Treatment approaches in osteopathy for the therapy of migraine

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ABSTRACT

The study at hand deals with osteopaths‘ way of proceeding when it comes to the treatment of migraine patients. It focuses on the question whether the treatment of migraine patients differs from the treatment of other patients, how the treatment approaches precisely look like, whether there are any special techniques for the treatment of migraine patients, which successes can be achieved and what determines the interaction between therapist and patient.

These questions shall be answered by means of a qualitative study which resorts to guideline-oriented interviews as research tool. Therefore seven experienced osteopaths with many years of practice are interviewed. An analysis of the interviews shows that migraine patients usually consult osteopaths only after having been examined by conventional medical practitioners and thus after having been diagnosed with the disease already. Furthermore it revealed that in anamnesis and during the clinical examinations of migraine patients the osteopaths proceed in no differently than when examining any other patients. Due to the holistic approach of the osteopaths, impacts on all systems (vascular, hormonal, neurochemic, myofascial, mental, structural etc.) can be found. According to the interviewees, during the treatments mainly the craniosacral model complemented by the biodynamic model is applied. Thereby the osteopaths hardly use any specific techniques, but rather a holistic approach, as it generally fits the nature of osteopathy. In case of migraine patients it is very important to pay special attention to what the patient says, as this enables the osteopath to give more specific advice to the individual patients. Furthermore it seems to be important to be particularly cautious in dealing with migraine patients. All osteopaths agree that by means of osteopathic treatments intensity, as well as frequency of migraine attacks, can be influenced positively.

Keywords: migraine, qualitative study, osteopathic treatment, craniosacral model, biodynamic model, structural model, visceral model, interaction, treatment success, treatment interval

1 Introduction

Migraine is a frequently occurring disorder that greatly reduces the quality of life of those who suffer from it. Studies reveal that migraine affects the quality of life in a bodily, mental and social way (Terwindt 2000). According to a 2004 WHO statistics 6 to 8 % of all men and 15 to 18 % of all women in Europe and America suffer from migraine. According to a study conducted by the AKH Linz (General Hospital Linz) and the hospital of St. Pölten (Leitner 2006) 10,2 per cent of all Austrian suffer from migraine. Hence we as osteopaths are frequently confronted with this disease pattern as well. Thus there are also osteopathic studies (Spannbauer 2008, Ecker 2003, van Tintelon 2002, Loza 1998) that reveal the effectiveness of osteopathy with regard to migraine. However, while studying relevant literature I could hardly find any indications for the osteopathic treatment of migraine patients on the part of conventional medicine.

In this context it is interesting to conduct a research about which treatment approaches are used in osteopathy for the therapy of migraine patients. For this purpose I would like to summarize osteopathic as well as conventional medical literature, starting from my experiences during the osteopathic training at the Wiener Schule für Osteopathie (Vienna School of Osteopathy), short WSO, and my practical work as an osteopath. After that, I would like to interview some osteopaths, in order to find out about all facets of their treatment of migraine patients in their surgeries. Thereby I shall be particularly interested to what extent the work with migraine patients differs from the work with other patients, how the approaches of treatment look like in detail, whether there are certain special techniques, which successes can be achieved by means of an osteopathic treatment, what the patient is recommended and by what the interaction between therapist and patient is shaped. In this connection I would furthermore like to evaluate the hypothesis whether working in the cranio-sacral model is of particular importance for the treatment of migraine patients. I would then like to bring in line my results from the interviews with osteopaths with those from literature, in order to more precisely describe migraine from the perspective of osteopathy. It shall be one aim of this thesis, to provide a basis for a

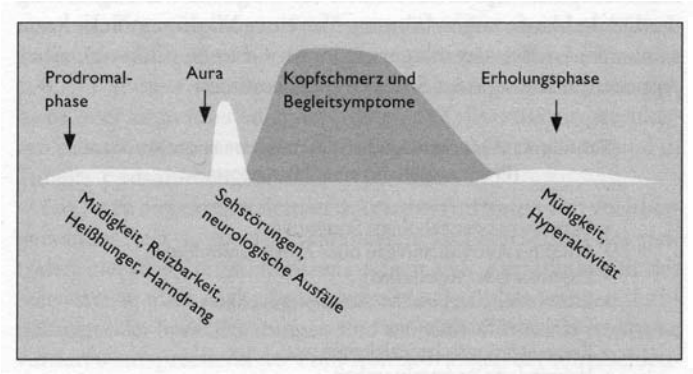
fruitful communication between osteopaths and conventional medical practitioners. Another aim shall be to reveal to other osteopaths the possibilities and demands for the treatment of migraine patients. Therefore I do not want to offer a “cooking recipe“ for the treatment of migraine, but I would like to give an insight into the work and way of thinking of other osteopaths. Therewith I would like to point out that osteopathy, as a non-medicinal treatment, should be granted a higher importance concerning the treatment of migraine and thus should be recommended by conventional medicine as a complementary therapy.

