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CALCULATION OF PENILE BLOOD VOLUME USING ELECTROBIOIMPEDANCE VOLUMETRIC ASSESSMENT IN THE FLACCID AND ERECT STATES IN PATIENTS WITH ERECTILE DYSFUNCTION (E.D.). L. Dean Knoll, Jerome H. Abrams, Nashville, TN. and Minneapolis, MN. U.S.A.

**PURPOSE:** To compare calculation of penile blood volume in the flaccid and erect states of patients with E. D. using the nocturnal electrobioimpedance volumetric assessment device (N.E.V.A.) (UroMetrics Inc.) with penile blood volume measured with duplex ultrasonography.

**METHODS:** Our study group consisted of 16 patients. Penile blood volume was determined from a physical measurement of penile length combined with the fraction of cross sectional area occupied by blood measured by duplex ultrasonography at the base of the penis. Simultaneous penile electroimpedance volumetric measurements were obtained with NEVA. Measurements were obtained before and after intracavernosal vasoactive pharmacotherapy injection. A correction factor was derived to eliminate nonvascular penile tissue contribution to total penile volume for the NEVA device.

**RESULTS:** A linear correlation between the blood volume obtained from the NEVA measurement corrected for the tissue component with the blood volume obtained with duplex ultrasonography was observed with strong correlation. ( $R=0.950$ ,  $R^2=0.902$ ,  $p<0.05$ .)

**CONCLUSIONS:** Electrobioimpedance volumetric assessment using the NEVA device can be used to calculate penile blood volume in the flaccid and erect states for patients with E.D. This information will be useful in categorizing etiologies of E.D. and potentially guide physicians and patients into appropriate therapies.