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The aim of the journal is to publish original articles with highest clinical and scientific quality at the international level. Middle Black Sea Journal of Health Science also publishes reviews covering fundamental innovations in health education, editorial articles, case reports and original images.

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Thesis
Erakıncı G. Donörlerde parazitlere karşı oluşan antikorların aranması. İzmir: Ege Üniversitesi Sağlık Bilimleri Enstitüsü. 1997.
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Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis (serial online) l995 Jan-Mar (cited 1996 June 5): 1(1): (24 screens). Available from: URL: http:/ www.cdc.gov/ncidodlElD/cid.htm.

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a) Original research: Prospective, retrospective and all kinds of experimental studies

Structure

English title, author names and institutions.
Abstract (average 200-400 word)
Introduction (200-500 word)
Methods (800 -1000 word)
Results (800-1000 word)
Discussion and conclusion (> 1200 word)
References (most 30)
Whole text should not exceed 4500 words except for resources and English summary.

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Results (most 600 word)
Discussion and conclusion (most 800 word)
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Case report (most 600 word)
Discussion and conclusion (most 1000 word)
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Particularly, the authors who have publications about the subject should be the reason of preference.

Structure

English title, author names and institutions.
Abstract (average 200-400 word)
Introduction (200-500 word)
The compilation text also including appropriate sub-headings (2000-3500 word),
Conclusion (50-150 word)
References (most 35)
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Structure
Abstract (average 200-400 word)
Surgical technique
Conclusion (50-150 word)
References (most 15)

g) Differential Diagnosis: Are the case reports which have current value. Includes reviews for similar diseases.
Structure
Abstract (average 100-150 word)
Topics related to the subject.
Conclusion (50-150 word)
References (3-5 inter)

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Structure
300 words of text and original images about the subject
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i) Questions and Answers: Are the texts written in form of questions and answers about scientific educative –instructive medical issues.

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CONTENTS

Editorial
Ülkü Karaman…… XIV

Original Articles
Arzu Şahin, Feyyaz Önder. Investigation of Thyroid Hormones and Prolactin Levels in Fertile and Infertile Women…….…… 1-6

Ertuğrul Allahverdi, Tülay Diken Allahverdi, Uğur Türktaş. Epicondylitis Band or Corticosteroid Injection for Lateral Epicondylitis Treatment? 7-12

Case Report
Keziban Doğan, Hakan Güraslan, Halil Fırat Baytekin, Ali Yeşil, Hediye Dağdeviren. Delayed and Misdiagnosed Complete Androgen Insensitivity Syndrome Cases in Two Sisters Which its Diagnose is Confirmed with Laparoscopic Gonedectomy……..... 13-16

Tuba Özcan, Nilay Taş, Esra Yancar Demir, Murat Doğan İşcanlı, Özlem Özdemir, Osman Bektaş, Arzu Altunçekiç Yıldırım. Fulminant Neuroleptic Malignant Syndrome Induced by Low Doses of Quetiapine in an old Patient……. 17-20

Adnan Kılınç, Nesrin Saruhan, Tahsin Tepecik, Muhammed Salih Karaavcı, Ümit Ertaş. Chronic Temporal Abscess as a Result of Mandibular Molar Extraction…… 21-24

Referees index…….….....25

EDITORIAL

Beginning of the second year ...

We are in happiness as we achieve to perform our goal including publications from all areas of health sciences which is in our magazine plans significantly. In our first year, we had publications in the field of nursing, parasitology, internal medicine, cardiology, dentistry and general surgery. Also, in our second year we will try to create an internationally respected magazine with a similar editorial policy.

Thank you in advance for your help …

In this issue, there are two original articles, three a case report and a letter to the editor. The articles are branches orthopedy, gynecology, physiology, neurology and dentistry. While one of the original article was reviewing thyroid hormones and prolactin levels in fertile and infertile women, the other was based epicondylitis band or corticosteroid injection for lateral epicondylitis treatment. In addition, the case reports are about fulminant neuroleptic malignant syndrome ınduced by low doses of quetiapine and chronic temporal abscess as a result of mandibular molar extraction and delayed and misdiagnosed complete androgen insensitivity syndrome cases.

In our journal publications process, I extend my thanks to our authors, article assessment referees, our editorial board members and our technical team for their support.

See you soon…

PhD. Asst. Prof. Ülkü KARAMAN

Director in Charge

Middle Black Sea Journal of Health Science April 2016; 2(1): 1-6

ORIGINAL ARTICLE

Investigation of Thyroid Hormones and Prolactin Levels in Fertile and Infertile Women

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Abstract

Objective: This study was conducted to investigate thyroid hormones and prolactin levels in fertile and infertile women.

Materials and Methods: The study enrolled a total of 84 women, 40 infertile and 44 fertile, aged between 15-45 years and applied to Kars Maternity and Child Hospital, Obstetrics Clinic and Artvin State Hospital, Obstetrics and Gynecology Clinic. The study population was divided into 3 groups: Group P (n=30, women having primary infertility), Group S (n=10, women having secondary infertility) and Group F (N=44, fertile women). Blood samples were obtained in early follicular phase and serum thyrotropin (TSH), free triiodothyronine (FT_3), free thyroxine (FT_4) and prolactin levels were determined by Microparticle Enzyme Immunoasay (MEIA) method.

Results: Serum TSH levels were 1.70±0.40, 1.60±0.20 and 0.80±0.20 µIU/ml for the groups F, P and S, respectively (p> 0.05). FT_3 levels were 2.36±0.06, 2.46±0.09 and 2.35±0.2 pg/ml while FT_4 levels were 0.98±0.02, 0.94±0.04 and 1.00±0.03 ng/dl for the groups F, P and S, respectively. There was a significant negative correlation between TSH and FT_4 (p=0.012, r = -0.275) and a significant positive correlation between FT_3 and FT_4 (p=0.002, r = 0.330). Serum prolactin levels were measured as 16.70±2.60, 21.10± 2.10 and 16.00±1.90 ng/ml respectively for the groups F, P and S and no significant difference was detected between the groups with respect to prolactin levels (p >0.05).

Conclusion: As a result, there was no difference between the groups in terms of TSH, FT_3, FT_4 and prolactin levels. Hormone levels were generally within normal limits and therefore we determine no significant relationship between infertility and investigated parameters in this study.

Key words: TSH, FT_3, FT_4, Prolactin, Infertility, Fertilty.

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Introduction

Infertility is defined as failure to achieve pregnancy after at least one year of regular unprotected sexual intercourse of a couple at reproductive age (Vayena et al., 2002). Infertility despite regular unprotected sexual intercourse without any previous pregnancy is defined as primary infertility, whereas fertility problems following a previous experience of pregnancy is defined as secondary infertility (Unuane et al., 2011).

Epidemiological data suggest that infertility affects 10-15% of couples at reproductive age (Vayena et al., 2002; Unuane et al., 2011). World Health Organization reported the causes of inferility of the couple arise from women in 37%, from men in 8% and from both in 35% of the cases (Unuane et al., 2011).

As for the causes of female infertility, it is pointed out that ovulation disorders are held responsible in 25-32%, tubal damage (Unuane et al., 2011; Thonneau et al., 1991) in 22-26%, endometriosis in 15%, hyperprolactinemia in 7% and various other reasons in 11% of the cases. Several studies have suggested that ovulation disorders cause more than half of female infertility (Unuane et al., 2011).

Treatment modality becomes apparent if the cause of infertility can be identified. The ovaries regularly communicate with the other endocrine organs. Therefore, it should be considered that any endocrine disorder in women can affect fertility at certain degrees (Boyar et al., 2013).

Hormonal disorders of the female reproductive system involve many problems originating from dysfunction of the hypothalamic-pituitary-ovarian axis. The problems caused by this axis are the most common disorders that often cause infertility (Doufas and Mastorakos, 2000; Williams et al., 2003). Prolactin, thyroid hormones and particularly thyroid stimulating hormone (TSH) are some of the crucial components considered in female infertility (Cramer et al., 2003). Various studies reported that hyperthyroidism can cause irregular cycles and increase the rate of miscarriage and premature birth in pregnant women especially in the first period of pregnancy, and also hypothyroidism has a considerably high correlation with menstrual disorders, an ovulatory cycles, decreased fertility and increased disease in pregnancy. Secretion of thyroid hormones should be at normal level for normal sexual functionality and regularity of the periods and sufficient fertility of the females (Doufas and Mastorakos, 2000; Poppe and Velkeniers, 2003; Poppe et al., 2007).

