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Clinical Overview of Tension Type Headache

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ABSTRACT:

Introduction. Tension Type Headache (TTH) is one of the primary headache diseases that often occurs and often disturbs daily activities. Tension Type Headache defines as pain in the head area due to contraction of the muscles of the head and back of the neck. TTH patient will feel as typical headaches such as being pressed or tied with mild to moderate pain intensity, bilateral position, and affecting physical activity. This article aimed to present clinical overview of tension type headache. This article aimed to present clinical overview of tension type headache.

Case presentation. A case of 48 year-old woman who came to the Community Health Center polyclinic complaining of headache. The patient experienced headaches during the last 1 week, namely ± 5 times. The patient had been feeling this pain for the past 6 months but had become more frequent since 1 week ago. In the last 1 week, the patient's daily activities increased and she got many problems related to her family. The patient had hypertension and dyslipidemia. The patient was diagnosed with TTH based on the history of the disease and the neurological examination.

Conclusion. Tension Type Headache is more likely to happen in patient with hypertension, except for patient with controlled hypertension, and two of the main triggered factors to make the clinical manifestation of TTH become worsen are psychological stress and increased physical activities.

Keywords: Tension Type Headache, Increased Activities, Psychological Stress

Introduction:

Tension type headache (TTH) is a headache with repeated episodes, which can occur within a few minutes to several weeks in a person. Typical headaches such as being pressed or tied with mild to moderate pain intensity, bilateral position, and affecting physical activity.[1] Tension type headaches attack various groups, often starting from adolescence and peaking at 30 to 40 years old. The ratio of men to women is 3: 2. The most frequent attack is Tension type headache of periodic onset, reported by around 70% of the population. In the world, the percentages vary. Like Japan, in Takeshima et al's research, TTH was found that 22% of the population. From Abduljabar et al's research, it was found only 3.1% had Tension type headache.[2]

Based on a research in Denmark, the prevalence of tension type headache was quite high, namely 78%. However, in general, tension type headache was happened episodic and infrequent (>1 day in 1 month) without requiring special health attention. Around 24%-37% population suffer from tension type headache several times a month, 10% several times a week, 2%-3% are classified as chronic type.[1]Tension type headaches often involve stiff neck muscles, possibly due to weather changes, other degenerative spinal diseases in the neck, vision problems, or life stress. Usually the headache symptoms are bilateral, a pressing sensation that is progressive from day to day. The patient will report that his head feels like it is being squeezed or tied or that it is about to explode. Headaches can be followed by anorexia, difficulty concentrating, emotional instability, chest pain, and sometimes hypersensitivity to light and sound.[3,4,5]

The pathophysiological theory related to tension type headache (TTH) is the reduced activity of neurotransmitters such as the endogenous opioid, serotonin, which may regulate abnormal nociceptive processes and produce pathological pain. There are several factors that are thought to cause TTH, such as emotional factors6. Emotional factors are implicated as risk factors in the occurrence of tension type headaches. It was found that changes in brain stem reflexes that affect the limbic control of pain are abnormal in patients with chronic tension type headache. Stress and mental pressure are reported to be the most common trigger factors for tension type headaches. The second is genetic factors which are in accordance with Danish's research, chronic tension type headache has an increased incidence in families of one generation or two generations, where the risk is 3 times greater than in the ordinary population. Next is peripheral factor. Muscles have an important role in the occurrence of tension type headaches. Increased pressure in the pericranial muscles is one of the clinical findings in tension type headache patients. Another cause is muscle strain. In one study, sustained teeth clenching at 10% of the maximal Electromyogram (EMG) signal stimulated tension-type headache to a greater extent than control subjects. However, in other studies, EMG results in tension type headache patients can be found to be normal, or have slightly or more increased muscle activity. If increased muscle activity occurs, there may be a protective adaptation against pain by the body. So, this theory is still uncertain.[6,7]

Langemark's research showed that the increase in muscle blood flow from rest to activity and after activity was lower at pressure points in tension type headache patients compared to control subjects. There was no difference in lactate levels in patients with exercise. Rule out muscle ischemia in patients.

So, it can be concluded that changes in blood flow are caused by changes in sympathetic flow to blood vessels in muscles caused by changes in the central nervous system.[6,7]

Other pathophysiology is due to inflammatory factors. Endogenous substances such as serotonin, bradykinin, histamine, prostaglandin E, and K+ ions are effective chemical stimulators of muscle nociceptors. Neuropeptide release from muscle afferents may be associated with facial muscle pain in patients. The inflammatory mediators of muscle pain are not clearly understood. Sensitization of peripheral muscle nociceptors is stimulated by a complex interaction of various mediators.[6,7]

The diagnosis of tension type headache is made based on the history and physical examination. The history taken is as shown in the clinical manifestations in tables 1, 2, and 3 below. On neurological examination, abnormalities are very rarely found. In some cases, pericranial tenderness can be found, that is, there are trigger points in tight muscle areas, such as the muscles in the back of the neck, cranial muscles, and the masticatory. 3 You can also find the arm chair sign and the invisible pillow sign. Tension type headache treatment consists of non-medical therapy such as behavioral therapy, and medical therapy such as analgesics.

