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THE CORRELATION BETWEEN THE NEW RIGISCAN PLUS SOFTWARE AND THE FINAL DIAGNOSIS IN THE EVALUATION OF ERECTILE DYSFUNCTION

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ABSTRACT

Purpose: The computer generated recordings for 2 nights in 40 patients studied with the RigiScan† device were reevaluated using the new RigiScan Plus software to test its value in improving the discrimination between psychogenic and organic erectile dysfunction.

Materials and Methods: Each man was evaluated for erectile dysfunction with a detailed medical and sexual history, physical examination, biothesiometry, plethysmography, 2 nights of ambulatory RigiScan monitoring and a psychological evaluation that usually included a private interview with the sexual partner. At the conclusion of evaluation each patient was broadly classified as having organic or psychogenic erectile dysfunction. The RigiScan reports were initially independently analyzed without the investigator's knowledge of the final diagnosis by determining the single best erectile event, with a minimal cutoff value of 60% erection for 5 minutes as necessary to be considered normal and the sum of measurements from the 2 nights. The original reading and final diagnosis were correlated. At this point the data were processed with the new RigiScan Plus software using 2 new measurements: 1) rigidity activity units and 2) tumescence activity units at the base and tip of the penis, and the results were correlated with the final diagnosis.

Results: Evaluation of the single best event again showed that tip rigidity was the best single predictor if the diagnostic criteria were modified to 70% tip rigidity for 5 minutes with an estimate of correct classification of 92.5%. Nearly the same accuracy was obtained by base single event rigidity, tip rigidity and base tumescence activity units (each 90%). The summary analysis of all erectile events during the 2 nights of evaluation that had a low correlation with the final diagnosis using the original software showed that the best overall predictor of final diagnosis was tip tumescence activity units (92.5%), followed by base rigidity and tumescence activity units (each 90%).

Conclusions: The RigiScan Plus software introduced 4 new parameters that facilitate interpretation of the RigiScan data. The new software did not improve the correlation with the final diagnosis compared to the subjective single best event analysis but added new objective parameters, measured and displayed by the software, that facilitate use of the data by the physician.

KEY WORDS: penis, penile erection, impotence

Although not without controversy, many investigators consider nocturnal penile tumescence and rigidity as the only objective test for the differential diagnosis of erectile dysfunction into 2 main groups of organic or psychogenic based etiology.[1–9] Previously we observed a high correlation between nocturnal penile tumescence and rigidity and the final diagnosis,[10] which was established by extensive history, physical examination, biothesiometry, plethysmography, independent psychological evaluation of the patient and sexual partner history.[11] During the last year the RigiScan monitors were modified and new software was created to improve further the reliability of this test to differentiate between organic and psychogenic erectile dysfunction. The new software was evaluated with RigiScan recordings on normal patients, and the results were reported as a new, useful tool for evaluation of erectile dysfunction.[12] However, in that report the new parameters of rigidity and tumescence activity units were not correlated with the old RigiScan scale of measure in rigidity units. There was no established convenient comparison between the new units and the old scale for physicians conversant only with established units of measure. We currently reevaluated the RigiScan results of the original 40 patients[10] with the new RigiScan Plus software to determine its usefulness in the evaluation of erectile dysfunction, and to establish comparative ranges of scale for accurate diagnosis.

MATERIALS AND METHODS

A total of 80 data files on 40 men containing RigiScan monitor summary statistics done on 2 nights of study during 1993 was reexamined. The data output files were sent to the manufacturer as reports prepared by the old RigiScan software for each monitored subject. The files were converted to the new software output and evaluated independently by a statistician with no knowledge of the clinically determined diagnosis. Patients were evaluated by detailed medical and sexual history, physical examination, biothesiometry, plethysmography, 2 nights of ambulatory home RigiScan monitoring and psychological evaluation that usually included the sex partner in a separate private interview.[7,11] At the conclusion of the evaluation each patient

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