In addition, thyroid hormones change the sensitivity of the gonads to follicle stimulating hormone (FSH), luteinizing hormone (LH) and prolactin. Besides menstrual cycle disorders, hypothyroidism can also cause an increase particularly in the release of thyrotropin releasing hormone (TRH), which in turn increases the release of TSH and prolactin, eventually causing hyperprolactinemia, which is an important factor inhibiting the development of pregnancy. So, hypothyroidism should be taken into account in patients with hyperprolactinemia (Joshi et al., 1993; Krassas et al., 2010).

Infertility is among the major health problems when considered with its socio-cultural and economic dimensions. It is a multifactorial problem and thyroid hormone treatment can correct thyroid-related fertility problems.

This research was conducted to investigate serum thyroid hormones and prolactin levels in fertile and infertile women applied to Kars and Artvin State Hospitals and to determine any correlation between these hormones and fertility and infertility.

Materials and Methods

This study was carried out with a total of 84 married women, aged between 15-45 years and applied to Kars Maternity and Child Hospital Obstetrics Clinic and Artvin State Hospital Obstetrics and Gynecology Clinic in the period between November 2003 and June 2005. Patients were informed about the study and their names would remain confidential. Official approvals were also obtained from the relevant authorities. Patients were divided into 3 groups: fertility (uneventful pregnancy and childbearing ability) (F; n=44), primary infertility (inability to become pregnant within sexual maturity period) (P; n=30) and secondary infertility (inability to become pregnant again, despite a previous pregnancy) (S; n=10). Forms were prepared to obtain medical history of the patients. In the light of information obtained, some women were excluded from the study who suffered chronic hypertension, chronic kidney disease, chronic gastrointestinal disease, as well as those using drugs that can change the metabolism and hormonal balance. Consent was obtained from all patients to publish the study results, as required. Blood samples were taken from the antecubital vein between 08.30 and 10.30 a.m. in 2.-4. days of menstrual cycle of women kept calm with a view to eliminate possible confounding effects due to stress factors. Blood samples were centrifuged and sera were separated and kept in the freezer at -35ºC until analyzed. TSH, free triiodothyronine (FT3), free thyroxine (FT4) and prolactin (PRL) levels in the sera were determined using the Microparticle Enzyme Immunoassay (MEIA) method and commercial kits in the Biochemistry Laboratory of Artvin State Hospital. The reference values were taken as: 0.490-4.670 µIU/ml for TSH, 1.45-3.48

pg/ml for FT3, 0.71-1.85 pg/ml for FT4, and 1.39-25 ng/ml for PRL. The reference values of the Biochemistry Laboratory of Artvin State Hospital were used in the study.

In the statistical analyses, the mean values of the data Av (x) and standard errors Sd (x) were determined by using the statistical software package (Minitab). Analysis of variance (ANOVA) was used to compare three study groups. When statistically significant differences were determined in variance analysis, then Tukey's test was performed to specify the inter-group differences (Minitab, version 12.1, Pennsylvania, USA). P <0.05 was considered as the statistically significant difference between the groups.

Results

The mean values and standard errors of the group data are presented in Table 1. We observed higher prolactin levels in women with primary infertility, while lower TSH levels in women with secondary infertility in comparison to women in other groups, but these differences were not statistically significant. In addition, mutual correlations between the parameters obtained from the groups are given in Table 2 and the differences are highlighted by using * symbol.

Table 1. Mean values of the parameters in terms of the groups ($\overline{X} \pm S_{\overline{x}}$).

Groups	Age (Year)	FT_3 (pg/ml)	FT_4 (ng/dL)	TSH (μIU/m)	Prolactin (ng/ml)
Fertile Women (F; n=44)	34.6±0.8	2.36± 0.06	0.98±0.02	1.7±0.4	16.7±2.6
Women having Primary Infertility (P; n=30)	29.3±1.3	2.46±0.09	0.94±0.04	1.6±0.2	21.1±2.1
Women Having Secondary Infertility (S; n=10)	33.3±1	2.35± 0.2	1.0±0.03	0.8±0.2	16±1.9

	Age	*FT_3	*FT_4	Prolactin
FT_3	r = - 0.064 P = 0.567			
*FT_4	r = 0.061 P = 0.583	**r = 0.330 p= 0.002**		
Prolactin	r = - 0.168 P = 0.127	r = - 0.009 P = 0.933	r = 0.128 P = 0.253	
*TSH	r = 0.001 P = 0.993	r = - 0.148 P = 0.183	**r = - 0.275 P = 0.012**	r = 0.073 P = 0.508

Table 2. Mutual correlations between the parameters

Mean age was 32.60±0.69 years of the married women aged between 15 and 45 years (n=84). Considering the groups, mean age was found as 34.60±0.80 years in the group F (n=44), 29.30±1.30 years in the group P (n=30), and 33.30±1.00 years in the group S (n=10). Mean age of the women having primary fertility was lower than those having secondary fertility, though it was not a statistically significant difference.

In this study, 19 of 44 (43%) women in the group F, 11 of 30 (36.6%) women in the group P and 4 of 10 (40%) women in the group S were found to be smokers, and there was no statistically significant difference between the groups with respect to smoking. The number of women who had abortion was 6 (13.5%) in the group F, 10 (33.3%) in the group P and 3 (30%) in the group S, respectively.

Five (8.8%) women of the group F, 9 (30%) women of the group P and 2 (20%) women of the group S reported menstrual cycle disorders. The number of women having abortion and menstrual cycle disorders were more in the infertility groups.

TSH levels were observed to be within normal limits in all groups. A negative correlation was detected between the mean values of TSH and FT4 levels in all groups (p=0.012, r = -0.275) (Figure 1).

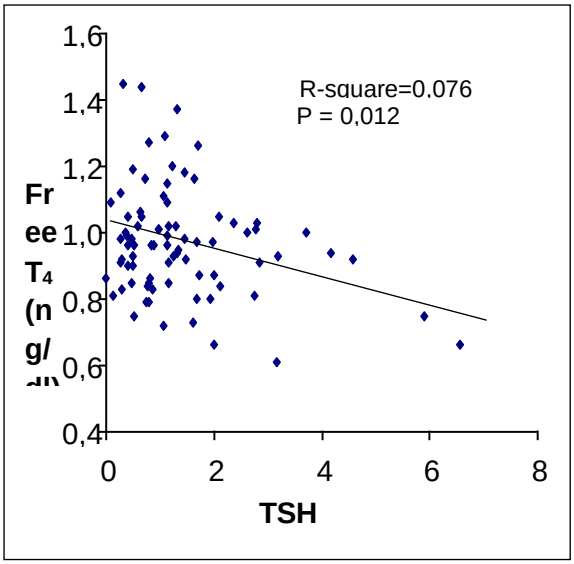

Figure 1. Correlation between FT4 and TSH levels.

Basal or even lower (0.490-4.670 µIU/ml) TSH levels were determined in 13.3% of group P and 20% of group S, out of those with menstrual cycle disorders. TSH values were below normal or very close to normal in 11% of the fertile women having menstrual cycle disorders, therefore statistically significant differences were not observed between the groups.

