

**Republic of Iraq
Ministry of Higher Education
And scientific Research
University of Baghdad
College of Dentistry**



**Effectiveness of Intra-Articular Injection of Platelet-Rich
Plasma in Patients with Anterior Disc Displacement with
Reduction**

*A thesis submitted to the council of the College of Dentistry / University of
Baghdad in partial fulfillment of the requirements for the degree of Master of
Science in Oral Medicine*

By

Farah Taha Abd Al-hussien

B.D.S.

Supervisor

Assist. Prof. Dr. Ameena Ryhan Diajil

B.D.S., M.Sc. PhD (Oral Medicine)

Iraq – Baghdad

2016 A.D.

1438 A.H.

Abstract

Background: Anterior disc displacement with reduction is the most common form of the internal derangement of temporomandibular joint. It is a painful progressive dysfunction clinically characterized by reciprocal clicking due to shifting of the articular disc anteriorly in relation to the condyle and fossa during the mandibular movement.

Conservative therapy can be used for the treatment, however if it is ineffective, intra-articular injection as a minimally invasive modality of platelet-rich plasma has been used. Platelet-rich plasma is a natural autologous product with a high platelet concentration obtained by centrifugation process to enhance local tissue healing through several growth factors that are found in alpha granules. These growth factors are released via degranulation after endogenous activation. This technique is increasingly used today as a safe, simple modality with high promise.

The aim of the study: Was to assess the effectiveness of the intra-articular joint injection of platelet-rich plasma in patients with anterior disc displacement.

Subjects, materials and methods: Sixty patients with anterior disc displacement with reduction were participated in this study. 41 were females and 19 were males with their age range was from 20-39 years. Patients were divided into two groups; 30 patients who did not respond to the conservative therapy were considered as study group and 30 patients who received a conservative therapy and considered as control group. The study group received an intra-articular platelet-rich plasma injection. 1 ml of concentrated platelet-rich plasma was obtained by a single step centrifugation of 10 ml of patient's venous blood to be used as an intra-articular injection. Pain, joint sounds and maximum non-assisted mouth opening were clinically evaluated before and after platelet-rich plasma injection by one and two months time of follow-up.

Results: There was statistically significant difference in pain score, clicking or popping signs and range of mouth opening in patients treated with platelet-rich plasma. Considering pain intensity, a significant difference between study and control groups was found at presentation time; study group showed a higher mean of pain intensity ($P < 0.030$). At the end of the 2nd month, a significant difference in pain intensity between both groups was found; study group showed lower mean of pain intensity compared to control group ($P < 0.001$). Considering clicking sounds; at the end of 2nd month in study group (70%) of patients showed reduction in clicking frequency, (3%) of patients showed disappearance of clicking sounds and (27%) of patients showed no changes in their clicking sounds. In control group, (70%) of patients showed no change in their clicking sound, while the rest of patients (30%) were observed with a reduction in clicking frequency; no statistical difference was found in relation to clicking within the study and control group ($p > 0.05$). Considering the range of mouth opening, Statistically, a significant difference were found between both groups, the mean of mouth opening at the end of 1st month was 27.8 mm in study group and 35.5 mm in control group ($P < 0.001$), while at the end of 2nd month the mean of mouth opening was 31.8 mm in study group and 35.0 mm in control group ($P < 0.041$); study group showed a lower mean of mouth opening compered to control group.

Conclusions: This study support the effectiveness of platelet-rich plasma intra-articular TMJ injection in the treatment of anterior disc displacement with reduction as a safe modality in reducing pain, clicking and increase mouth opening which eventually improves the joint function.