# Coagulation State in Patients With Chronic Obstructive Pulmonary Disorder

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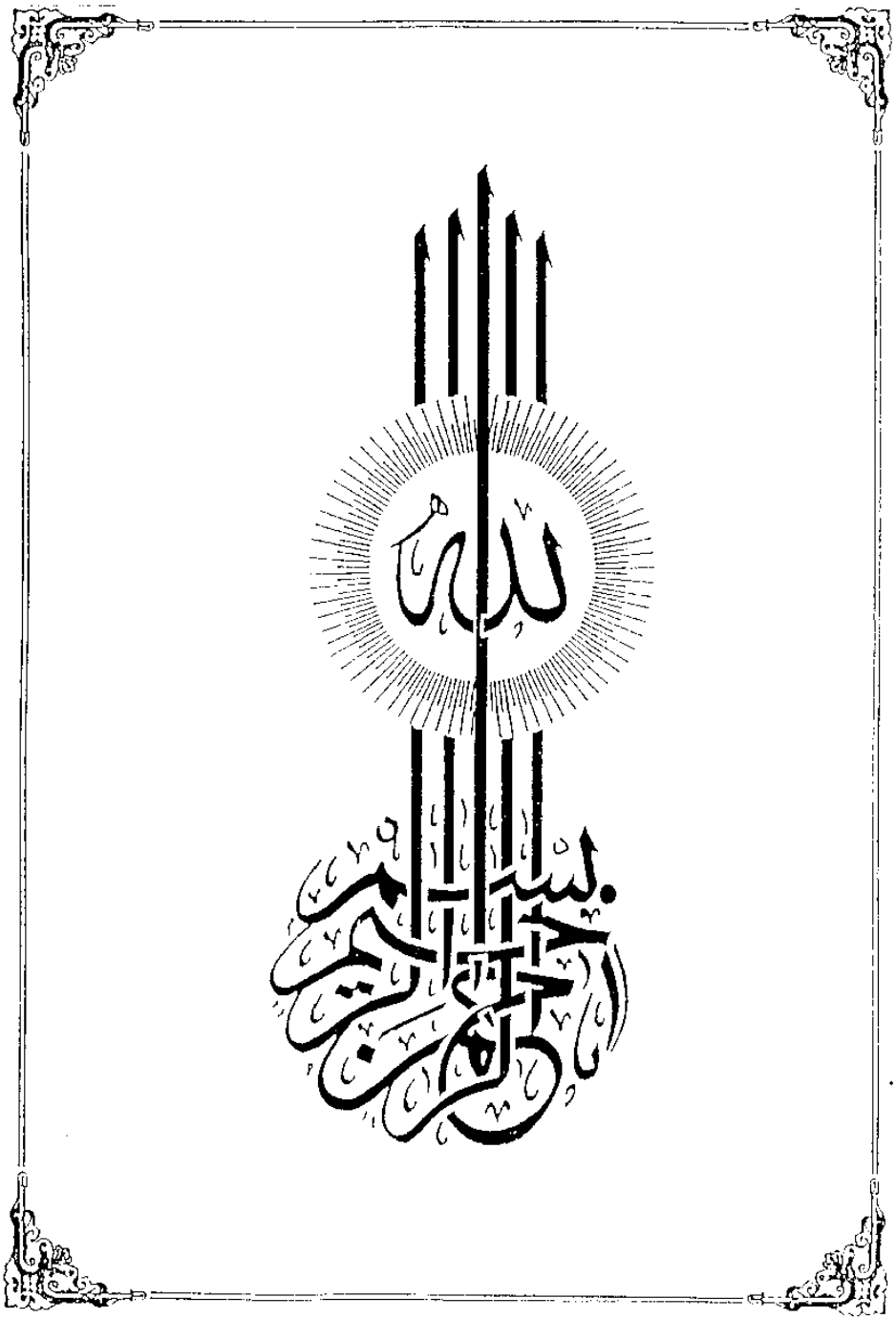

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## Abstract

Since there is some clinical evidence that the course of chronic obstructive pulmonary disease may be complicated by thrombosis of pulmonary vessels, this study investigated the presence of a hypercoagulable state in C.O.P.D.

plasma levels of prothrombin F1+2 fragment, a marker of thrombin generation, D-dimer, a marker of in vivo thrombin generation & plasmin activation, fibrinogen, prothrombin time and activated partial thromboplastin time were measured (for 40 C.O.P.D. patients and 30 controls of matching sex and age). In addition a complete blood picture was performed. The C.O.P.D. patients had significantly higher values of $PF_{1+2}$ ($P<0.001$) and the TLC ($P<0.001$) than healthy subjects. The D-dimer levels were found to be elevated in 47.5% of cases while normal values were found in the control. The elevated levels of $PF_{1+2}$ and D-dimer were not correlated with $PO_2$ ($r=0.1106$, $p. /0.05$) and neither was the TLC ($r = 0.0317$ $P>0.05$). A positive correlation existed between the duration of illness and the $PF_{1+2}$ ($r=0.336$),($p <0.05$) and the D-dimer ($r=5.402$, $P<0.01$). There was as well a positive correlation between $PF_{1+2}$ & D-dimer ($r=9.5$),($p= <0.001$) in the patients.

This study showed that C.O.P.D. patients have a prothombotic state, as shown by increased thrombin and plasmin generation, which could account for thrombotic complications of pulmonary vessels.

# List of Abbreviations

| | |
|---|---|
| 15-HETE | 15-hydroxyeicostatetraenoic acid |
| $\alpha_1$- Pi | Alpha 1 - Proteinase inhibitor |
| $\alpha_1$-AT | Alpha 1 - Antitrypsin |
| $\alpha_2$- PI | Alpha 2-Plasmin inhibitor |
| $\alpha_2$-MG | Alpha 2-macroglobulin |
| ADP | Adenosine diphosphate |
| ALP | Antileukoprotease |
| APC | Activated Protein C |
| APTT | Activated Partial Thromboplastin Time |
| Arg | Arginine |
| AT-III | Antithrombin III |
| ATP | Adenosine triphosphate |
| β-TG | Beta thromboglobulin |
| $\beta_2$-GPI | Beta 2 - Glycoprotein I |
| BALF | Bronchoalveolar lavage fluid |
| BT | Bleeding Time |
| C.O.P.D. | Chronic obstructive pulmonary disease |
| C4b | Complement component 4b |
| CO | Cyclooxygenase |
| CT | Computerized tomography |
| DAG | Diacylglycerol |
| DIC | Disseminated intravascular coagulation |
| ECG | Electrocardiogram |
| ECP | Eosinophil cationic protein |
| EGF | Epidermal growth-factor |
| ELISA | Enzyme linked immunosorbant assay |
| Ep DRF | Epithelial derived relaxant factor |
| FDPs | Fibrin (ogen) Degradation Products |
| $FEV_1$ | Forced expiratory volume in first second |
| FPA | Fibrinopeptide A |
| FPB | Fibrinopeptide B |

| | |
|---|---|
| TTP | Thrombotic thrombocytopenic Purpura |
| V/Q | Ventilation/perfusion |
| vWF | von Willebrand factor |

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