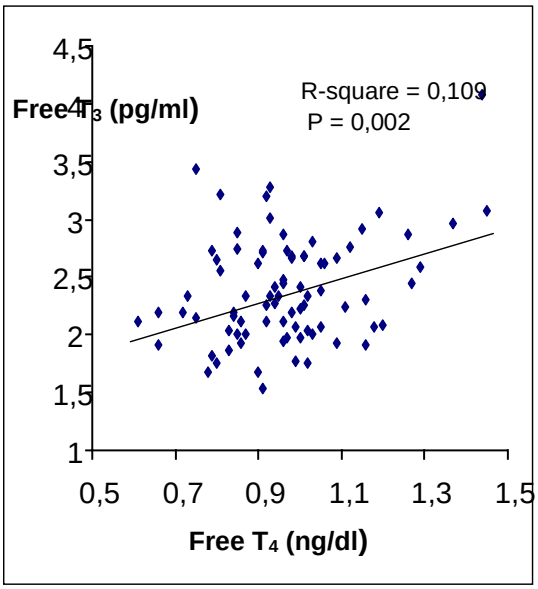

Figure 2. Correlation between FT_4 and FT_3 levels.

Mean prolactin, FT3 and FT4 values were within normal limits in all groups. A positive correlation was detected between FT3 and FT4 in the correlation analysis between the groups (p=0.002, r=0.330) (Figure 2). Mean prolactin level was higher in the group P than the other groups, but the difference was not statistically significant (p=2.06).

Discussion

Thyroid hormones have very important impacts on reproduction and pregnancy. Various studies have reported broad-spectrum and significant influences of thyroid dysfunction such as reproduction abnormalities, abnormal sexual development, menstrual cycle irregularities and infertility (Bercovici, 2000; Vaquero et al., 2000; Davis et al., 2007).

The majority of the women in fertile and infertility groups displayed euthyroid state in terms of thyroid functions and they were within normal hormone levels.

In their study conducted with 119 infertile women, Bagis et al. (2001) reported mean age as 29.5 years in all women, as 28.6 in women with primary infertility and as 30.4 in women with secondary infertility. They pointed out higher mean age for the secondary infertility group than the other groups (Bagis et al., 2001). In our study too, mean age of the women with secondary infertility was significantly higher than those with primary infertility, and our results were in parallel with this study of Bagis et al., (2001); Menken et al., (1986) and Jaffe, (1991) reported reduced fertility with increasing age in women and indicated that 35-40 years of age was critical for becoming pregnant, which may be correlated with diseases such as endometriosis, anovulation and pelvic infection. In this study, since the mean age was found to be below 35 years, we speculate that infertility problems may be due to other factors rather than advanced age.

Elahi et al., (2007) reported no statistically significant difference in terms of thyroid dysfunction between fertile and infertile. On the other hand, Binita et al. (2009) although reported normal thyroid functions in majority of the infertile group and in the control group, they also pointed out that hypothyroid patients were considerably more in the infertile group than the control group. We determined no significant difference between the study groups in terms of FT3 and FT4, which may be attributed to euthyroid state of thyroid

functions of vast majority of the subjects. Similar to our findings, Songur and Cetin (1996), Buyru et al,. (1996) and Shalev et al., (1994) also determined no statistically significant difference between control and infertile groups in terms of FT3 and FT4.

Turankar et al., (2013) reported increased levels of prolactin and TSH in infertile women compared to the control group.

In a similar study Sharma et al., (2012) investigated prolactin and TSH levels in primary and secondary infertile women and determined galactorrhea in 15% of the subjects. In addition, serum prolactin levels were measured as 79.40±56.59 ng/mL in hyperprolactinemic women; however, they reported no statistically significant difference in the levels of prolactin between the women with primary and secondary infertility.

We determined significantly higher prolactin levels in the women with primary infertility compared to the women in other two groups. No statistically significant difference was determined between the groups, in terms of prolactin levels. Similar to our findings, Buyru et al., (1996) reported high prolactin levels in only 2 of 340 infertile patients. Bagis et al., (2001) who conducted a similar study on 119 patients reported no hyperprolactinemia case. However, Lisa et al., (1988) suggested that a decrease in hypothalamic dopamine level may result in hyperprolactinemia. It should also be considered that in these patients, individual differences in response to stress factors when exposed to emotional or physical stress, as well as adenomas which are particularly detected in major endocrine glands such as pituitary gland or hypothalamus may also have a role in increased prolactin levels.

We found lower TSH levels in women with secondary infertility with respect to women in the other groups, which was not statistically significant. In addition, we found a positive correlation between FT3 and FT4 and a negative correlation between TSH and FT4. We determined no statistically significant differences between fertile and infertile groups in terms of TSH, which was compatible with some findings in the literature (Shalevet al., 1994; Buyru et al., 1996; Songur and Cetin, 1996).

Conclusion

As a result, except for some minor differences, we determined no statistically significant differences between groups in terms of TSH, FT3, FT4 and prolactin. TSH levels may be important in menstrual cycle problems of fertile women, however, as for menstrual cycle problems in women with fertility problems, some other hormonal or physical disorders should also be considered besides TSH.

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Informed Consent: Necessary information using the patient information form and consent form was taken from the patients.
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ORIGINAL ARTICLE

Epicondylitis Band or Corticosteroid Injection for Lateral Epicondylitis Treatment?

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Abstract

Objective: Lateral epicondylitis has been identified as tendinosis developing in the region where extensor muscles. Conservative methods are first used in the treatment of acute lateral epicondylitis. One of the most widely used methods is corticosteroid and local anesthetic injection. Injection treatment is preferred because good results can be obtained in a short time. Comparison of the short- and medium-term results of the epicondylitis band and corticosteroid and local anesthetic injections for lateral epicondylitis. In case series. This was a retrospective and comparative study related to acute lateral epicondylitis treatment.

Methods: The patient groups named A and B received two different treatments. The information obtained from the charts of 356 patients who were referred to the orthopedics departments of two separate hospitals between February 2010 and June 2013. There were 151 patients in Group A and 205 patients in Group B. Group A received the epicondylitis band and Group B corticosteroid and local anesthetic injections. Both groups were also given stretch exercises and nonsteroidal anti-inflammatory drugs. Patients were checked at week 1, 4, 12, and 24 and the Quick DASH scoring was used on week 12 and 24.

Results: On the 3rd month of treatment, Group A showed recovery rates of moderate, good and full in 18.5%, 32.5% and 30.5% respectively while these rates were 33.2%, 13.7% and 25.4% in Group B. The same rates at the end of month 6 were 17.2%, 41.1% and 17.2% in Group A and 28.3%, 1% and 17.2% in Group B. We see that treatment of group A was more successful than group B in the 3rd month ($p< 0,05$),and much more successful than group B in the 6th month ($p< 0,001$) in terms of the number of patients who were successfully and unsuccessfully treated according to the Quick DASH scores.

Conclusions: Combined treatment (physical therapy, nonsteroidal anti-inflammatory drugs) with an epicondylitis band was more effective than combined treatment with steroid and local anesthetic injections in acute lateral epicondylitis.

Key words: Acute Lateral Epicondylitis, Epicondylopathy, Steroids, Quick DASH Score, Epicondylitis Band

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Introduction

Lateral epicondylitis has been identified as tendinosis developing in the region where extensor muscles and especially the extensor carpi radialisbrevis muscle originate after these muscles are forced or undergo repetitive stress at the lateral humeral epicondyle and the condition can also be

accompanied by microtrauma or partial tears that can progress to complete tears (Nirschl et al., 1979). It can be easily diagnosed with a good medical history from the patient and physical examination and it is typically characterized by recurrence of the pain after repeated excessive and forced movements in the arm. The value of radiographs in the diagnosis is very low (Pomerance et al., 2002). The presence of pain in the lateral condyle with repeated supination and pronation while the elbow is in extension or the wrist is forced to extension against resistance is enough to diagnose lateral epicondylitis (Nirschl et al., 1979; Jobe et al., 1994; Cohen et al., 2008).

