## Introduction

The evidence linking exposure to traumatic stress and cardiovascular disease is compelling and is supported by different epidemiologic studies. Platelets play a crucial role in the evolution of acute coronary syndromes and an exaggerated platelet activity has been shown to be associated with a higher incidence of acute coronary events. It is tempting to hypothesize that PTSD (post traumatic stress disorder) may confer a heightened platelet activity. This association might be formed through increased sympathetic output associated with PTSD. Consequent platelet activation leads to release of P selectin and an exaggerated platelet activity has been shown to be associated with an increased serotonergic output associated with PTSD. Increased platelet activity is therefore an attractive marker of PTSD (post traumatic stress disorder) and an exaggerated platelet activity has been shown to be associated with cardiovascular disease.

## Objectives

To determine platelet activity in PTSD patients and healthy controls by measuring:

- Percentages of leukocyte-platelet aggregates
- Expression of CD63 on platelets
- Serum levels of P selectin

## Results

We examined 20 Croatian combat veterans with PTSD diagnosed by The Clinician Administered PTSD Scale (CAPS) and 20 age matched healthy volunteers. A cautious blood draw and gentle handling of specimens are required to avoid spontaneous platelet activation. Blood samples were immediately stained with PerCP anti-CD42a (platelet specific antibody) and FITC anti-CD63 for determination of CD63 expression in platelets. Further processing of samples was carried out using no lyse/no wash technique. Samples were analysed on Becton Dickinson LSR II flow cytometer. Percentages of double positive (CD42a+CD63+) aggregates were measured. Sera were properly stored for later determination of P selectin levels by ELISA.

### Conclusions

This study shows no significant differences between studied groups in any of measured parameters. If observed differences were biologically important, bigger sample sizes are needed to prove it significant.

As platelet function tests performed by flow cytometry are very sensitive, it is difficult to control for possible confounding factors. Ex vivo platelet reactivity studies using various acute psychological stimuli, or in vitro reactivity studies using physiological agonists might reveal possible changes in platelet function of PTSD patients.