Glucocorticosteroid Injection In the Temporomandibular Joint

A pilot study comparing treatment effect with and without simultaneous radiographic imaging

Student: Lena Karalli
Tutors: Catharina Österlund and Susanna Marklund
ABSTRACT

Local injection of glucocorticosteroid (GCS) is an effective treatment of painful conditions in the temporomandibular joint (TMJ). GCS can be administered using anatomical landmarks for orientation or by the use of simultaneous radiographic imaging. In the image guided technique the corticosteroid is mixed with a contrast medium and the injection visualized using radiography.

The aim of this prospective pilot study was to compare the treatment effect of intra-articular GCS injection in the TMJ with- and without the use of simultaneous radiographic imaging.

13 patients (9 women and 4 men) with TMJ arthralgia received injection either with or without simultaneous radiographic imaging. Treatment effect was evaluated based on changes in clinical signs and symptoms before and 4-6 weeks after treatment. The symptoms included pain at rest and at jaw function, joint locking, pain index and global improvement. Clinical observations involved TMJ pain to palpation, maximal mouth opening, pain at maximal opening and joint sounds.

The main findings were significant decreases in pain index and relief of familiar pain before and after treatment as well as a positive effect on global improvement regardless of administration technique. There were no significant differences between the two methods in treatment outcome.

The results suggest that both administration techniques are comparable in treatment effect and should therefore rather be evaluated based on cost-effectiveness and radiation dose. It may be reasonable to apply the image-guided technique mainly when further diagnostic information is needed.
INTRODUCTION

Terminology and prevalence of temporomandibular disorders

Temporomandibular disorder (TMD) is a term used for pain and dysfunction in the temporomandibular joint (TMJ) and jaw muscles. TMD is a common condition, third in prevalence after headache and back pain (Dworkin, 2011). It involves pain and dysfunctions in the jaw-face region and is characterized by pain typically in the pre-auricular area, the jaws and/or temporal area, limitation in jaw movement and joint sounds (Dworkin, 2011). According to literature reviews approximately 40-60% of the adult population reports symptoms of TMD (Okeson, 2013) and approximately 10% have both symptoms and signs. The prevalence of symptoms is highest among middle-aged adults. It is also twice as common in women than men (LeResche, 1997). According to the guidelines of the National Board of Health and Welfare (NBHW) the treatment need is estimated to be about 5-15% among adults (Carlsson, 1999).

Etiology of TMD

The etiology of TMD is considered to be multifactorial (Carlsson, 1990; Greene, 2001) and the outcome impairs quality of life. Contributing factors can be predisposing, initiating or maintaining factors. Predisposing factors may increase the risk of developing a condition, such as systemic disease and anatomical factors. Initiating factors may cause onset of a condition, such as trauma. Maintaining factors may contribute to the maintenance of a condition e.g. overload by parafunctional activities or stress, distress and pain (Okeson, 2013). There seems to be a correlation between TMD and spinal pain suggesting that they may mutually affect each other (Marklund et al., 2010). TMD is also related to generalized pain conditions due to central sensitization mechanisms (Svensson and Graven-Nielsen, 2001). The psychosocial status of the patient may also be a contributing etiologic factor causing increased pain sensitivity (Suvinen et al., 2005).

Diagnosis of TMJ pain

The Research Diagnostic Criteria for TMD is a widely used diagnostic system (LeResche, 1992). This original system has recently been revised and a new evidence-
based diagnostic algorithm, Diagnostic Criteria for TMD (DC/ TMD), has been recommended (Shiffaman et al., 2014). Here follows a description of the diagnosis TMJ arthralgia, arthritis and symptomatic arthrosis based on the newly recommended diagnostic criteria.

**TMJ arthralgia**

TMJ arthralgia is a painful condition in the TMJ area. It is characterised by pain in the jaw, temple, ear, or in front of the ear, which can be associated with jaw movement, function, or parafunction. Report of familiar pain in the TMJ by palpation of the lateral pole, around the lateral pole, with maximum assisted/ unassisted opening or lateral/ protrusive movement confirms the diagnosis (Shiffaman et al., 2014).

**TMJ arthritis**

TMJ arthritis is an inflammatory condition, which involves pain from jaw movements and familiar pain to TMJ palpation. The level of inflammatory mediators in the synovial fluid indicates the degree of inflammation (Kopp et al., 2002). The radiographic image of arthritis is erosive. TMJ arthritis is often associated with a systemic inflammatory joint disease (Tegelberg et al., 1987).