Tabel 1: Characteristics of tension type headache based on frequency[1]

	Infrequent Episodic TTH	Frequent Episodic TTH	Chronic TTH
Frekuensi	<12 days/year	>12 days and <180 days/year 10 episodes in > 1 day and <15 days/ month for 3 months	>180 days/ year >15 days/month, for 3 months

Tabel 2: Probable tension type headache[1]

Probable TTH
Probable infrequent episodic TTH
The episodes met all but one of a-d IHS criteria for infrequent episodic TTH
The episode did not meet the criteria for migraine without aura
There were no other additional abnormalities
Probable frequent episodic TTH
The episodes met all but one of a-d IHS criteria for frequent episodic TTH
The episode did not meet the criteria for migraine without aura
There were no other additional abnormalities
Probable chronic TTH
In accordance with IHS criteria except e, no other abnormalities added, but the event has lasted for 2 months, excessive treatment meets criteria b for headache subforms with excessive treatment

Tabel 3: Clinical Manifestations of tension type headache[1]

Duration	30 minutes until 7 days
2 of the 4 characteristics of headache	Bilateral location The quality of the pain is like being pressed/tied Light to moderate intensity Not influenced by routine physical activity
Accompanying symptoms	No nausea or vomiting (anorexia may be present) There were no complaints of photophobia or phonophobia
No other abnormalities were found	Excluded based on clinical history, examination, or further investigation if necessary

Case Presentation:

A 48 year-old woman came to the Community Health Center polyclinic complaining of headache. The patient experienced headaches during the last 1 week, namely ± 5 times. The patient had been feeling this pain for the past 6 months but had become more frequent since 1 week ago. This was

probably because the patient's activity had increased in the last week and the patient was not getting enough rest. Pain was felt in the back of the head to the nape of the neck, the head feels like it was tied, the nape of the neck felt heavy and tense with constant pain intensity during the attack. If the patient did strenuous activities, pain would appear, and the pain would decrease if the patient slept. Headaches were not accompanied by nausea, vomiting, or weakness in one side of the body.

The patient was married and has 3 children. The patient lives with his in-laws. The patient's economic resources were financed by her husband. Patients sometimes argue with their in-laws and husband. Over the past week this family problem had become more frequent. Patient was an NGO activist with moderate daily physical activity. The patient admitted that in the last two weeks her activity had increased. The patient did not have the habit of smoking, drinking coffee, or drinking alcoholic beverages. The patient has never received treatment or consumed medication purchased by himself. Apart from that, no family members suffered from similar complaints. The patient had a history of hypertension and controlled dyslipidemia.

The patient's physical examination was found to be normal including a neurological physical examination. However, pericranial tenderness was found to be positive. The patient was diagnosed with tension type headache and given promotive management by explaining to the patient about the disease he was experiencing, namely tension type headache which was possibly caused by continuous contraction of the muscles of the head and nape of the neck and was also often caused by psychological stress. Patients were also advised to exercise regularly and avoided triggering risk factors such as excessive activity and psychological stress. Next was preventive management by maintaining a good sleeping, sitting and working position, as well as reducing stress and increasing activities that provide a feeling of relaxation. The final management was curative by administering Ibuprofen 3 x 400 mg (if the headache recurs), administering Vitamin B Complex 1 x 1 tab and Amitriptyline 1 x 10 mg until the complaint decreased.

Discussion :

A 48 year old female patient was examined, who came to the Community Health Center polyclinic with the main complaint of headache since 1 week ago. The pain had been felt since 6 months ago and comes and goes. The 1998 International Headache Society (IHS) classification classifies headaches into primary and secondary groups. Primary headaches include migraines, tension headaches, and cluster headaches. Meanwhile, secondary headaches occur due to other causes such as infection, metabolic disorders, tumors, or other systemic diseases. In this patient, it was suspected to be a primary headache, because there was no fever to rule out infection. There was no history of uncontrolled hypertension or diabetes to rule out systemic disorders. There was no history of persistent and progressive headaches, and no history of malignancy elsewhere to rule out tumor. Of the three primary headaches, cluster and migraine can be excluded because the patient's pain is not unilateral, affects the orbit, or was not throbbing like the clinical symptoms of migraine and cluster.2,8

