**DO EMERGENCY MEDICAL SERVICE SYSTEMS PROPERLY ASSSESS THE RISK OF ACUTE AORTIC SYNDOME AND TRANSPORT THE PATIENTS TO THE RIGHT HOSPITALS? IMPACT OF EMS ASSESSMENT AND TRANSPORTATION IN OUTCOMES**

**H. Inaba**1, A. Yamashita2, Y. Yoshita3, Y. Wato4

1Circulatory Emergency and Resuscitation Science, Kanazawa University Graduate School of Medicine, Kanazawa, Japan

2Department of Cardiology, Noto General Hospital, Nanao, Japan

3Department of Anesthesiology, Komatsu Municipal Hospital, Komatsu, Japan

4Department of Emergency Medicine, Kanazawa Medical University, Uchinada, Japan

**Objective:** To determine the quality of acute aortic syndrome (AAS) assessment by emergency medical service (EMS) and pre-hospital factors associated with assessment and outcomes.

**Method:** We retrospectively analyzed the data collected for 94,468 patients with non-traumatic medical emergency during the period of 2011-2014.

**Results:** Of these transported by EMS, 22,075 had any of the AAS-related symptoms (all types of chest, back, or abdominal pain: N = 10,114, syncope: N =7,915, symptoms consistent with perfusion deficit: N = 6,911 ), and 330 had an EMS-assessed risk for AAS; of these, 195 received an in-hospital AAS diagnosis. Of the remaining 21,745 patients without EMS-assessed risk, 166 were diagnosed with AAS. Therefore, the sensitivity and specificity of our EMS-risk assessment for AAS was 54.0% (195/361) and 99.4% (21,579/21,714), respectively. EMS assessed the risk less frequently when patients were elderly and presented with dyspnea and syncope/faintness. Sign of upper extremity ischemia was rarely detected (6.9%) and absence of this sign was associated with lack of EMS-assessed risk. When we retrospectively calculated of modified aortic dissection detection risk score composed of high-risk history, pain and physical examination features, rigorous assessment based on this score increased the EMS sensitivity for AAS. The 1-month survival rate was significantly higher in patients admitted to core hospitals with surgical teams for AAS than in those admitted to all other hospitals [87.5% (210/240) vs 69.4% (84/121); P<0.01]. Multiple logistic regression analysis demonstrated that Stanford type A, Glasgow coma scale ≤14, and admission to core hospitals providing emergency cardiovascular surgery were associated with 1-month survival.

**Conclusion:**Improvement of AAS survival is likely to be affected by rapid admission to appropriate hospitals providing cardiovascular surgery. A prehospital protocol for the proper assessment and transport of patients with AAS should be established. A concept of “aortic bypass” should be applied in transportation of patients with EMS-assessed risk for AAS.