**Symptomatic TMJ arthrosis**

TMJ arthrosis is a degenerative disorder characterized by degradation of articular tissue with concomitant osseous changes in the condyle and/ or articular eminence (Shiffaman et al., 2014) causing movement related crepitus. The diagnosis can be confirmed by radiological findings such as flattening of the articular surface, sclerosis and osteophytes (Okeson, 2013). When pain co-occurs with arthrosis the term “symptomatic arthrosis” is used.

**Treatment of inflammatory and pain conditions in the TMJ**

The aim of treatment is to minimize the degree of inflammation and pain, improve TMJ function and to minimize the risk for future onset. Occlusal splint and physical therapy including active or passive jaw movements and relaxation techniques can be used to reduce loading and improve function (NBHW, 2006). Non-steroidal anti-inflammatory
agents (NSAIDs) are also a common therapy to reduce pain and inflammation. Systemic disease modifying anti-rheumatic drugs (DMARD) and biologics can be beneficial if the condition is associated with a chronic inflammatory joint disease (Steiman et al., 2013). Intra-articular injections of GCS in the TMJ are used to suppress inflammation and pain by the strong anti-inflammatory effect of the steroid. GCS inhibit the release of pro-inflammatory cytokines (TNF-α, IL-1β) and stimulate the release of anti-inflammatory cytokines thus reducing the inflammatory response (Creamer, 1997).

**Treatment recommendations**

The NBHW have graded intra-articular corticosteroid injection in the TMJ in relation to the severeness of different diagnosis. The ranking system is also based on scientific evidence of treatment effect and cost-effectiveness. The grade of recommendation for GCS injection in TMJ arthralgia is five where the highest possible rank is three. For TMJ arthritis associated with inflammatory disease the grade of recommendation is three and the highest possible ranking is one. As for symptomatic arthrosis in the TMJ the grade of recommendation is seven and the highest possible ranking is five.

The evaluation of the NBHW states that TMJ arthralgia strongly influences oral health. It is associated with severe pain and discomfort and moderately effects jaw function. It may also cause psychosocial impairment. GCS injection is believed to have a moderate effect on pain and maximal opening according to expert group. A two years follow-up study showed that GCS injection in patients with TMJ arthralgia reduced the severity of symptoms and decreased dysfunction index. It also had a positive effect on global improvement (Kopp and Wenneberg, 1981).

TMJ arthritis associated with chronic inflammatory joint disease is considered to influence oral health to a large degree and cause severe pain and dysfunction. The condition may have a negative psychosocial effect. There is also a high risk of tissue damage. GCS injection is thought to have a moderate effect on familiar pain, pain at rest and at function, tenderness to palpation and some positive effect on jaw opening and global improvement (Kopp et al., 1991).
Symptomatic TMJ arthrosis is believed to have a mild effect on oral health. The condition is associated to pain, discomfort and impairment of normal jaw function. Locally administered GCS injection is believed to have a moderate effect on pain and a small effect on jaw opening. One relevant clinical trial including patients with arthrosis who received conservative treatment prior to injection shows a reduction in pain intensity by 58% and a 10% increase in maximal opening (Bjørmland et al., 2007).

**Administration of GCS in TMJ**

Injections can be performed using anatomical landmarks for orientation. GCS is injected in the superior joint space. There is also an image guided technique where the corticosteroid is mixed with contrast medium and the TMJ is visualized using a continuous X-ray beam to generate real time images (Ahlqvist and Legrell, 1993). Using this technique the corticosteroid is injected in both the superior and inferior joint space. Earlier studies have concluded that the use of fluoroscopy is safe and efficient. It also offers greater control over the procedure, more diagnostic information and is less time consuming (Benson et al., 1989). The disadvantage is however higher cost and the consequential radiation dose. The image-guided injection costs about 2802kr (internal rate) whereas injection performed without the use of radiography costs approximately 1700 Swedish crowns (kr) as calculated by the NBHW for one hour, which is considered cost-effective. Fluoroscopy requires a lower current (mA) compared to a regular intraoral radiographic examination allowing longer exposure. According to a systematic review (Uzbelger Feldman et al., 2010) the dosage is low compared to other radiographic techniques used in dentistry.