Lateral epicondylitis was first identified in 1873 by Runge as 'handwriting cramp' (Lopes-Martins et al., 2006).The mean incidence is 1-3% (Smidt et al., 2002). It is most commonly seen in 4th and 5th decades (Lopes-Martins et al., 2006). The disorder is 7-10 times more common than medial epicondylitis (Ciccotti et al., 2004). It improves in 1 year (6-24 months) on average with treatment (Smidt et al., 2002). The first option is generally conservative treatment (Papa et al., 2012). The conservative treatment methods used are usually local corticosteroids + local anesthetic injection, epicondylitis band application, extracorporeal shock wave therapy (ESWT), acupuncture, physical therapy, ultrasound phonophoresis, electrotherapy and NSA iontophoresis treatments, transcutaneous electrical nerve stimulation (TENS), low-grade laser treatment, autologous blood injection, topical nitrates, and type A Botulinum Toxin (Botox) injection (Smidt et al., 2002; Johns et al., 2002; Uzunca et al., 2007; Chesterton et al., 2009; Papa et al., 2012). Surgical procedures can be considered in cases that do not respond to conservative treatment for 6-9 months. Many surgical techniques have been described (Nirschl et al., 1979).

The epicondylitis band is thought to have an effect by decreasing the load at the initial adhesion sites of the extensor muscles and there are various studies on the mechanism of action (Meyer et al., 2002; Altan et al., 2008). Corticosteroid + local anesthetic drug injections show their effect in the same area with their anti-inflammatory feature (Meyer et al., 2002; Struijs et al., 2004).

Lateral epicondylitis pain can be explained by the tenopathy and arthrogenic and neurogenic mechanisms. Compression of the radial nerve is effective in the neurogenic mechanism. Erak et al (2004) identified that the deep branch of the radial nerve started the pain with the increase of the tensile forces of the extensors on the lateral epicondyle in a biomechanical study. Decompression of the radial nerve should be among the alternatives when considering a surgical procedure in resistant cases (Meyer et al., 2002).

Materials and Methods

Our retrospective, comparative study using the chart review model was conducted via the information obtained from the charts of 356 patients who were referred to the orthopedics departments of two separate hospitals from the outpatient departments of various specialties between February 2010 and June 2013 with symptoms of elbow pain and limitation of movement and diagnosed with unilateral lateral epicondylitis with orthopedic clinical examinations and investigations, whose initial Quick Dash scores were similar, who had difficulty in performing their daily activities, and who were followed-up and treated. The distribution of the patients to the two orthopedics outpatient departments was realized directly according to the patients' presentations. The approval of the local ethics committee was obtained and the age, gender, occupation, treatment choice, results and Quick DASH scores were recorded from the files of the patients included in the study. The patients were distributed into two separate treatment groups as A and B. There were 151 patients in group A and 205 patients in group B. Patients who had received another epicondylitis treatment within the last 6 months, diagnosed with bilateral epicondylitis, had cervical radiculopathy or systemic musculoskeletal and neurological disorders, had a history of surgical intervention or trauma to the elbow, had chronic diseases, patients with contraindications for corticosteroids, pregnant or nursing women, patients younger than 16 years, those receiving oral or systemic steroid therapy, and patients with psychiatric problems were excluded from the study.

Group A received an epicondylitis band + combined treatment to the forearm 3-4 cm distal from the lateral epicondyle (Figure 1) for 3 months and group B received corticosteroids and local anesthetic injection (betamethasone 2 mg 1 ml and 2% lidocaine 1 ml) (Figure 2) + combined treatment. An injection was administered one more time 4 weeks later to some of the patients in Group B according to the treatment response.

The combined treatment protocol for both groups included concentric contractions, eccentric exercises (Figure 3 and 4), NSAIDs (oral/topical), and cold/hot compress applications. The follow-up examinations were performed at the 1st, 4th, 12th and 24th weeks. The results obtained during the follow-ups at the 12th and 24th weeks were evaluated with Quick DASH Scoring (Öksüz et al., 2006; Franchignoni et al., 2010). Quick DASH scores were defined as 0% none, 25% partial, 50% moderate, 75% good, and 100% full improvement.

Figure 1: Therapeutic forearm band for tennis elbow (lateral epicondylitis)

Figure 2: Cortcosteroid with local anesthetic injections for treatment of lateral epicondylitis of elbow

Figure 3: Eccentric contraction exercise

Figure 4: Concentric contraction exercise

Statistics: Statistical analyses were performed with the SPSS 13 program using the X^2 test and comparison of percentages.

Results

A total of 356 lateral epicondylitis patients consisting of 231 (64.8%) females and 125 (35.2%) males were included in 2 groups in our study. The mean age of the patients was 48.5 +/- 10.7 years. The affected side was the right in 210 (58.9%) patients and the left in 146 (41.1%) patients. The patients were diagnosed with physical examination. The mean duration of presentation was 1.9 weeks in group A and 1.7 weeks in group B. The patients had usually presented shortly after the beginning of the symptoms. Conservative treatment (oral/topical NSAID, epicondylitis band, oral paracetamol) had previously been used by 80 (22.4%) patients. We evaluated 151 patients in group A and 205 patients in group B. A surgical procedure was performed in 6 (3.9%) patients in group A and 18 (8.7%) patients in group B as there was no decrease in symptoms at the end of the 6-month treatment period. A second injection was administered to 54 (26.3%) patients in group B at the 4th week. Group A patients fully complied with the epicondylitis band application. Age, gender are presented in Table-1 by group.

The patients were evaluated with specific Quick DASH scoring in the 12th and 24th weeks in our study. Quick DASH scores according to the groups are presented in Graphic 1. We accepted moderate, good and very good Quick DASH scores as successful treatment and no benefit and little benefit results as unsuccessful treatment.

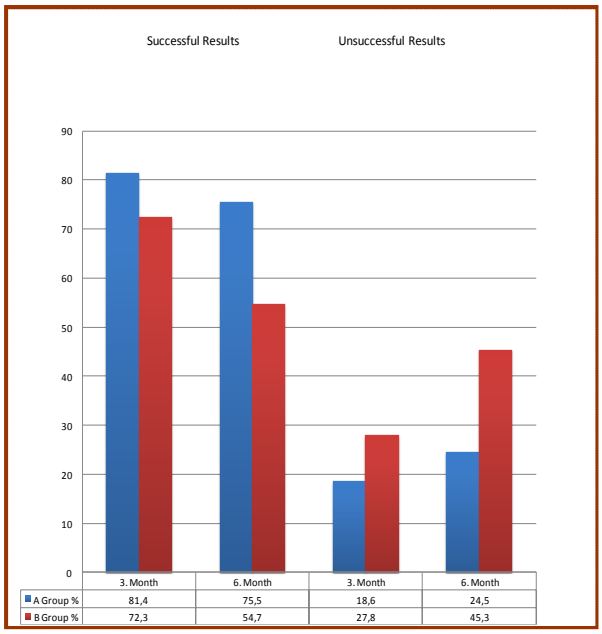
According to these results, the short-term improvement after 3 months of treatment was moderate in 18.5%, good in 32.5% and complete in 30.5% in group A and the treatment was successful in 81.5% and unsuccessful in 18.5%.

Table 1: According to the results of the treatment of group A and B success graphic

Patient groups	Gender				Age (Years)							
	Famale		Male		15-20		20-40		40-60		60-85	
	n	%	n	%	n	%	n	%	n	%	n	%
Group A	102	67,54	49	32,45	3	1,98	30	19,86	106	70,19	12	7,94
Group B	129	62,92	76	37,07	2	0,97	27	13,17	139	67,8	37	18,04
Patient groups	**Affected side**				**Occupation**							
	Right		Left		Housewife		Worker		Officer		Other	
	n	%	n	%	n	%	n	%	n	%	n	%
Group A	97	64,23	54	35,76	70	46	28	19	18	12	35	23

The results for group B were moderate in 33.2%, good in 13.7% and complete in 25.4% and the treatment was successful in 72.3% and unsuccessful in 27.7%. After 6 months, the respective percentages for moderate, good and complete improvement were 17.2%, 41.1%, and 17.2% with 75.5% successful and 24.5% unsuccessful in group A. The six-month figures for group B were 28.3% moderate, 1% good, and 25.4% complete improvement with the treatment being successful in 54.7% and unsuccessful in 45.3%. We see that treatment of group A was more successful than group B in the 3rd month ($p<0.05$), and much more successful than group B in the 6th month ($p<0.001$) in terms of the number of patients who were successfully and unsuccessfully treated according to the Quick DASH scores. These results show that a better result was obtained in group A than group B in both periods.

