D67 | PEDIATRIC PULMONARY PHYSIOLOGY AND MEASUREMENT

Thematic Poster Session- Poster Presentation: Wednesday, May 23, 8:15 AM - 4:30 PM, Area G (Hall D, North Building, Lower Level), Moscone Center

[Poster Board # G36] Comparison Of Two Devices For Assessment Of Interrupter Resistance In Preschool Children, [Publication Page: A6148]

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Introduction - Several studies on airway resistance measurements with the interrupter technique (Rint) in children have been published using the MicroRint device (Micro Medical Ltd, Rochester, UK). The company recently stopped producing the device, while other companies released similar devices.

Aim - To establish whether the Rint measurements obtained with the Pony device (Cosmed, Rome, Italy) are similar to those obtained with Microrint.

Method - Sixty-two children [median age (range) 4.6 (2.8-8.5) yr] undertook baseline Rint measurements with both devices, in a random order. The limits of agreement were calculated using 2 SDs of the mean difference between the 2 measurements. In a different set of 25 children [median age (range) 4.7 (3.0-6.2) yr] the short-term repeatability of the Pony device was assessed as 2 SDs of the mean difference between two measurements taken 10 min apart.

Results - Mean (SD) Rint was 0.85 (0.19) and 0.90 (0.20) kPa.L-1.s for Microrint and Pony, respectively (p=0.002 by t-test). The mean (SD) of the differences between the pairs (Pony-MicroRint) was 0.05 (0.12) kPa.L-1.s. The limits of agreement were -0.19;0.29. The short-term repeatability of the Pony device was 0.26 kPa.L-1.s [mean (SD) difference between the two measurements -0.004 (0.13) kPa.L-1.s].

Conclusion - Albeit the difference between the measurements made with the two devices did reach statistical significance, the mean difference was clinically small and the limits of agreement were similar to the previously published short-term repeatabilty for MicroRint (0.24 kPa.L-1.s) [1] and to the short-term repeatabilty for Pony (0.26 kPa.L-1.s). It should, thus, be possible to compare the results obtained with the two devices in preschool children. However, children with a greater range of ages, respiratory disorders, lung volumes, and resistance values need to be tested.

[1] Lombardi E, et al. Thorax 2001;56:691-5.

Am J Respir Crit Care Med 185;2012:A6148