**Aim**

According to a systemic review earlier studies show a wide variation in the outcome of GCS treatment in the TMJ (Mountziaris et al., 2009). The aim of this study is to compare the treatment effect of intra-articular administration of corticosteroid in the TMJ with and without simultaneous radiographic imaging. The study includes patients with TMJ arthralgia, arthritis or symptomatic arthrosis. The treatment outcome is focused on symptoms of pain during rest- and function, joint locking as well as pain index (PI) and global improvement. Clinical observations include TMJ tenderness,
maximal mouth opening and joint sounds. Additional information attained by this study may provide support to the clinician when faced with the choice between different administration techniques. The results may also be relevant from an ethical and a socioeconomic point of view. Based on the advantage of visual support and increased precision, the hypothesis is that the image guided injection should be superior in treatment effect.

**MATERIALS AND METHODS**

**Study design**

In this prospective pilot study, the study population comprised patients from two clinics, Clinical oral physiology, Specialist clinic, County of Västerbotten, Umeå and Specialist clinic, Centre of dental competence, County of Norrbotten, Luleå. All patients received treatment with GCS locally injected in the TMJ. In Umeå, the injections were administrated at the Department of Oral Maxillofacial Radiology, guided by fluoroscopy, while the clinic in Luleå used anatomical structures for orientation. Both methods are described in detail below. Data was collected before the injections were made (baseline) and 4-6 weeks after the injection (after). Inclusion criteria were any of the diagnosis TMJ arthralgia, arthritis or symptomatic arthrosis, where corticosteroid injection was the recommended treatment alternative according to the guidelines of the NBHW, as well as pain on the numeric rating scale (NRS 0-10) of 4 or higher (NRS ≥ 4).

**Study Population**

The study included a total of 14 treated joints during a time period between 1/9 2013 - 3/4 2014 assessed by dental specialists either in Umeå (group A) or Luleå (group B). Group A included eight patients of whom two were excluded due to insufficient data. Six patients remained (4 women and 2 men) where one patient received injection in both TMJs and was therefore counted for two separate joints. Group B included seven patients (5 women and 2 men) apart from one who discontinued the study. The ages ranged between 20-70 years (median age: 52yrs in group A and 54yrs sin group B). A total of three patients had received an injection in the same joint earlier. Two patients in
each group had rheumatoid arthritis (RA). In group A four patients were diagnosed with arthrosis and three with arthritis. In group B three patients were diagnosed with arthrosis and four patients with arthralgia.

**Protocol for data collection**

Examination protocols were provided to each clinic and the dental specialists were asked to fill in two separate protocols before the injection and at the re-examination 4-6 weeks (according to regular routine) after the injection. The protocols focused on patient subjective symptoms and clinical signs described below.

**Subjective symptoms**

All patients were asked if they experienced any of the following (yes/no):

- Pain in the face/jaws/ temple/ joint during rest?
- Pain during function e.g. chewing, opening mouth?
- Joint locking in opening or closing position?

They were also asked if they had a chronic inflammatory joint disease and if they had received an injection earlier in the same TMJ.

The patients were requested to grade the TMJ pain intensity on numeric rating scale (NRS 0-10). The frequency of the jaw pain was estimated to a value between 0-5 where 0= never, 1= on few occasions, 2= a few times a month, 3= once a week, 4= a few times a week, 5= daily and PI was calculated by multiplying pain intensity and frequency (minimum 0, maximum 50).

In addition, the follow-up protocol also inquired the patients to estimate global improvement e.g. the difference before and after treatment as unchanged, slightly better, better, much better or slightly worse, worse or much worse.

**Clinical signs**

The jaw function was evaluated based on:
- Maximal mouth opening (mm)
- TMJ sounds e.g. clicking or crepitation
- Pain to TMJ palpation

During the examination the patient was asked if any of the pain experienced was familiar. Familiar pain refers to pain that is similar or feels like pain the patient may have experienced before in that area in the last 30 days. The examinations were carried out in the same way before injection and at follow-up.

**Procedures**

**GCS injection in the TMJ without radiographic imaging (Luleå)**

- The patient was seated in a half-sitting position and the TMJ was located by careful palpation of the condyle, zygomatical arch and the area anterior to the auricular meatus while the patient was asked to open and close his/her mouth. The pre-auricular area in front or the ear was cleaned with alcohol.
- The injection needle was inserted perpendicular to the skin surface between the posterior margin of the caput mandibulae, anterior to the auricular meatus and inferior to zygomatical arch.
- The needle direction was then angled superior and anterior to penetrate the superior articular cavity. Aspiration was performed to ensure correct positioning and 1ml of Depo-Medrol 40mg/ml cum Lidocain 10mg/ml was injected.
- After the injection the patient was recommended rest and soft diet.

