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# D-dimers are elevated in pregnant women with and without COVID-19

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## Introduction

Elevated D-Dimer is associated with worse outcome from COVID-19 in non-pregnant adults[1]. We analysed laboratory parameters of pregnant women with polymerase chain reaction (PCR) swab positive COVID-19 to identify biomarkers associated with severe infection

## Methods

After ethical approval, anonymized observational data were collected on pregnant women admitted to our institution who received a PCR swab for suspected COVID-19 infection. All women with positive PCR between June and December 2020 were recruited. Sequential women presenting for planned cesarean section with negative screening PCR for COVID-19 between June and August 2020. Information collected included demographic and pregnancy data, routine blood sample results and outcome data. symptoms reported in association with confirmed COVID-19

Analysis was performed on the following 3 groups:

**HEALTHY COVID-19 PCR negative**
Planned CS delivery group

**MILD COVID-19 PCR Positive**
Asymptomatic positive and Symptomatic infection not requiring organ support

**SEVERE COVID-19 PCR Positive**
Symptomatic disease requiring organ support, including supplemental oxygen

## Results

Thirty four women with PCR positive COVID-19 were recruited between 10/6 and 31/12/2020; 15 were asymptomatic. Median day of presentation from symptom onset was 3 (IQR, range) (3, 0-12). Healthy, mild and severe groups had median ages of 32, 30.5 and 31; gestation 39, 38+6 and 31+5, and BMI of 27, 28, and 28 respectively. Proportion of smokers was 12, 11 and 17%; diabetes 13, 14 and 17%, and BAME 23, 40 and 67%. In the severe group, 6 required supplemental O2 and 1 progressed to invasive ventilation. No woman required renal support.

| | Healthy N=78 | Mild COVID-19 N= 28 | Severe COVID-19 N=6 | P |
|---|---|---|---|---|
| Hb (g/L) | 125.5 [115-130] | 116 [109-126] | 112 [110-114] | 0.24 |
| Platelets (x10$^9$/L) | 230.5 [189-257] | 181.5 [156-260] | 207 [165-268] | 0.75 |
| WBC (x10$^9$/L) | 9.4 [7.8-11.1] | 8.4 7.1-12.3] | 6.4 [5.6-9.0] | 0.13 |
| Neutrophils (x10$^9$/L) | 6.4 [5.5-8.2] | 6.1 [5.1-9.1] | 6.4 [5.6-9.0] | 0.35 |
| Lymphocytes (x10$^9$/L) | 1.75 [1.5-2.1] | 1.5 [1.1-2.2] | 0.95 [0.8-1.0] | <0.01 |
| D-Dimer (mcg/L) | 1610 [1268-2305] | 1654 [1092-1706] | 1729 [1421-2216] | 0.49 |
| PT (s) | 10.6 [10.3-11] | 11 [10.4-11.3] | 11.2 [11-12] | 0.27 |
| APTT (s) | 26.8 [25.3-28.3] | 30.6 [26.6-32.2] | 31.6 [29.6-31.9] | 0.45 |
| CRP (mg/ml) | | 17 [6-30] | 113 [73-123] | 0.01 |
| Creatinine (mcM/L) | | 51 [49-55] | 46.5 [45.3-50] | 0.06 |

## Discussion

In contrast to non-pregnant adults, D-dimers were elevated above non-pregnant levels in all groups, and were indistinguishable between mild and severe COVID-19 groups so cannot be used as a predictive biomarker. Lymphopenia and higher CRP at admission were associated with increased disease severity, similar to non-pregnant adults. BAME women were over-represented in the severe COVID-19 group.

## References

Kermali M, Khalse RK, Pillai K et al. The role of biomarkers in diagnosis of COVID-19 – A Systemic Review. Life Sciences. 2020 August 1; 254 : 117788