2 Present state of knowledge concerning migraine

There is manifold literature regarding the subject of migraine that extensively deals with pathophysiology and medicinal treatment. However, in my thesis I would like to concentrate mainly on the definition of migraine, on trigger factors as well as on well-known methods of treatment, as my paper is based on the conduction and evaluation of expert interviews with practicing osteopaths, which means that the topics mentioned above are of great importance.

2.1 Definition of migraine

Migraine (from Greek hemicranion, hemicrania – meaning half skull) is a multifaceted disorder, which is characterized by a sudden, pulsatile and unilateral headache that is often accompanied by complaints of the autonomic nervous system and comes along with additional symptoms such as nausea, vomiting, light sensitivity (photophobia) or sensitivity to noise (phonophobia). Migraine headache occurs periodically in the form of attacks. Due to the chronology of the single complaints, a typical migraine attack can be divided into four different phases: prodromal phase (precursors), aura, headache with accompanying symptoms and migraine hangover (Keidel 2007).



Prodromalphase = prodrome
Kopfschmerz und Begleitsymptome = headache and accompanying symptoms
Müdigkeit, Reizbarkeit, Heißhunger, Harndrang = fatigue, irritability, ravenous appetite, increased urination
Erholungsphase = migraine hangover
Sehstörungen, neurologische Ausfälle = visual disturbance, neurological deficits
Müdigkeit, Hyperaktivität = fatigue, hyperactivity

Fig 1: Schematic depiction of the course of a migraine attack (Keidel 2007, p. 25)

As the aura phase occurs in only 10-15% of all cases, I will not go into further detail concerning migraine with aura, since thereby no additional information regarding the aim of my investigation can be achieved.

Migraine is a frequent, highly handicapping syndrome with a variety of social economic and personal effects. Thus the World Health Organization lists migraine on the 19th rank of all diseases that cause disability (Keidel 2007). World Health Organization (2004) gives information on the distribution of migraine: Commonly starting at puberty, migraine most affects those aged between 35 and 45 years but can trouble much younger people, including children. European and American studies have shown that 6-8% of men and 15-18% of women experience migraine each year. Migraine appears somewhat less prevalent, but still common, in Asia (3% of men and 10% of women) and in Africa (3-7% in community-based studies). Major studies have yet to be conducted (World Health Organization 2004).
According to a study conducted by the AKH Linz (General Hospital Linz) and the hospital of St. Pölten, 10,2% of all Austrians suffer from migraine, whereby women are affected 2,5 times as frequently as men. Before puberty boys are more frequently affected than girls, which is a clear indication for the influence of hormonal factors on the development of migraine (Leitner 2006).

2.2 Clinical aspects of migraine

The clinical aspects of migraine are specified by means of various criteria by the International Headache Society (IHS) (Headache Classification Subcommittee of the Headache Society 2004). According to this classification migraine without aura

("simple migraine") is distinguished from migraine with aura. According to the classification of the HIS headaches have to be regarded as manifestation of simple migraine if they occur unilaterally, are of a pulsatile character, do not last longer than three days at a maximum are accompanied by vegetative complaints and have already occurred five times at least.