**Image guided method for GCS injection in the TMJ (Umeå)**

- The patient was placed in a side-lying position and the head resting with the TMJ to be injected facing upwards.
- The x-ray apparatus was directed toward the TMJ, targeted for optimal visualization.
- The patient was covered with a surgical cloth exposing only the area of the TMJ, which was cleaned with alcohol.
• Local anaesthetic with 1-2 ml Xylocain 10mg/mL was injected in the area posterior to collum mandibuale for nerve block of n. auriculotemporalis.

• A solution of 1ml Depo-Medrol 40mg/ml mixed with an equal amount of contrast medium Omnipaque 300mg/ml was injected first in the superior and then the inferior joint cavity.

• The total amount of solution injected into the joint does usually not exceed 1.6ml since approximately 0.4ml is left in the extension tube. The clinician can easily monitor the placement of the needle and the distribution of the drug on a screen in real time.

• After the injection the patient was recommended rest and soft diet.

**Literature search**

Articles were found on PubMed by using the MeSH terms and Boolean operators “corticosteroid injection TMJ” and ”TMJ osteoarthritis etiology”. To sort out relevant articles, the search was limited to osteoarthritis and chronic inflammatory joint disease in the TMJ in an adult population and included the prevalence, etiology, epidemiology and pathology of the condition as well as the diagnostic criteria, treatment modalities and their effect. To complement the search studies were found in the Cochrane Library using the terms “TMJ osteoarthritis”. After reading the 16 abstracts the number of articles was narrowed down to 11 and the articles were acquired and read in full texts. Other relevant sources were “Management of temporomandibular disorders and occlusion” by Okeson (2013) and the recommendations of the NBHW. Aside from these, 21 references were found in the reference lists of relevant scientific articles or literature.

**Ethical considerations**

This study does not affect the clinician’s choice of treatment. Corticosteroid injections in the TMJ are evaluated and recommended by the NBHW. Although the form of treatment is invasive and can cause pain and discomfort, the purpose of the treatment is to relieve the original pain condition. An important disadvantage with the image guided method for GCS injection in the TMJ is the radiation exposure. Furthermore there is the aspect that either the patient or the clinician may choose a less expensive and perhaps
also less effective treatment due to the economic status of the patient. All patients included in the study were informed and have given written consent for participation. The Ethics Forum at the Department of Odontology finds that appropriate ethics considerations have been integrated into this degree project.

Statistical analysis

The statistical analysis was performed using the SPSS software version 22. The level of significance was set as ≤ 0.05. Binary data e.g. pain at rest, pain at function and pain at maximal opening as well as joint sounds and locking was tested for statistical difference before and after treatment using the McNemar Chi-square test. A paired t-test was used to analyse difference in PI and maximal jaw opening before and after treatment. The same variables were tested for difference between groups using a Mann-Whitney U-test.

RESULTS

Subjective symptoms

The result showed statistically significant decrease in median PI for both groups A and B, respectively, when compared before and after treatment (median=50%, p=0.034 and median=74%, p=0.027) (table 1). There was no statistically significant difference in pain at rest (29%, p=0.500 and 43%, p=0.250), pain at function (14%, p=1 and 57%, p=0.125) or joint locking (75%, p=0.250 and 50%, p=0.625) before and after treatment (table 1). No statistically significant difference was found when comparing PI between the groups (p=0.886).

Clinical signs

There was a statistically significant change in familiar pain for both groups group A and B, respectively (86%, p= 0.016 and 71%, p=0.023) (table 2). There was no significant reduction in either lateral (75%, p=0.500 and 100% p=0.125) or lateral and posterior pain to palpation (33%, p= 1 and 25%, p=1) when compared before and after treatment (table 2). No statistically significant increase in median maximal jaw opening when
compared before and after treatment in either group (median increase =6%, p=0.295 and median increase =4% and p=0.269), nor any apparent changes in joint sounds (table 2). No statistically significant difference was found when comparing the two groups in maximal jaw opening (p=0.942).

Global improvement
The global improvement showed that the vast majority of the patients (79%) experienced an overall positive treatment outcome effect, of which 57% reported that they felt better or much better after the injection (Fig. 1). There was no apparent difference between the groups.

