An investigation of the relation between plasma ADAMTS13 and vWF activities, and severity of Acute Pancreatitis - a cross-sectional study


*Departments of Gastroenterology; **Transfusion Medicine and Immunohematology; ***Biostatistics, Christian Medical College, Vellore

Background
• Management of patients with Acute Pancreatitis (AP) is complicated by the difficulty in distinguishing mild from severe disease during the early stages.

Objectives
• To compare the levels of plasma
  ✓ ADAMTS13 (A Disintegrin And Metalloproteinase with a ThromboSpondin type 1 motif, member 13) activity,
  ✓ von Willebrand Factor activity by Collagen Binding Assay (vWF:CBA) and
  ✓ von Willebrand Factor Antigen (vWF:Ag) between patients with Non-severe (Mild and Moderately Severe) (NSAP) and Severe Acute Pancreatitis (SAP)
• To investigate the relationship between plasma ADAMTS13 activity, vWF:CBA, vWF:Ag and CRP, APACHE II, BISAP and SOFA scores, clinical course viz. need for ventilation and dialysis

Materials and methods
• Cross-sectional observational study
• Dec 2020- Nov 2021

Inclusion:
✓ Consecutive patients admitted with AP of any etiology within 5 days of symptom onset

Exclusion:
✓ prior attacks of AP, post ERCP pancreatitis
✓ Chronic Pancreatitis, pancreatic anomalies
✓ malignancies, coagulative disorders, pregnancy,
✓ patients on anticoagulation, cholangitis
✓ CLD/CKD, post-operative setting

Sample size: 65
• The following were measured at admission
✓ Baseline clinical and laboratory data
✓ CRP, APACHE II, BISAP and SOFA scores
• All patients received standard medical therapy; followed until discharge

Results

<table>
<thead>
<tr>
<th></th>
<th>NSAP (n=53) (%)</th>
<th>SAP (n=12) (%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mild (22/41.5)</td>
<td>Severe (5/18.5)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>35 (66%)</td>
<td>11 (91.7%)</td>
<td>0.078</td>
</tr>
<tr>
<td>Age (years)</td>
<td>4.49 ± 14.49</td>
<td>3.48 ± 9.16</td>
<td>0.022</td>
</tr>
<tr>
<td>Interstitial Edematous</td>
<td>48 (90.6%)</td>
<td>4 (33.3%)</td>
<td>0.000</td>
</tr>
<tr>
<td>Necrotising</td>
<td>5 (9.4%)</td>
<td>8 (66.7%)</td>
<td></td>
</tr>
<tr>
<td>Etiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Alcohol 22 (41.5 %)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Biliary 21 (39.6%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Alcohol 9 (75%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Hypertriglyceridemia 2 (16.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Clinical outcomes:
✓ 10 patients (15.38 %) required mechanical ventilation
✓ 2 patients (3.07 %) required hemodialysis
✓ 3 patients (4.6 %) died or went against medical advice

Conclusion
Endothelial activation is more pronounced, in patients with greater severity of Acute Pancreatitis and measurement of these markers may help in predicting the course of the disease.