THE CORRELATION OF ACCUTREND® PLUS AND MULTICARE-IN® FOR THE TOTAL CHOLESTEROL PARAMETER WITH STANDARD LAB RESULTS

Rodianne Conti, Lilian M. Azzopardi, Anthony Serracino-Inglott

Department of Pharmacy, Faculty of Medicine and Surgery, University of Malta, Msida, Malta

E-mail: rodianne.conti.09@um.edu.mt

Department of Pharmacy

University of Malta

INTRODUCTION

Hypercholesterolaemia is one of the most imperative risk factors in the development and advancement of atherosclerosis, the foremost cause of vascular disease and is associated with myocardial infarction.[1] Two locally available point-of-care devices that test for the total cholesterol (TC) parameter, namely the Accutrend® Plus and the Multicare-In®, were identified.

AIMS

- To determine the correlation of the Accutrend® Plus and Multicare-In® with the Cobas® 6000 Analyser Series c501 module used at Mater Dei Hospital (MDH) in Malta; and
- To determine the intra-device correlation for the two devices with regards to the total cholesterol parameter.

METHOD

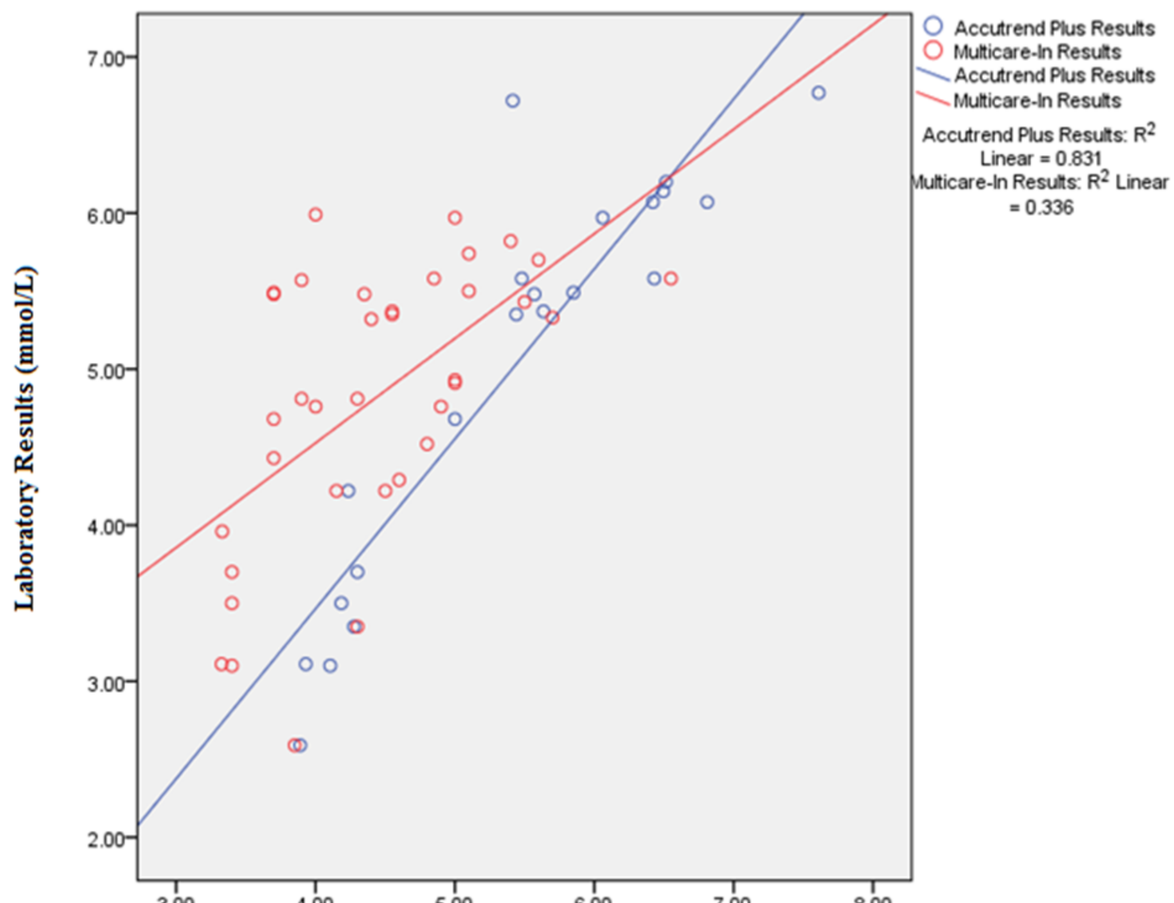
Patients were recruited by convenience sampling at the pathology clinic at MDH. The 21 participating patients fitted into pre-established criteria[2] and a lipid profile test was conducted at the time of intervention following venous blood sampling. Patients were tested twice with both devices using the finger-prick technique. Following unsatisfactory results obtained for the Multicare-In® device, another 25 patients were tested with the same study design. This was done to overcome any shortcomings such as short date of expiration of test strips, battery life of device and operator error. The results for Multicare-In® from both instances were combined. Intra-device correlation for Accutrend® Plus and Multicare-In® was determined by regression analysis. The mean results of both devices were calculated and a scatter plot with the line of best fit was generated with respect to the lab results obtained.

Figure 1: Work Plan

RESULTS

An r^2 value of 0.821 for the Accutrend® Plus device was obtained, while the Multicare-In® had an r^2 value of 0.679. R-squared values of 0.831 and 0.179 were achieved for the Accutrend® Plus and the Multicare-In® respectively (n=21) when tested for their correlation with the lab results. An r^2 value of 0.164 (n=25) resulted when re-testing with the Multicare-In® was carried out. Combining the 21 subjects tested previously and eliminating results exceeding 6mmol/L, r^2=0.336 for the Multicare-In® device was obtained (n=36). The results obtained can be associated with a study by Finderle et al.[3] where similarly, the Accutrend® achieved a better correlation with the lab results when compared with the Multicare-In®.

Figure 2: A graph of the correlation between TC concentration (mmol/L) measured with Accutrend® Plus and Multicare-In® and the TC concentration (mmol/L) measured with the Cobas® 6000 Analyzer Series c501 module used at MDH. (n=36)



CONCLUSION

Locally, these findings are paramount, as community pharmacists who carry out TC point-of-care tests need to ascertain themselves of the accuracy of the devices with the current local standard laboratory results.

References

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