DISCUSSION
One of the main findings in this pilot study was that treatment with intra-articular corticosteroid for patients with TMJ arthralgia resulted in relieved subjective symptoms, as measured by PI and global improvement. There was also a statistically significant reduction of familiar pain, which may indicate that the treatment has a high specificity. There was also a subtle increase in maximum opening, although not statistically significant in both groups. This suggests that regardless of administration technique GCS injection in the TMJ has a clinically verifiable positive treatment effect.

When comparing the groups, there was no statistically significant difference in either PI or maximal jaw opening. There was however a slightly higher proportion of patients with reduced pain during rest and function in group B, indicating that this method is at least equally effective as the injection performed with simultaneous radiographic imaging.

It must be taken into consideration that the anatomically oriented injection may not always accurately reach the superior cavity. The steroid may rather be injected in the periarticular tissues. This could theoretically be advantageous if the inflammation is spread to the surrounding tissues. However, one systematic review (Li et al., 2012) concluded that injection in both the upper and lower joint space has a better effect on
maximum opening and jaw pain compared with injection in the superior joint space alone.

Group A showed a slightly greater tendency in reducing joint locking. One theory is that locking due to adherences in the inferior joint cavity may loosen during the intraarticular administration. On the other hand, mixing the steroids with contrast medium leaves less room for the steroids since the joint space is limited. Therefore it can be assumed that more active substance is injected using the anatomically oriented technique. Little is known about the clinical importance of this aspect, which could neither be concluded from this study.

It is also questionable if the solution of GCS, contrast medium and local anaesthetics is stable. One study (Shah et al., 2008) where the mix was analysed for stability at different points of time during 24 hours confirms the stability of the solution, which implies safe clinical use. Another concern is the possibility that the contrast medium might impair the anti-inflammatory properties of corticosteroid or cause tissue damage but according to FASS, there is no known adverse effect of the contrast medium Omnipaque on joint tissues.

The image-guided technique is not only more precise but could also provide diagnostic information. Studying the distribution of the agent during the injection can aid in detecting disc perforation for example (Brooks et al., 1997). Nevertheless, the use of radiography requires sophisticated equipment and assistance and therefore higher cost. Furthermore, the radiation risk for both the patient and the dental staff is to be considered. The exposure time may vary between patients. For an ordinary procedure the effective dose during 4 minutes of exposure is 0,13mSv (calculated by JS Andersson, from the Department of Radiation Science, Umeå University). When compared to thresholds for different proximate radiation sensitive structures (e.g. the lens of the eye 20mSv/ year, the thyroid 25mSv/ year and 50mSv/ year for the skin) it can be concluded that it is fairly unlikely to reach potentially harmful doses (NAS, 2006).
The outcome of this study may have been affected by several factors, most importantly previous or simultaneous interventions with analgesics and anti-inflammatory drugs, unloading with occlusal splint or jaw movement training and stretching. Patients whom received a more comprehensive conservative treatment prior to or in combination with the injection may have responded better. The treatment effect may also be related to different diagnosis. Patients in group A had either the diagnosis arthritis or arthralgia whereas the patients in group B were diagnosed with symptomatic arthrosis or arthralgia. Patients with more severe forms of TMD or with associated inflammatory disease would naturally pose a greater therapeutic challenge. This has not been further investigated due to a small sample. Neither has the psychosocial status of the patient been accounted for as a contributing etiologic factor that may be associated to increased pain sensitivity (Suvinen et al., 2005). One possible source of error may be inconsistency in the examination technique both at the different points of time and between different clinicians (List et al., 1989). However all clinicians included in this study are well calibrated and experienced.

As with most pilot studies, it is not possible to provide any firm conclusions from our findings and therefore we cannot confirm or reject our hypothesis. A larger sample would have helped to improve the statistical analysis and allowed for more conclusive findings.

