PP018 A STUDY OF CORRELATION BETWEEN URINE COLOURIMETRY USING MOBILE PHONES WITH CLINICAL DEHYDRATION STATUS AND LABORATORY URINALYSIS IN PATIENTS WITH DENGUE FEVER

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INTRODUCTION

Dengue is a systemic and dynamic disease with a wide range of illness. It is important to know the severity of the patients for appropriate care and management. The mortality rate of dengue is the highest and commonest at the plasma leakage phase. Currently, physicians use clinical hydration assessment with guidance of laboratory tests eg: hematocrit to aid in the management. There is no one true test that could differentiate these severities accurately, but the level of dehydration gives a clue, opening a window of opportunity to intervene. In most centers, the laboratory results could take up to 4 hours, but a bedside urine test is widely available can reduce waiting time. Urine colour has been shown to have a high correlation with overall assessment of hydration status. As urinary indices are sensitive to small changes in hydration status, it is feasible to be used in detection of early dehydration.

OBJECTIVES

This study tests the feasibility of using mobile phones to measure the severity of dehydration in dengue fever by finding the correlation between the urine colour captured by mobile phone camera to laboratory parameters.

METHODOLOGY

A cross sectional study over 6 months in Emergency Department of UMMC, in patients between 12 to 60 years old, suspected or confirmed dengue fever who fulfill the inclusion criteria. A picture of the urine sample taken in a standardized photobooth, then processed using Adobe

Photoshop™ to index urine colour into red, green and blue (RGB) colour space and be given a unique RGB value. The RGB values were then correlated using Pearson's correlation with patient's clinical and laboratory hydration indices.

RESULTS

There were strong correlations between urine osmolarity and urine specific gravity with RGB of urine colour. The blue component has the highest correlations with urine specific gravity and urine osmolarity. There were moderate correlations between RGB component and serum urea and ability to tolerate orally.

CONCLUSION

Urine colourimetry using mobile phones has high correlation with hydration status of dengue patients, making it a potential hydration status tool.