No significant side effect was found in group B but there was subcutaneous fat necrosis in 5 patients. These patients underwent surgical procedures when their symptoms did not decrease and they had moderate improvement postoperatively.



Graphic 1 : Quick DASH scores according to the groups

Discussion

Conservative methods are first used in the treatment of acute lateral epicondylitis (Papa et al., 2012). One of the most widely used methods is corticosteroid and local anesthetic injection (Altay et al., 2002; Saccomanni et al., 2010).Injection treatment is preferred because good results can be obtained in a short time. Adding physical therapy methods (stretching and lengthening exercises for the elbow extensor muscles and tendons, cold or hot compress applications, etc.) and NSAI treatments has been shown to increase the success rate and duration in many randomized studies (Smidt et al., 2002; Altay et al., 2002; Baskurt et al., 2003; Trudel et al., 2004; Lopes et al., 2006; Bisset et al., 2006; Yarrobino et al., 2006; Papa et al., 2007; Allan et al., 2007). A study reported that 90% of lateral epicondylitis cases recovered within 6 months while the remaining 10% consisted of resistant cases and had to undergo surgery (Trinh et al., 2004). The total rate of moderate, good and very good results was 81.5% in group A and 72.3% in group B at the 3rd month and 75.5% in group A and 54.7% in group B at the 6th month. We therefore only obtained good results similar to those reported in group A. A surgical procedure was performed in 6 (3.9%) patients in group A and 18 (8.7%) patients in group B when conservative treatment was unsuccessful.

Comparing steroid and local anesthetic injection treatment with placebo, local anesthetic injection, and the wait-and-see technique revealed that quite good results were obtained in the term period but no difference was present over time (Smidt et al., 2002). The effect magnitude and duration of the epicondylitis band was better than with injection treatment, both in the short term and the long term in our study.

The epicondylitis band is used commonly worldwide and has been shown to have a large contribution in resting the affected sensitive radial region, decreasing edema, and accelerating the treatment based on the force distribution principle in localizations closer to the regions where the extensor tendon originates from, although the mechanism of action is not fully clear (Struijs et al., 2004; Altan et al., 2008). It has also been demonstrated in recent years that pain decreases significantly and the capacity of movement increases in the elbow with the wrist extension orthosis used for the conservative treatment of lateral epicondylitis (Garg et al., 2010).

The rate and maintenance of successful treatment in the two groups did not very greatly with our principle of combined treatment.

Injection treatment in group B caused increased pain and movement limitation in some of our patients but these decrease after a few days. We also observed subcutaneous fat necrosis in 5 (2.4%) patients and the number of patients requiring a 2nd injection was 54 (26.3%). There were no other complications. The epicondylitis band did not cause any complications in any of our patients. Epicondylitis band application caused difficulty in daily activities from time to time but this did not lead to disruption of the ongoing treatment. Use of the band was continued in cases with moderate scores during the next 6 months in Group A and this was seen to have positive effects on the result.

It was noteworthy that a large proportion of our patients consisted of women and most were housewives. The fact that only 7 (2%) patients of our subjects played active tennis indicates that the "tennis elbow" term should be reevaluated. It is also known that lateral epicondylitis is not mostly seen in tennis players (Kaminsky et al., 2003).

We recommend that a 3rd group should be studied using a wait-and-see method, placebo, wrist extension orthosis or just steroid injections and evaluated with longer follow-up durations as the next stage of this study.

Conclusion

In conclusion, elbow pain is the main symptom in acute lateral epicondylitis and movement limitation associated with this pain is present. The first treatments that should be considered are the conservative methods of epicondylitis bandage or injection of corticosteroids and local anesthetics. Although injection treatment is particularly striking with its short-term effect, we believe that its lack of superiority regarding long-term results and the potential complications require its consideration only as a secondary plan. We also believe that an epicondylitis band with combined treatment should be considered first due to the ease of use, its lack of invasiveness or complications, and the better results with combined treatment in the long term compared to injection treatment.

Informed Consent: Verbal informed consent was obtained from patients who participated in this study.
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CASE REPORT

Delayed and Misdiagnosed Complete Androgen Insensitivity Syndrome Cases in Two Sisters Which its Diagnose is Confirmed with Laparoscopic Gonadectomy

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Abstract
Complete androgen insensitivity syndrome (CAIS) is defined as end organ resistance to androgens with XY karyotype. Our aim is to present the diagnosis and treatment of a delayed and misdiagnosed CAIS case and to determine the importance of family history.
She was married woman with the complaint of infertility and primary amenorrhea. Patient who has undergone bilateral inguinal hernia operation; cannot be diagnosed with CAIS until the age of 25. When the family history is investigated, it has been learned that two elder sisters menstruate but 17-year-old sister doesn't menstruate. It has been advised that she should apply to the university hospital, so she was diagnosed with CAIS for her.
Teenage girls' complaint of primary amenorrhea and bilateral inguinal hernia should be evaluated in terms of CAIS and family screening should be performed.

Key words: Complete androgen insensitivity syndrome, misdiagnose, inguinal hernia, family history.

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Introduction

Androgen insensitivity syndrome (AIS) characterized by a female phenotype with an XY karyotype which is a disorder of androgen resistance. The pathogenesis of AIS includes end organ insensitivity to androgens and defective androgen receptor gene locates on X-chromosome at Xq11-12 (Brinkmannet al., 2001). Gene mutations either inherits from the mother through the X chromosome recessively or occurs due to spontaneous mutations in the germ or egg cells (Hugeset al., 2006). It is a rarely seen syndrome, its incidence has been reported as 1/20.000 to 1/64.000 (Grumbachet al., 2003). There are three major types of AIS; Complete androgen insensitivity syndrome (CAIS); known as also testicular feminization characterized by a female external genitalia, Partial androgen insensitivity

syndrome (PAIS) characterized by a partially but not fully masculinized external genitalia that is called ambiguis genitalia and Minimal androgen insensitivity syndrome (MAIS) characterized by a normal male external genitalia that may be presented with infertility (Brinkmannet al., 2001). In CAIS cases, androgens are secreted from normal developing gonads, especially the testosterone level increases, the rising testosterone acts as substrate for estrogen synthesis, and the estrogen is responsible hormone for the feminization of prepubertal and postpubertal ages. The majority of CAIS patients admit to the hospital with the complaint of primary amenorrhea, inguinal mass containing testis and infertility (Sarpelet al., 2005).

Management of them should include multidisciplinary approach and gonadectomy to avoid gonadal tumors in later life, hormone replacement therapy (HRT), vaginal lengthening procedures in order to sustain the sex life if there is inadequate vaginal length and also psychological support in long-term basis (Cheikhelardet al., 2008). Family history should be considered as an important aspect to diagnose other cases of CAIS in the family.

Case

25-year -old married woman with complaint of infertility and primary amenorrhea admitted to our hospital which is a tertiary center. It has been learned that she admitted to a hospital with the complaint of amenorrhea when she was 12 years old. Oral contraceptive (OCD) was started but she didn't menstruate. In 2004, when she was 15 years-old, she was operated from the left inguinal hernia under emergency conditions. She was admitted again to the hospital with complain of amenorrhea in 2008, she has been advised to use the OCD. She was operated again from right inguinal hernia in 2009. It has been reported that her uterus is much smaller than normal in magnetic resonance imaging (MRI) in 2013. She married two years ago and although unprotected sexual intercourse, she couldn't become pregnant. In addition, when questioning the patient it has been learned that she has 3 sisters, both of them are married, they menstruate and have children. The other sister was 17 years old and has no menstruation. In the physical examination; the patient's height was 170cm and her weight was 66kg. The breast development was on the tanner stage III, there was no pubic and axillary hair. In the pelvic examination; labia minora, labia majora and the clitoris were in the normal development and appearance. It has seen that bilateral 3 cm scar tissues depend on the previous operation for bilateral inguinal hernia. Urethral orifice and the anus have normal appearance. In the vaginal examination; blind vagina 5-6 cm in length was determined, the cervix was not observed. Uterus and ovaries could not be assessed by vaginal ultrasound.