**Conclusion**

The results indicate that regardless the use of administration method, intra-articular GCS injection in the TMJ have a clinically verifiable positive treatment effect with decreased patient pain and a positive effect on patient’s global improvement. Choice of administration technique should therefore be evaluated based on cost-effectiveness and radiation risk. It may be reasonable to apply the image-guided technique when further diagnostic information is needed. Thus the benefits would outweigh the radiation risk and the higher cost.
ACKNOWLEDGEMENT

Special thanks to the Specialist clinic of Clinical Oral Physiology, the department of Oral Maxillofacial Radiology at the University of Umeå and Specialist Clinic Centre of Dental Competence for providing the data included in this observational study.
REFERENCES


Table 1. The number of treated TMJ:s, 7 in group A and 7 in group B, respectively. The subjective symptoms before treatment and 4-6 weeks after treatment with calculated improvement in percentage (%). The median pain index (PI), is presented before and after treatment with the reduction of median PI in percentage (%) as well as standard deviation (SD). Joint locking is presented as number of TMJ:s and calculated improvement in percentage (%). Note significant decrease in median PI for both groups A and B, respectively, when compared before and after treatment.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Group A Before</th>
<th>Group A After</th>
<th>Improvement (%)</th>
<th>P-value</th>
<th>Group B Before</th>
<th>Group B After</th>
<th>Improvement (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain at rest</td>
<td>7</td>
<td>5</td>
<td>29</td>
<td>0.500</td>
<td>7</td>
<td>4</td>
<td>43</td>
<td>0.250</td>
</tr>
<tr>
<td>Pain at function</td>
<td>7</td>
<td>6</td>
<td>14</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>57</td>
<td>0.125</td>
</tr>
<tr>
<td>TMJ PI (SD)</td>
<td>30(9.21)</td>
<td>15(13.56)</td>
<td>50</td>
<td>0.034*</td>
<td>35(9.06)</td>
<td>9(10.11)</td>
<td>74</td>
<td>0.027*</td>
</tr>
<tr>
<td>Joint locking</td>
<td>4</td>
<td>1</td>
<td>75</td>
<td>0.250</td>
<td>4</td>
<td>2</td>
<td>50</td>
<td>0.625</td>
</tr>
</tbody>
</table>

* indicate significant difference before and after treatment.
Table 2. Clinical signs before treatment and 4-6 weeks after treatment, for group A and B, respectively with calculated improvement in percentage (%). The TMJ pain to palpation is given in number of joints with pain to palpation lateral and lateral together with posterior palpation, along with calculated improvement in percentage (%). The clicking or crepitation is given in number of TMJ:s with the sound, along with calculated improvement in percentage (%). The median maximal opening is presented in mm along with the percentage (%) of patients showing increased maximal opening as well as standard deviation (SD). Note significant change in familiar pain for both groups, A and B, respectively.

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
</tr>
<tr>
<td>TMJ pain to palpation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Lateral and posterior</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Clicking or crepitation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Pain at maximal opening</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Maximal opening (SD)</td>
<td>51(8.73)</td>
<td>54(9.05)</td>
</tr>
<tr>
<td>Familiar pain</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

* indicate significant difference before and after treatment.
Figure 1. Distribution of global improvement after treatment amongst patients who received corticosteroid injection in group A and B combined.
Appendix

FÖRSÖKSPROTOKOLL FÖRE INJEKTION (Baseline)

*Patientens namn:
Patientens personnummer:
*Patientens telefonnummer:
*Datum för kortisoninjektion:

Behandlande tandläkare:
  *=e-posta dessa uppgifter så snart som möjligt till lenakaralli@hotmail.com

Anamnes

1. Har du ont i tinning, ansikte, käke eller käkled en gång i veckan eller oftare?
   Ja ☐ Nej ☐

2. Har du ont vid gapning eller tuggning en gång i veckan eller oftare?
   Ja ☐ Nej ☐

3. Har du låsningar eller upphakningar en gång i veckan eller oftare?
   Ja ☐ Nej ☐

4. Har du någon inflammatorisk sjukdom?
   Ja ☐ Nej ☐

-Vilken?

5.

NRS för käkledssmärta? (Anges som NRS 0-10), ringa in

Ingen -------------------------------------------------Maximal/outhärdlig

0 1 2 3 4 5 6 7 8 9 10

Frekvens för käkledssmärta (Anges som 0-5)

Aldrig ☐ (0)
Sporadiskt ☐ (1)
Någon till några ggr/månad ☐ (2)
Någon gång/vecka ☐ (3)
Flera gånger/vecka ☐ (4)
Dagligen ☐ (5)

