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THE USE OF NOCTURNAL ELECTROBIOIMPEDANCE VOLUMETRIC ASSESSMENT (NEVA) TO EVALUATE ERECTILE FUNCTION. L. Dean Knoll Nashville, TN. (Presented by Dr. Knoll.)

INTRODUCTION AND OBJECTIVES: Electrobioimpedance volumetric assessment is based on the principal of delivering a nondetectable alternating constant current to a tissue segment. A potential difference is measured between the electrodes and impedance changes with variations in blood flow; therefore allowing noninvasive measurements of volumetric change and output. This technique has been applied to the development of a new device to evaluate nocturnal erectile function. These findings in normal subjects will be reported.

METHODS: Ten subjects with no history of erectile dysfunction formed the study group ranging in age from 31 to 48 years (mean 44). The NEVA device, (UroMetrics Inc.) consists of a small recording device (attached to a leg) and three small adhesive electrode pads. One pad was placed over the hip, and the other two pads on the penis (base and glans). Each subject used the NEVA device for two nights.

RESULTS: Twenty nights of electrobioimpedance volumetric assessment were recorded. Monitoring of the tumescent state indicated 3 to 6 erections occurred each night (mean 4 events/night). Duration of events ranged from 10 to 50 minutes (mean 25). Volumetric changes determined from impedance measurements showed 78 to 137% increase (mean 108%). The filling rate which was determined from the blood volume change during erection onset ranged from 23.1 to 114 cc/min. (mean 66.9 cc/min.)

CONCLUSIONS: The new device (NEVA) is small, comfortable to wear and easy to use. In a noninvasive manner, it determined the number and duration of erectile events, percentage increase of blood volume change during events and the erection onset filling rate for normal subjects. A study of patients with erectile dysfunction will be undertaken for comparison purposes. This type of evaluation may guide physicians and patients into the proper use of future noninvasive therapies being developed.

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