Her FSH was 2.68 mlU/ml (reference range for normal adult male: 1,27-19,2 mlU/ml), LH was 10,18 mlU/ml (reference range for normal adult male 1,24-8.62 mlU/ml), total serum testosterone was 3.17 ng/dl (reference range 1,75-7,81 ng/dl for normal adult male, 0,1-0,75 ng/dl for normal adult female) and estradiol was 60,05 pg/ml (reference range for normal adult male: <20-47 pg/ml). 46 XY was detected in the karyotype analysis. The uterus and ovaries were not observed in the pelvic MRI and bilateral testes were detected in the inguinal canal entrance (Figure 1a, b, c). Because of all these findings, CAIS was diagnosed. She was informed for the risk of gonadal malignancy. The laparoscopic bilateral gonadectomy was planned.

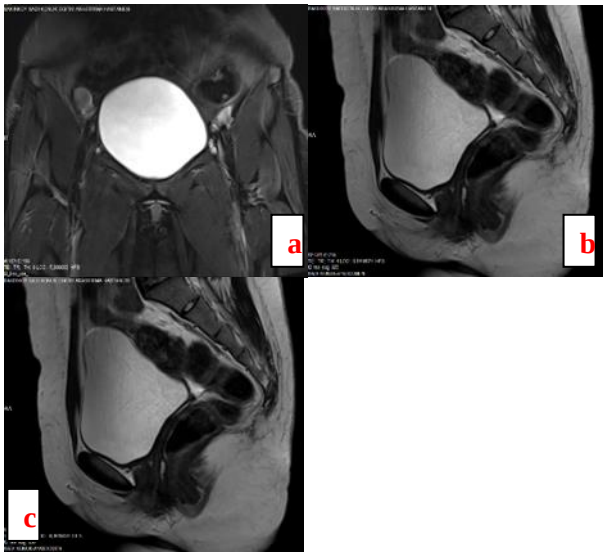

Figure 1 a, b, c: T2 weighed MRI image of left and right testis.

After standard preoperative preparation, diagnostic laparoscopy was performed under general anesthesia. Pelvic and abdominal inspection revealed no internal genitalia except bilateral gonads appearing as testis located in bilateral inguinal canals at the level of internal

inguinal ring. The pedicles of the gonads were coagulated with bipolar diathermy and cut with laparoscopic scissors. Gonads were placed in endobags and removed intact after extending the port (Figure 2). No complications occurred during the operation. The patient was discharged on the following day after the surgery.

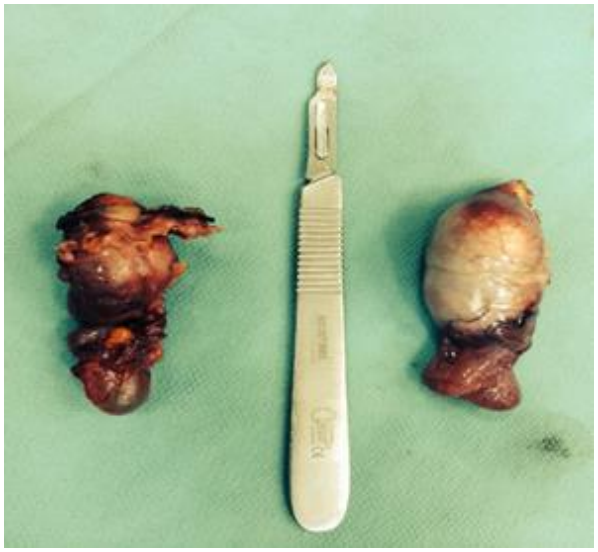

Figure 2: Photograph of excised gonads after gonadectomy

The histopathological examination of the gonads revealed thickened tunica albuginea, seminiferous tubules with primary and secondary spermatogonia and sertoli cells. Intertubular leydig cells were seen along with peritubular fibrosis (Figure 3).

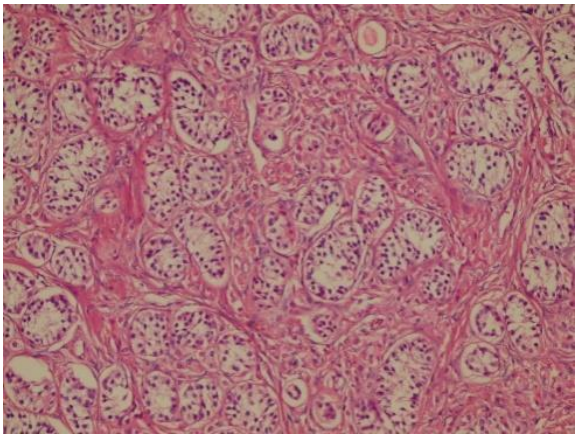

Figure3: Microphotograph showing histopathology of testis.

After the clear diagnosis and operation of the patient, she has been told that her younger sister living in the rural area should be evaluated in terms of the CAIS. Her complains were the primary amenorrhea and bilateral inguinal swelling similar to our case. She was diagnosed with CAIS in an other university hospital.

Discussion

The diagnosis of CAIS is the first and most important problem as in our case. It is rarely seen syndrome, many tests including karyotyping are inadequate in order to differentiate from other genetic abnormalities, MRI is required in order to confirm the absence of uterus and ovaries and these tests are not frequently available in every hospital. The typical presentation mode of CAIS is an adolescent female who has breast development with pubertal growth but with no menarche or scanty growth of pubic and axillary hair. The breast development is a result of conversion of testosterone to estradiol. The other important clinical appearance of CAIS is bilateral inguinal or labial swellings in early childhood. The authors have found that 1-2% of the girls with inguinal hernias may have CAIS (Sarpelet al., 2005). Therefore, in a female child with bilateral inguinal hernia or labial swellings and also in pubertal and postpubertal ages with primer amenorrhea and external female seconder sex characters; the possibility of CAIS must always be kept in mind to prevent the delay on diagnosis or misdiagnosis. In CAIS cases, bilateral undecended testes carry a risk for malignancy especially germ cell tumors and the risk increases after puberty. Therefore; the standard treatment is gonadectomy to prevent possible malignant transformation of the testes during the late teenage years or early twenties that permits pubertal development spontaneously with the production of estrogen from the aromatization of the high levels of testosterone (Cheikhelardet al., 2008). Laparoscopic management that allow better visualization of abdomen and pelvis compared to laparotomy should be preferred due to minimal invasive surgery procedure with faster recovery times for the gonadectomy. Vaginal lengthening procedures can also be needed in some patients but we don’t need these procedures because vaginal length is enough for sexual intercourse in our case. After gonadectomy; hormone replacement therapy is required for patient with CAIS to support the development and maintenance of secondary sexual characteristics and to prevent osteoporosis and psychological instability. Psychological and emotional support for the patient and their family should be available for a long-term basis from the time of diagnosis.

Contact with other individuals who have androgen insensitivity syndrome is another important thing for psychological support (Jorgensenet al., 2010, Hiortet al., 2014).

The reason why the De novo mutations rate is more than 30% in patients with CAIS is the individuals with no family history (Leslie al., 1998). However, for the rest of the major patients group, detailed family history of CAIS case may provide early diagnosis and management of new cases in their family. Therefore a family screening of the affected individual should be performed.

Conclusion

In this case, a delayed and misdiagnosed of CAIS case was diagnosed on the basis of history of primary amenorrhea, infertility, and gynecologic examination and karyotyping. Ultrasonography and MRI imaging of the pelvis helped for the localization of gonads in inguinal canals. As the patient was in postpubertal age group, laparoscopic gonadectomy was carried out to prevent malignant transformation of gonads. HRT was continued and the patient and her husband were followed up by a multidisciplinary team of doctors for psychological and emotional support. Her sister with CAIS was diagnosed and treated by another medical center, because we informed the patient.

