

# CONTRIBUTION OF INFLAMMATION PROCESS (hs-CRP LEVELS) IN MIGRAINE DURING ICTAL PHASE

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## ABSTRACT

**Introduction:** C-reactive protein (CRP), an acute phase protein and a marker of inflammation, has been associated with the risk of cardiovascular disease. CRP has also been suggested to be abnormal among migraineurs, possibly due to repeated vascular inflammation. **Methods:** This case-control study was conducted in Wahidin Sudirohusodo General Hospital, Makassar, Indonesia, from June 2013 to January 2014. The aim of this study is to investigate the role of inflammation in the pathophysiology of an ictal and interictal period of migraine. A total of 82 patients participated in this study [16 males (19.5%) and 66 females (80.5%)]. The age of ictal period patients range between 19-57 years old (median 28, mean  $29.54 \pm 8.92$ ) and interictal period patients range between 20-48 years (median 26, mean  $28.90 \pm 7.91$ ). **Results:** This study showed mean hs-CRP level was significantly higher in the ictal period compared to interictal period of migraine (6.64 vs 1.87 mg/L). hs-CRP >3mg/L (high risk of cardiovascular event) was more common in ictal (78.3%) compared to interictal patients (21.7%), while hs-CRP <1mg/L (low risk of cardiovascular event) was more common in interictal (64.9%) compared to ictal period patients (35.1%) (OR=6.646). The contribution of hs-CRP to the ictal period of a migraine was 17.2%. **Conclusion:** This study reinforces the view that inflammation process plays some roles in the pathophysiology of a migraine, especially in the ictal period.

**Keywords:** hs-CRP, migraine, ictal.

## INTRODUCTION

CRP, an acute phase protein and a marker of inflammation, has been associated with the risk of cardiovascular disease.<sup>1,2</sup> CRP also has been suggested to be abnormal among migraineurs, possibly due to repeated vascular inflammation.<sup>3</sup> The risk of stroke and coronary heart disease is increased in migraineurs compared to others, especially for those with aura.<sup>4,5</sup> There is limited data on the relationship between CRP and migraine, especially during an ictal period.

CRP is one of the acute-phase proteins (APPs), which can increase by at least 25% during inflammatory conditions. However, despite the name, this protein can also change during chronic inflammatory processes.<sup>6</sup>

Results from three studies, a clinical report, a case-control study, and one large cohort study of female health professionals suggest that CRP is modestly elevated in migraineurs compared to controls.<sup>6</sup> No study further investigates the CRP level in ictal (during a headache) and interictal (during headache-free) period. Based on those reports, we conducted a study to find the contribution of inflammation process by measuring hs-CRP level in the ictal and interictal period of migraine patients.

## METHODS

This case-control study was conducted in Wahidin Sudirohusodo General Hospital, Makassar, Indonesia. A migraine was diag-