

# IS THE SPECIFIC TRANSONIC FLOW QC® SET NECESSARY FOR MEASUREMENT OF FISTULA BLOOD FLOW?

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## Introduction :

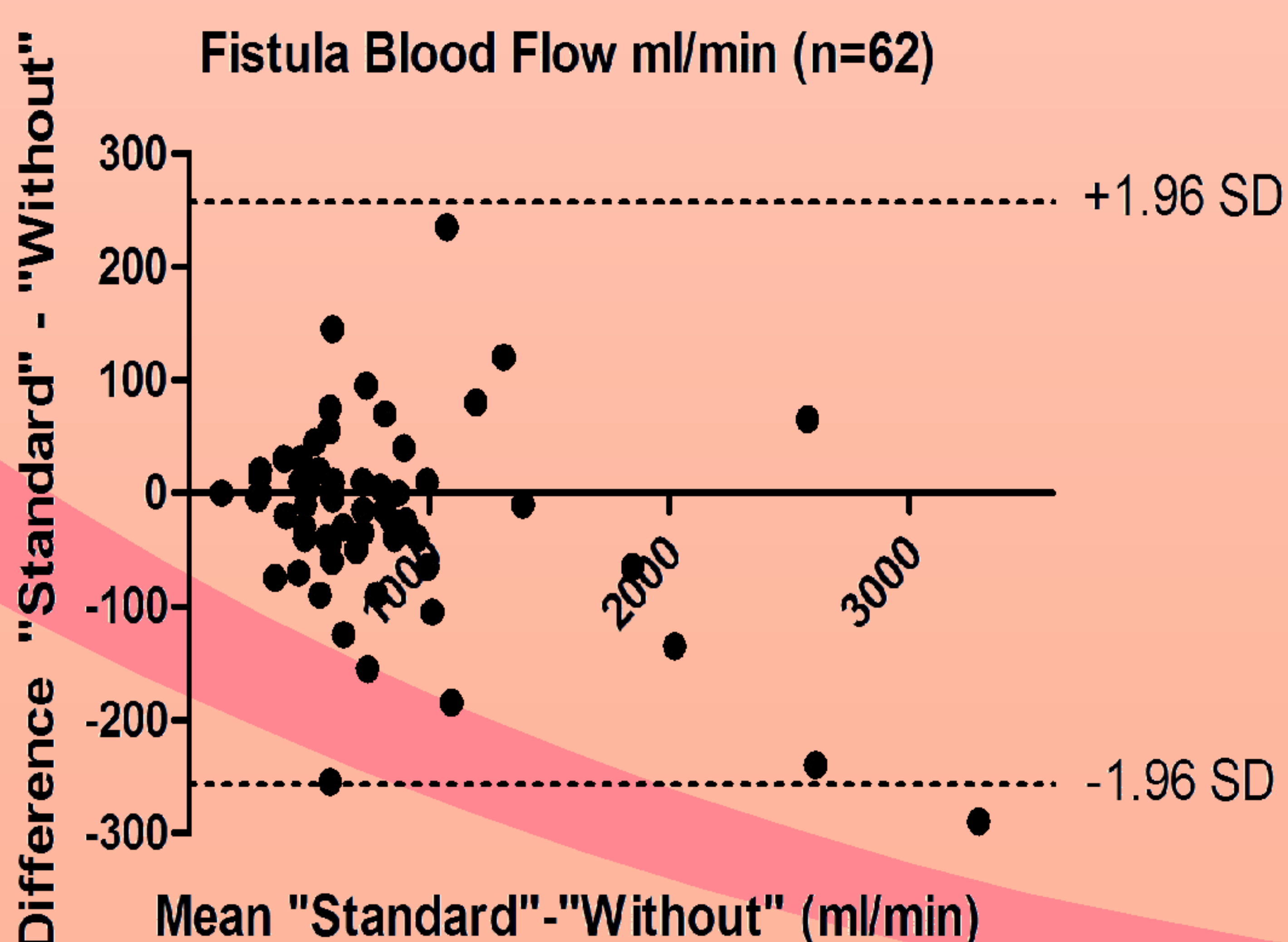
The Transonic® system is a frequently used device for measuring the vascular access flow in hemodialysis patients. The earthquake in Northern Italy in 2012 resulted in a lack of supply of Transonic® connection sets. Our teams conducted this study to examine the vascular access flow measurement differences while using or not the specific Transonic® connection set.

## Methods :

In 62 hemodialysis patients, we measured fistula blood flow during one dialysis session with the HD02 device (Transonic® System Inc, Ithaca, NY) with (Transonic Flow-QC® set, named “Standard”) and without specific connection set by direct installation on different blood line sets (GAMBRO® Blood Tubing System BL105, FRESenius® Lifeline AV-Set BR DT-R 4008, FRESenius® Lifeline AV-Set Onlineplus BVM 5008-R, named “Without”). All measurements were done twice and mean values were obtained. If there was a discrepancy > 30 % between the two values, a third measurement was done. The results were expressed as mean +/- SEM, statistical analysis including Normality test (Shapiro-Wilk), Comparison test for non parametric measurement (Wilcoxon-Spearman) and Bland and Altman representation of adequacy of the two measurement methods.

## Results :

A total of 248 measurement series were performed. Mean fistula blood flow was 869.8 ml/min ± 82.4 [135-3145] and 889.9 ml/min ± 87.6 [135-3565] by “Standard” and “Without” respectively. As expected, the correlation was good: r: 0.96 (p<0.0001). No significant difference was identified by Wilcoxon test (p=0.0828). By Bland and Altman comparison the bias between the two methods of measurement “Standard” and “Without” was only 20 ml/min which appears not clinically relevant. SD of bias was 131, thus as represented in figure 1, all values except one were in the interval ± 1.96 SD. Transonic® indicates ± 100 ml/min or ± 15 % precision of measurement (the greatest of either) (1). Most of our measurements “Without” were within this device precision rate except 8 (5 underestimated and 3 overestimated).



## Conclusion :

Our data suggest that blood flow monitoring of hemodialysis vascular access by Transonic® with connection set is not significantly different from measures without specific connection set.

The measurements without connection set had no clinical impact on fistula management.

To our knowledge, this is the first study showing no significant difference in measuring fistula blood flow between Transonic Flow-QC® set and direct connection on blood line set.

Further studies are necessary to answer this question.