BESVÄRINDEX (0-50) BỊ=

6. I vilken käkled injiceras kortison?
   HÖ ☐ VÄ ☐
Klinisk undersökning

1. Maximal gapning utan smärta (mm) (Mät avståndet mellan 11 och 41)
2. Maximal gapning med smärta (mm) (Mät avståndet mellan 11 och 41)
3. Igenkännande rörelsesmärta vid gapning? Ja ☐ Nej ☐
4. Maximal laterotrusion höger utan smärta (mm)
5. Maximal laterotrusion höger med smärta (mm)
6. Igenkännande rörelsesmärta vid laterotrusion åt höger? Ja ☐ Nej ☐
7. Maximal laterotrusion vänster utan smärta (mm)
8. Maximal laterotrusion vänster med smärta (mm)
9. Igenkännande rörelsesmärta vid laterotrusion åt vänster? Ja ☐ Nej ☐
10. Maximal protrusion utan smärta (mm)
11. Maximal protrusion med smärta (mm)
12. Igenkännande rörelsesmärta vid protrusion? Ja ☐ Nej ☐
13. Palpationssmärta lateralt över höger käkled? Ja ☐ Nej ☐
14. Igenkännande palpationssmärta lateralt över höger käkled? Ja ☐ Nej ☐
15. Palpationssmärta lateralt över vänster käkled? Ja ☐ Nej ☐
16. Igenkännande palpationssmärta lateralt över vänster käkled? Ja ☐ Nej ☐
17. Palpationssmärta runt den laterala polen höger käkled? Ja ☐ Nej ☐
18. Igenkännande palpationssmärta runt den laterala polen höger käkled? Ja ☐ Nej ☐
19. Palpationssmärta runt den laterala polen vänster käkled? Ja ☐ Nej ☐
20. Igenkännande palpationssmärta runt den laterala polen vänster käkled?
FÖRSÖKS PROTOKOLL 4 VECKOR EFTER INJEKTION

Patientens namn:
Patientens personnummer:
Datum för uppföljning:
Behandlande tandläkare:

Anamnes

1. Har du ont i tinning, ansikte, käke eller käkled en gång i veckan eller oftare?
   Ja ☐ Nej ☐
2. Har du ont vid gapning eller tuggning en gång i veckan eller oftare?
   Ja ☐ Nej ☐
3. Har du låsningar eller upphakningar en gång i veckan eller oftare?
   Ja ☐ Nej ☐
4. Har du någon inflammatorisk sjukdom?
   Ja ☐ Nej ☐
   - Vilken?
5. NRS för käkledssmärta? (Anges som NRS 0-10), ringa in
   Ingen --------------------------------------------------------------Maximal/outhärdlig

Frekvens för käkledssmärta (Ange som 0-5)
   Aldrig ☐ (0)
   Sporadiskt ☐ (1)
   Någon till några ggr/månad ☐ (2)
   Någon gång/vecka ☐ (3)
   Flera gånger/vecka ☐ (4)
   Dagligen ☐ (5)

Besvärsindex (0-50) BI=

6. Upplevde du något obehag eller biverkan av injektionen, i så fall vilken/vilka
Klinisk undersökning

1. Maximal gapning med smärta (mm) (Mät avståndet mellan 11 och 41)

2. Igenkännande rörelsensmärta vid gapning? Ja ☐ Nej ☐

3. Maximal laterotrusion höger utan smärta (mm)

4. Maximal laterotrusion höger med smärta (mm)

5. Igenkännande rörelsensmärta vid laterotrusion åt höger? Ja ☐ Nej ☐

6. Maximal laterotrusion vänster utan smärta (mm)

7. Maximal laterotrusion vänster med smärta (mm)

8. Igenkännande rörelsensmärta vid laterotrusion åt vänster? Ja ☐ Nej ☐

9. Maximal protrusion utan smärta (mm)

10. Maximal protrusion med smärta (mm)

11. Igenkännande rörelsensmärta vid protrusion? Ja ☐ Nej ☐

12. Palpationssmärta lateralt över höger käkled? Ja ☐ Nej ☐

13. Igenkännande palpationssmärta lateralt över höger käkled? Ja ☐ Nej ☐

14. Palpationssmärta lateralt över vänster käkled? Ja ☐ Nej ☐

15. Igenkännande palpationssmärta lateralt över vänster käkled? Ja ☐ Nej ☐

16. Palpationssmärta runt den laterala polen höger käkled? Ja ☐ Nej ☐

17. Igenkännande palpationssmärta runt den laterala polen höger käkled? Ja ☐ Nej ☐

18. Palpationssmärta runt den laterala polen vänster käkled? Ja ☐ Nej ☐

19. Igenkännande palpationssmärta runt den laterala polen vänster käkled? Ja ☐ Nej ☐