Informed Consent: Ethics committee approval was received for this study from Clinical Research Ethics Committee of Bakırköy Dr. Sadi Konuk Training and Research Hospital.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - KD, Design – KD, Supervision – HG, Materials – HRB, Data Collection and/or Processing - AY, HD; Analysis and/or Interpretation - KD; Literature Review - KD; Writing - KD; Critical Review - KD.
Conflict of Interest: No conflict of interest was declared by the authors.
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CASE REPORT

Fulminant Neuroleptic Malignant Syndrome Induced by Low Doses of Quetiapine in an Old Patient

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Abstract
Neuroleptic malignant syndrome (NMS), a rare but life-threatening idiosyncratic adverse reaction to antipsychotic medication. NMS is commonly seen with typical antipsychotics that also reported with atypical antipsychotic drugs.
A 81-year-old man was presented to emergency department of our hospital due to altered mental state. He had been taking quetiapine for 3 days for management of aggressive behavior. Just after treatment with 50 mg/day quetiapine at the previous hospital, he developed hyperthermia, altered mental status and akinetic-rigid Parkinsonism, and he had been transferred to our hospital. He was diagnosed with possible NMS based on history, altered mental state, rigidity, leukocytosis, hyperthermia, and increased blood level of CK. So, he was admitted to the intensive care unit immediately.
This paper reports a rare fulminant NMS induced by low doses of quetiapine. The clinical manifestations and laboratory test results corresponded to the diagnostic criteria of NMS. It must be kept in mind that even low doses of atypic antipsychotic drugs such as quetiapine can trigger NMS.
Key words: neuroleptic malignant syndrome, atypical antipsychotic, quetiapine

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Introduction

Neuroleptic malignant syndrome (NMS), an idiosyncratic reaction to antipsychotic medication, is characterized by hyperthermia, akinetic-rigid syndrome, altered mental state, and autonomic instability including fluctuation of blood pressure, cardiac arrhythmias, dyspnea, diaphoresis, and incontinence for review (Chopra et all, 1999; Strawn et all, 2007; Trollor et all; 2009).

Mechanisms of NMS are not fully understood but drug-induced blockade of central dopamine receptors and central dopaminergic hyponeurotransmission are thought to be pivotal in its etiology (Mann et al., 1991; Adnet et al., 2000; Strawn et al.; 2007). The syndrome has a mortality

rate as high as 20 % (Caroff et al., 1991; Caroff et al., 1993).

However, NMS is commonly seen with typical antipsychotics that also reported with atypical antipsychotic drugs (Ananth et al., 2004; Nielsen et al., 2012). NMS has been known to be mild when it is caused by treatment with atypical antipsychotics (Kobayashi et al., 2006; Trollor et al., 2009; Woods et al., 2013; Detweiler et al., 2013).

We herein report a rare case of death caused by fulminant NMS who developed NMS after the initiation of quetiapine.

Case

A 81-year-old man was presented to emergency department of our hospital due to altered mental state. He had been taking quetiapine for 3 days for management of aggressive behavior. He had been admitted to another hospital 3 days earlier due to hallucinations and frequent loss of consciousness for brief periods of time. Just after treatment with 50 mg/day quetiapine at the previous hospital, he developed hyperthermia, altered mental status and akinetic-rigid Parkinsonism, and he had been transferred to our hospital. On initial neurological examination in our hospital, his mental status was coma, with rigidity especially in upper extremity. There was no focal neurological deficits. His blood pressure was fluctuant and pulse elevated with 180/ minute heart rate, body temperature was 37.5ºC, serum creatine kinase (CK) concentration was 4267 IU/L. WBC was 16300/dL. Routine blood chemistry showed a glucose level of 319 mg/ dL, AST and ALT concentrations of 168 and 79 IU/L, respectively, with electrolyte levels within the normal range (Na 139 mEq/L, K 3.7 mEq/L and Cl 98 mEq/L). Chest X-rays showed normal findings and there was no evidence of any infective diseases in urine analysis or blood culture. Brain MRI showed age-compatible brain atrophy. He was diagnosed with possible NMS based on history, altered mental state, rigidity, leukocytosis, hyperthermia, and increased blood level of CK. So, he was admitted to the intensive care unit immediately. The antipsychotic drug was discontinued and he was started on treatment with bromocriptine (7.5 mg/ day). Ice packs were used to decrease the fever. Suppotive therapy was provided to maintain hydration, stabilize blood pressure, control cardiac state, and prevent infection and secondary organ failures. He was followed together with cardiology, anesthesiology and reanimation, infectious diseases, internal medicine, and psychiatry specialists. He was undergone nasal feeding, liquid diet, oxygen therapy and electrocardiographic monitoring. His body temperature decreased and but his mental state was still coma. CK level decreased to 1574 IU/L and WBC decreased to 10500/dL on the third day. Unfortunately, even aggressive resuscitation he died at the end of third day of hospitalization.

The patient described here presented with akinetic-rigid syndrome, altered mentality, hyperthermia and tachycardia. Laboratory findings, including increased serum CK concentrations, along with his clinical presentation, were consistent with NMS. The NMS occurred 3 days after starting treatment with quetiapine.

Discussion

NMS was first reported in 1960 by Delay et al (1960). The reported incidence of NMS is 0.1 to 1% and the mortality is 20% (Caroff et al., 1991; Caroff et all, 1993). In a recent report, Zou et al. reported a death due to low doses of haloperidol induced NMS in a young male diagnosed with schizophrenia (Zou et all, 2014). The onset of NMS symptoms is usually acute, and the symptoms are complex and atypical, so it is difficult to diagnose.

The most commonly used diagnostic criteria for NMS are provided in DSM-IV-TR (American Psychiatric Association. Diagnostic, 1994):

a) Severe muscle rigidity and elevated body temperature after the use of antipsychotic medications,

b) Two or more associated symptoms including diaphoresis, dysphagia, tremor, incontinence, altered mental status, mutism, tachycardia, elevated or label blood pressure, leukocytosis, and laboratory evidence of muscle damage (such as elevated CPK).

c) The symptoms cannot be explained by other drugs, neurological diseases, physical illnesses, or another mental disorder.

The exact pathogenesis of NMS is not clear. Antipsychotic drugs work by blockage of dopamine receptors. Blockade of dopamine receptors of the hypothalamus may cause autonomic dysfunction. Interaction with nigrostriatal system may result in extrapyramidal symptoms. Mesocortical dopaminergic system are result in mental symptoms of NMS. Also, antipsychotic drugs have a direct changes in muscle mitochondrial function (Mann et al., 1991;

Adnet et al., 2000; Strawn et al., 2007). In our patient, he presented to our emergency department with coma.

In the acute phase, patients with NMS experience fever and dehydration, so the therapy must include rehydration and correction of electrolyte imbalances. The antipyretic drugs are usually ineffective cause of the dysfunction of the thermoregulatory center, so fever needs to be lowered with ice packs (Delay et al., 1960). Our patient had subfebrile fever, however, in case of considering as NMS, we can say that atypical antipsychotics may lead to atypical NMS.

All of the dopamine antagonists may be associated with NMS, whereas atypical antipsychotics have a lower risk of inducing NMS than typical ones, because of looser binding affinity to D2 receptors in the basal ganglia and hypothalamus (McEwan et al., 2000; Ananth et al., 2004). In this case, the patient developed possible NMS after taking quetiapine, an atypical antipsychotic drug which is a dibenzothiazepine derivative. Firstly, Kobayashi et al. reported a quetiapine induced NMS case in DLB (Kobayashi et al., 2006) In the literature, there are a few case reports suggesting that quetiapine can cause symptoms such as those observed in the present case (Ananth et al., 2004; Kobayashi et al.,2006; Detweiler et al., 2013; Woods et al., 2013).

Risk factors of NMS include rapid changes in drug dosages, hyponatremia, pre-existing medical and neurological disorders, iron deficiency, and exhaustion or dehydration. In all ages of both genders are susceptible to NMS (Trollor et al., 2009). The symptoms of NMS usually begin within 2 weeks of the initiation or change in dose of drug treatment. Approximately 16% of cases occur within 24 h following the initiation of drug treatment (Ananth et al., 2004; Strawn et al., 2007; Trollor et al., 2009). In our case, the patient had an episode and a rapid death thereafter, which can be considered as a fulminant type of NMS. NMS is associated with many antipsychotic drugs, and quetiapine is one of them. In this present case, the patient received 25 mg of quetiapine which is a relatively low dose when compared with doses in other NMS cases induced by quetiapine in the literature (Kobayashi et al., 2006; Detweiler et al., 2013; Woods et al., 2013). Anyway, NMS is an idiosyncratic disorder, and the onset is not related with the duration or amount of doses (Adnet et al., 2000).

