Doppler flowmeter. Absent metatarsal pulses accurately identified SBP ≤75 mm Hg 84% of the time. Femoral pulse quality strongly correlated with SBP on admission. Overlap of SBPs were found in each pulse quality category. This suggests that pulse quality is highly subjective and may vary with clinician experience; thus, it should not be relied on solely for perfusion assessment. Still, digital palpation of peripheral pulses can help provide information about cats' blood pressure during triage.

Global Commentary

In evaluating a patient in shock, pulse pressure is considered pivotal to assess cardiovascular status and as an indication of blood pressure. It may come as a surprise that there is not enough scientific evidence supporting this practice.

In an attempt to correct this knowledge gap, this study evaluated the ability of peripheral pulse palpation to predict SBP in cats with shock. Results confirmed that evaluation of both metatarsal and femoral pulses, regardless of inherent subjectivity, provided an accurate estimation of cats' blood pressure, including in severely hypotensive animals. Additionally, the study provided an objective range of blood pressure values for different clinical scenarios.

Despite limitations, the results were fantastic. They confirmed that what we have been doing for centuries is correct, made a significant contribution toward making pulse pressure assessment more objective, and increased the information that can be obtained with the technique. The results also confirmed that we can still rely on simple, relatively cheap diagnostic techniques. In an era when shock diagnosis is increasingly shifting toward use of fancy, expensive tools (eg, those that evaluate microcirculation), it is refreshing to know that old techniques work well and can be refined.—*Nuno Felix, DVM, MD, MS*

Source

Reineke EL, Reese C, Drobatz KJ. Prediction of systolic blood pressure using peripheral pulse palpation in cats. *JVECC*. 2016;26(1):52-57.