Category :**Emergency room**

A223 - ***Monocyte distribution width* in patients with covid-19: indicator of disease severity***

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Introduction:

Identification of patients with COVID-19, who may have severe illness is important to timely intervene and to decrease the fatality rate. In this study, we evaluated the utility of Monocyte Distribution Width (MDW) as marker for severity detection and outcome in COVID-19 infection.

Methods:

145 patients with PCR confirmed COVID-19 infection were included in the study. Complete blood count with differential count (CBC-Diff) was done in all patients on DxH 900 Automated Hematology Analyser (Beckman Coulter, USA). Patients were categorized into 2 groups: Group-1 (n=122) - including asymptomatic patients and those with mild and moderate disease and Group 2 - including patients (n=23) with severe disease. The performance of MDW was evaluated by calculating the area under the receiver operating characteristic curve (AUC), sensitivity, specificity, Positive Predictive Value (PPV) and Negative Predictive Value (NPV). Additional analysis was conducted for outcome, comparing COVID-19 patients who were discharged (n=135) vs COVID-19 deceased patients (n=10).

Results:

MDW as a marker of disease severity demonstrated in ROC analysis AUC of 0.702 (95% CI 0.620-0.775). If MDW is considered as a marker of patient outcome, comparing COVID-19 deceased patients vs those who survived, AUC was 0.916 (95% CI 0.862-0.953). Sensitivity, Specificity, PPV and NPV at different cut-offs for both scenario (for COVID-19 severity and for outcome) are presented in the Table.

Conclusion:

MDW can be considered as useful tool in predicting severity of COVID-19 disease and patient's outcome.
*For scientific discussion only. The measurement of MDW on the UniCel DxH 900 analyser is intended for use with adult patients presenting to the emergency department, on whom a white cell differential test has been ordered, as an aid in the early detection of patients with or developing sepsis.

Table:

MDW cut-off for severity	Sensitivity	Specificity	PPV	NPV
>18.31	100%	9.8%	17.2%	100%
>24.48	60.9%	77.9%	34.1 %	91.3%
>28.74	17.4%	95.1%	40.0%	85.9%
MDW cut-off to predict outcome	Sensitivity	Specificity	PPV	NPV
>25.4	100%	79.2%	23.8%	100%
>30.0	30%	95.5%	30%	95.5%

MDW performance in COVID-19 patients as a marker of disease severity and patient outcome.