The diagnosis was made from the history and physical examination. From the history, the patient experienced increasing headaches since 1 week ago, often appearing when she had a lot of thoughts. The pain was in the back of the head and nape, as if it feels heavy and tense, not throbbing. Not accompanied by nausea, vomiting, hearing or vision problems. From the history, the headache experienced by the patient was typical of tension type headache. She has had headaches for the past 6 months. The patient felt headaches that come and go, lasting ±30 minutes to 1 hour each attack. Headaches were often felt, more than 15 times in 1 month. This is in accordance with the diagnostic criteria for tension type headache. However, the hypertension that she had could be one of the possible cause of her chronic headache.9

Based on the physical examination, consciousness was good and no abnormalities were found on the neurologic physical examination. On examination of the head, pericranial tenderness was found, especially at the back of the patient's head. There was no arm chair sign and invisible pillow sign. The finding of pericranial tenderness and other physical examinations were within normal limits without any neurological deficits in accordance with the diagnosis of primary headache of the TTH type and could rule out the diagnosis of headache due to other/secondary diseases, so that there was no need for supporting examinations.

Therapy for TTH patient includes general therapy such as stress control because tension type headaches are often triggered by stress. Regular food diet with proportions according to balanced nutrition every day. Avoid physical and mental fatigue by diverting your thoughts to useful activities. Patients must also maintain a good position when sleeping, sitting and working, and more often do activities that provide a sense of relaxation.

Pharmacological therapy of ibuprofen and paracetamol as an analgesic were administered to treat the patient's headache symptoms. Amitriptyline as an antidepressant to treat stress and depression in patients. From Boline's research, the most effective therapy for chronic onset tension type headache is spinal manipulation. Amitriptyline is slightly more effective in reducing pain, but in the long term 82% will find side effects such as drowsiness, dry mouth, weight gain.9,10

Tension type headache therapy consists of non-medication and medication. Non-medical therapy begins with seeking information, ensuring and avoiding trigger factors. The second is Psycho behavioral treatment in the form of EMG biofeedback (recommendation level A), Cognitive behavioral therapy (recommendation level C), and relaxation training (recommendation level C). Another non-medical therapy that is recommended is physical therapy. Two Symptoms of tension-type headaches can be reduced with massage, mediation techniques and relaxation. Relaxation techniques can be very helpful by teaching patients how to relieve stress and anxiety.11,12

Next is medical therapy. This therapy is in the form of drugs for acute therapy. Treatment for acute therapy can be used for episodic or chronic onset tension type headaches. Tension type headaches have episodic onset, mostly with mild to moderate pain intensity, so they are often treated with simple analgesics such as paracetamol and aspirin or NSAIDs. Meanwhile, chronic onset tension type headaches are often caused by stress, anxiety and depression. Simple analgesics are usually ineffective, drugs must be used that can eliminate the cause. Some examples of simple analgesic drugs and NSAIDs are Paracetamol 500mg - 1,000mg (recommendation level A), Aspirin 250mg, 500-650mg, 1,000 mg (recommendation level A), Ibuprofen 200mg, 400mg, 800 mg (recommendation level A), Ketoprofen 12.5mg, 25mg (recommendation level A), Diclofenac 12.5mg and 25mg (recommendation level A), Naproxen 375mg, 550mg (recommendation level A), Metamizol 500mg, 1,000mg, Ketorolac injection 60mg and caffeine 64mg - 200mg (recommendation level B). These analgesic drugs can be combined with each other if necessary, but be careful of the side effects. In general, analgesics and NSAIDs can cause gastrointestinal disorders such as dyspepsia. The combination with caffeine is only used as second line therapy.2

Another medical therapy is Prophylactic drugs. Prophylactic drugs are used in patients with chronic onset of tension type headache, and patients with very frequent episodic onset. The class of drugs includes antidepressants, NSAIDs, anticonvulsants, muscle relaxants, and botholinum toxin which can also be used for chronic onset. The main choice for prophylactic drugs is Amitriptyline 30-75mg (recommendation level A). The second option is Mirtazapine 30mg, Fenlafaxin 150mg (recommendation level B). The third option is clomiperamine 75-150mg, Maprotilin 75mg, Mianserin 30-60mg (recommendation level B).2

Conclusion :

Tension Type Headache is more likely to happen in patient with hypertension, except for patient with controlled hypertension. TTH should be diagnosed if the secondary factors such brain tumours or systemic problem has been ruled out, because TTH is a type of primary headache. Two of the main triggered factors to make the clinical manifestation of TTH become worsen are psychological stress and increased physical activities.

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