We conclude that each antipsychotic drug can lead to NMS per dose. Especially in older patients we must be careful for prescribing antipsychotics. In geriatric population, whether we suspect dementia and behavioral disorders, we should consider the sensitivity of this age group, and primarily prefer the antidepressants and behavioral therapy. Also, delirium should be a differential diagnosis in patients with dementia and altered state. In our case, even fever, CK, WBC were decreased, the patient have died. So, we cannot know the initial diagnosis and triggers.

Conclusion

In conclusion, this paper reports a rare fulminant NMS induced by low doses of quetiapine. The clinical manifestations and laboratory test results corresponded to the diagnostic criteria of NMS. It must be kept in mind that even low doses of atypic antipsychotic drugs such as quetiapine can trigger NMS. And so, clinicians should pay attention in beginning upon atypical antipsychotic drugs in patients with dementia. This report also emphasizes the importance of NMS following antipsychotic medication as a probable cause of death. Sometimes even low doses of antipsychotic drugs can cause a fatal course.

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CASE REPORT

Chronic Temporal Abscess as A Result of Mandibular Molar Extraction: Case Report

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Abstract
Temporal space infections are seen as a swelling of the superficial and/or deep temporal regions. They are sporadically reported and usually develop before or after extraction of infected maxillary molars. A 50-year-old woman had undergone extraction of her mandibular right second molar tooth in a different clinic, and after a month she visited our department because of the temporal and buccal space abscess which had not responded the antibiotic therapy. Painful swelling and trismus were diagnosed on her right temporal and buccal region with a general malaise. A CT scan revealed an inflammatory area into the temporal and buccal space. Treatment with surgical intervention and intramuscular penicillin G did not provide improvement. Antibiotic was switched on to moxifloxacin 400 mg in a day orally for 7 days. After this treatment, both temporal and facial swellings, trismus and her malaise were completely resolved.
Key words: Temporal space abscess, odontogenic infection, antibiotherapy.

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Introduction

Temporal space infections are seen as a swelling of the superficial and/or deep temporal regions. Superficial temporal space is lateral to the temporalis muscle and medial to the temporal fascia whereas the deep temporal space is between the temporalis muscle and temporal bone (de Oliveira Neto et al., 2012). When superficial temporal space is inflamed, the distinctive “hourglass” appearance of a face appears clinically as a result of the tight connection of the temporal fascia to the zygomatic arch. Infections of odontogenic origin are one of the causes of temporal space abscess and if left untreated, infection can progress and cause a multitude of complications including cranial osteomyelitis and mediastinitis (Diacono & Wass, 1998; Adams & Bryant, 2008).

Treatment for odontogenic abscess consists of surgical drainage and broad-spectrum antibiotics. Temporal space infections resulting from odontogenic origin are not uncommon but they are relatively rare conditions as compared to the close anatomic spaces like buccal and submandibular spaces. This case report describes a case of abscess formation in the temporal and buccal region after extraction of mandibular second molar, and its treatment with moxifloxacin.

Case

A 50-year-old female patient was referred to the Department of Oral and Maxillofacial Surgery, Ataturk University Faculty of Dentistry, with pain and swelling in the right temporal and buccal region. Tracing back the history, the patient had extracted her mandibular right second molar approximately a month ago in a different clinic. After 2 weeks of extraction, she again visited her dentist, complaining about swelling and tenderness on the right side of her face and she was prescribed combination of amoxicillin 875 mg / clavulanic acid 125 mg and metronidazole 500 mg twice a day, for a week. During antibiotic therapy there were no signs of resolution of the facial infection and no alleviation of the complaints. A month after the first extraction visit, she was referred to our department. Physical examination of her face demonstrated severe trismus, pain, and swelling in both temporal and buccal region with malaise but no fever (Fig. 1). Computerized tomography scan revealed the swollen inflammatory facial spaces (Fig. 2). She was diagnosed to have chronic buccal and temporal abscess, resulting from a dental infection. Treatment was continued for five days consisting of intramuscular procaine penicillin G potassium 800.000/IU twice a day. At the second day of the intramuscular antibiotic therapy, incision and drainage of the abscess was performed but the clinical course of the patient was not fulfilling. After discharge, the patient was consulted to Department of Infectious Disease and antibiotic was switched on to moxifloxacin 400 mg in a day orally for 7 days. After this treatment, temporal and facial swellings, trismus and her malaise were completely resolved (Fig. 3).

Figure 1: Typical hourglass appearance of temporal space abscess is seen. Note that the buccal space was also been affected.

Figure 2: CT scan demonstrated expanded facial space of buccal and temporal area compared to left side of her face.

Figure 3: Resolved signs of odontogenic infection after treatment with moxifloxacin.

Discussion

Dental infections resulting before or after tooth extraction are complications in which the maxillofacial surgeon may have to initiate an earlier management. The severe dental infections resulting before or after this procedure is one of the few life-threatening complications in which the maxillofacial surgeon may have to initiate an earlier management. The temporal space infections are rare and infrequently reported. It has also been observed secondary to maxillary sinusitis, maxillary sinus fracture, temporomandibular arthroscopy, and drug injection, although more commonly associated to molar infections. Temporal space infections usually develop before or after extraction of infected maxillary molars (de Oliveira Neto, et al., 2012). It, however, can also be seen after extractions of mandibular molars as in our case and in several case reports (Kuroda, Kaneko, & Yamasaki, 1994; Morrison & Brady, 2009).

Most odontogenic infections are usually mild and were treated successfully with surgical intervention. Swelling of the maxillofacial region resulting from odontogenic infections requires drainage by intraoral or extraoral incision if dental extraction or endodontic therapy is insufficient to do so. In addition, in the case of rapidly spreading cellulitis and/or impaired host defenses, antibiotic administration should be considered. In our case, prior administration of amoxicillin and clavulanic acid combination, and metronidazole in a different clinic did not provide relief of the symptoms. This situation can be attributed to lack of surgical intervention. However, incision and drainage during intramuscular penicillin G administration also did not help resolving of swelling and trismus. One possible explanation might be the patient's low socioeconomic status and related possible malnutrition. It has been reported that people living in deprived regions are more susceptible to odontogenic infections than others (Moles, 2008). These might affect the overall host resistance and prognosis unfavorably. Unfortunately, we did not take microbiological sample but another cause might be the possible penicillin resistant microorganism. High penicillin resistance in severe odontogenic infections has been addressed in a study by Flynn et al. and they have pointed out that this situation leads to therapeutic failure (Flynn et al., 2006). Moxifloxacine is a member of the fluoroquinolone group antibiotics, and interferes with bacterial DNA metabolism and is bactericidal. There are studies showing its excellent in vitro activity against odontogenic pathogens obtained from odontogenic abscess compared to the antibiotics usually employed like amoxicillin-clavulanic acid, clindamycin and doxycycline (Sobottka et al., 2002; Warnke et al., 2008). However, most species obtained from odontogenic infections are still susceptible to traditional penicillin, and moxifloxacine should be considered as a second line therapy to penicillin V and clindamycin (Gregoire, 2010; Warnke, et al., 2008). We have chosen to administer moxifloxacine because long-standing and ineffective previous treatment course made the patient somewhat impatient and reluctant to further continue the treatment. After treatment with moxifloxacine, swelling and trismus was resolved and her malaise was rapidly decreased

Conclusion

Surgical therapy and appropriate antibiotic coverage for the treatment of a severe odontogenic infections generally result in recession of symptoms, but penicillin resistant bacteria interferes with the treatment process and overall success of the healthcare professional. We could not obtain bacterial culture for sensitivity testing but we recommend it if traditional antibiotic regimens fail to achieve the desired effect.

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