

## **The Important of Adiponectin Level in Progression of Primary Knee Osteoarthritis Disease**

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### **Abstract**

Subject :Primary Knee Osteoarthritis (PKOA) is know as degenerative cartilage cell disease in knee joint association with generation various inflammatory responses . This disease is more common in geriatric and effected by many factors such as obesity and metabolic . Adiponectin is hormones secreted of fatty tissue involve as mediators in many pathophysiology process , and support inflammation at cartilage of knee joint .

Objective of the Study: Role of Adiponectin concentration level in progression of Primary knee Osteoarthritis .

Materials and Methods: This study was done on 60 patients with PKOA disease and 60 healthy persons (control ), the all subjects age within this study were more than 60 years of both genders .After obtained serum , immediately used quantity method (immunoassay) for measured level of Adiponectin concentration .

Results: This study shows elevation of serum Adiponectin concentration level in PKOA group compare with healthy control group .

Conclusion: This study confirms that serum Adiponectin concentration level can act as support PKOA disease progression .

Keywords: Primary Knee Osteoarthritis , Adiponectin and Osteoarthritis .

### **Introduction**

Primary Knee Osteoarthritis (PKOA) is one of common knee joint disorders that consider as chronic ,associated with age due to changes in physiologic processes at geriatric , PKOA know as complex disease characterize degradation of cartilage cells (chondrocytes) that layering end bones in knee joints , with interaction recognized inflammatory factors <sup>(1)</sup> . The OA disease , as generally, has many pathologic factors classified into mechanical (that is effect on weight-bearing joints ) and non mechanical (that is effect on non weight-bearing joints ) , one of the main cause of OA disease is obesity <sup>(2)</sup> .The PKOA consider as weight-bearing joints but not effect by weight due to it's primary .

Adipokines are hormones secreted of fatty tissue involve as mediators in many pathophysiology process (such as arthritis diseases),newly recognized family of compounds like Adiponectin . The Adiponectin has role in contribute of OA prevalence in obesity persons <sup>(3)</sup> .

Many studies suggested the correlation between PKOA disease and Adiponectin level in weight-bearing joints like knee joints, but few studies included the correlation with non weight-bearing joints like hand joints . Adiponectin level consider risk factor to degradation of cartilage cells in joints due to it's has link PKOA disease and obesity <sup>(4)</sup> .

The study aim is evaluate Adiponectin level in PKOA group and healthy control group at comparison study.

## Materials and Methods

The present study included 60 cases with PKOA disease and 60 healthy persons (as control) groups, all individuals age was more 60 years of both sexes. The sampling process of all subjects was random manner, blood samples separated immediately without any preservative factor to product serum as pure form. The serum used for measured Adiponectin concentration level (as quantity measurement) by immunoassay method.

After measurement, used t-test method for statistic analysis to show different of Adiponectin level by comparison between PKOA patients and control groups via used mean  $\pm$  standard deviation (SD) and p-value (p-value > 0.05 mean significant value).

## Results

The present study explain a different of Adiponectin concentration level between PKOA patients and healthy control groups via used mean  $\pm$  SD statistic method. The Adiponectin level found in PKOA group was  $13.1 \pm 8.4$ , while in control group was  $10.5 \pm 8.9$  with P-value was 0.022. The present result confirms elevation of Adiponectin concentration level in PKOA group. Show table 1.

*Table 1: Comparison of serum Adiponectin level between PKOA and control groups according to mean  $\pm$  standard deviation (SD)*

| Parameters                | PKOA group (No. =60)<br>Mean $\pm$ SD | Control group (No. =60)<br>Mean $\pm$ SD | P-value |
|---------------------------|---------------------------------------|------------------------------------------|---------|
| Adiponectin level (ng/ml) | $13.1 \pm 8.4$                        | $10.5 \pm 8.9$                           | 0.022*  |

\*Significant value

## Discussion

The PKOA is degenerative knee cartilage joint disease consider as more prevalence disease in geriatric, and it consider as complex disease due to interact of many pathological factors to generate this disease such as mechanical factor, non mechanical factor and cytokines. The cytokines and hormones secreted of fatty tissue like Adiponectin act to support of inflammatory process in joints<sup>(3)</sup>.

There are many studies such as Kroon FP and et al study showed correlation between general knee OA patients, Adiponectin concentration level and joint pain, this studies showed elevated of Adiponectin level with reduced cartilage thickness that product from knee cartilage degradation<sup>(5)</sup>. Also there are studies showed correlation between Adiponectin level with knee OA at specially form, Zhan D and et al explained that concluded that Adiponectin is partially involved in the relationship between BMI and KOA<sup>(6)</sup>.

The knee joint effect by mechanical factors and metabolic factors, so this study remarkable to focus on involve of metabolic factors on generate of PKOA. This study demonstrated elevated of Adiponectin level in knee OA, and agree with previous studies. We recommend to other studies and take more PKOA patients to confirm this study results.

## Conclusion

This study concluded to confirms that serum Adiponectin concentration level are elevate in PKOA cases compare with healthy control, this support that Adiponectin involve in

pathological process that product cartilage degradation in knee joints.

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