

**OP 01**

**Acute, Chronic Pain and Its Association with Serum Interleukin-6 and Highly Sensitive C Reactive Protein in Patients with Cervical or Lumbar Disc Herniation**

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**Background:** Intervertebral Disc Herniation (IDH) that occurs mainly in the lumbar and cervical region of the spine is a common cause for radiculopathy and associated pain. IDH is often accompanied by acute and chronic pain. Inflammation is a major cause for radiculopathy and such local inflammation caused by Interleukin-6 (IL-6) which is believed to be a pro-inflammatory marker in C-reactive protein (CRP) production. CRP is the first acute phase protein to appear and is a sensitive marker of tissue damage and local inflammation. However, in radiculopathy, subtle changes in local inflammation may not be detected in routine CRP analysis, therefore, highly sensitive CRP (hs-CRP) would be a better indicator in IDH.

**Objectives:** To assess the pain duration (acute/chronic) and its association with IL-6 and hs-CRP in patients with cervical disc herniation (CDH) or lumbar disc herniation (LDH)

**Methods:** A descriptive cross-sectional study was conducted using 77 patients (18-70 years) with either CDH or LDH. Venous blood (5 mL) was collected and hs-CRP was analyzed by automated clinical analyzer while IL-6 was estimated by Enzyme Linked Immunosorbent Assay. Subjects with neck/back pain for >3 months were regarded as acute pain patients whereas subjects with persisted pain for <3 months were categorized as chronic patients. Mann-Whitney U test was used for statistical analysis and  $p < 0.05$  was considered as significant.

**Results:** Majority of the patients presented with LDH (64.9%). Highest percentage had chronic pain (62.3%), whereas the remaining suffered from acute pain. Patients with chronic neck/back pain showed significantly ( $p = 0.04$ ) higher IL-6 level (mean rank= 40.9 pg/mL) compared to patients with acute neck/back pain (mean rank= 30.35 pg/mL). Hs-CRP level was higher in patients with acute neck/back pain (mean rank= 42.5 mg/L) compared to that of patients with chronic neck/back pain (mean rank= 36.8 mg/L) which did not show significant difference ( $p = 0.28$ ) among the study groups of acute and chronic pain. There was no significant correlation between serum IL-6 and hs-CRP levels ( $r = 0.02$ ,  $p > 0.05$ ).

**Conclusions:** Present study showed increased level of hs-CRP in patients with acute neck/back pain as an initial response to inflammation around nerve roots. However, IL-6 levels were higher in patients with chronic neck/back pain recommending further investigations with other similar pro-inflammatory markers with duration of pain. There was no significant correlation between serum IL-6 and hs-CRP levels.

**Keywords:** *Cervical disc herniation, Duration of pain, Highly sensitive C-reactive protein, Interleukin-6, Lumbar disc herniation*