2.3 Diagnosis of migraine

As headache cannot be allocated by means of any apparative method, diagnosis has to rely on anamnesis and clinical findings (Diener 2002). An extensive inquiry of the previous medical history that is conducted together with the patient usually permits diagnosing migraine. The following criteria have to be met in case of simple migraine (without aura):

:

Main features	Criteria
Duration	4 to 72 hours
Headache characteristics **(at least 2)**	Unilateral headache Pulsatile headache Moderate or severe pain intensity Aggravation by routine physical activity (e.g. walking or stair climbing)
Accompanying complaints **(at least one)**	Nausea Vomiting Photophobia Phonophobia
Number of attacks	At leasz five previous attacks
Exclusion of sympotmatic headaches	By means of medical examination

Fig.2: Criteria for diagnosing migraine without aura (Keidel 2007, p. 17)

Evers 2006 includes as further criterion that the pain switches from one side of the head to the other during or in between the attacks and mentions a lack of appetite and odor sensitivity as further accompanying symptoms. Furthermore Evers 2006 describes certain pre-moods that occur before the actual migraine attack and thus predict the attack (Evers 2006, p. 6):

- Altered mood: depressive, depressive, bad tempered- aggressive or euphoric mood
- Altered sensory perception, e.g. increased irritation due to noise and odors
- Altered digestion: increased feeling of hunger, craving for chocolate, diarrhea, constipation
- Polyuria
- Altered hormonal function (e.g. irregular menstrual cycle)

The conventional medical examination includes (Evers 2006, p. 8)

- Neurologic examination
- Examination of the cervical spine
- Examination of jaw function and dental chart
- Blood pressure measurement
- Vascular status
- Inspection of the skin
- Auscultation of lung and heart
- Palpation of the abdomen

Further technical investigation is only necessary, if the previous medical history and the clinical-neurological findings are incompatible with the typical primary headache of migraine. In this case there is suspicion of secondary headache, which requires imaging examination of the brain. Such imaging procedures would be the cranial computed tomography (CCT) as well as the magnetic resonance imaging (MRI) of the brain. A summary of possible additional diagnostics can be found in Keidel 2007. PET (positron-emission-tomography) and similar procedures are not really useful in clinical diagnostics and are mainly used for clearing scientific questions (cf. among others Schonmann 2008 or Schulz 2007).

2.4 Pathophysiology

Pathophysiology describes which mechanisms in the human body lead to migraine and how differently the human body works under the changes caused by migraine.

2.4.1 Genetic fundamentals

From anamnesis a clear connection between familial relation and disease becomes evident. Furthermore there are twin studies, family examinations and molecular

genetic examinations that prove a genetic connection (Thomsen 2007, Evers 2006, Keidel 2007).

2.4.2 Development of pain

So far the processes in the brain that lead to a migraine attack are not yet entirely clarified (Olesen 2005). In literature various theories can be found whereby the “vascular theory“ and the “neurogenic inflammation” seem to be the most important ones.

2.4.3 Vascular theory

Basically this theory is grounded on examinations that were conducted around 1950 and assumes that during a migraine attack the blood vessels in the brain narrow. (Wolff 1948). Thus the area in the brain that is affected is supplied with less blood, which can lead to a temporary functional loss of the corresponding nerve cells. Subsequently the blood vessels expand. This vascular dilatation causes the typical migraine pain.

Nowadays it seems verified that the vascular theory does not play the most important role for explaining the development of migraine pain (Goadsby 2008), i.e. that vascular dilatation is not responsible for the headaches. Examinations by means of 3T magnetic resonance angiography (Schonmann 2008) or sonography (Evers 2006) could show that the development of migraine pain cannot only be ascribed to an altered width of cerebral vessels. They revealed that migraine attacks have nothing to do with vascular dilatation of cerebral or meningeal vessels (Schonmann 2008).They conclude that, contrary to a longstanding and widespread believe, cerebral and meningeal diameter changes in migraine attacks if at all happening appear not to be of primary importance to the pathophysiology of the migraine headache.

2.4.4 Neurogenic inflammation

This theory proceeds from a disturbed interaction between nervous system and blood vessels: the fibers of the fifth cerebral nerve (trigeminal nerve) end in the large cerebral blood vessels and the cerebral membrane (amongst others). If this nerve is irritated mechanically, electrically or chemically, a release of inflammation messengers may be the consequence. These do not only cause a dilatation of arterial vessels, but also increase their wall permeability. Thus blood plasma can extravasate into the surrounding areas. This causes bloating and the inflammation of the brain tissue. Pain stimuli are sent off and lead to migraine headache (Keidel 2007, Evers 2006).

By means of PET examinations and functional MRI studies a region that showed a strikingly increased metabolism during migraine attacks could be found in the brain stem as well as in the mesencephalon (Evers 2006, Keil 2007, Schulz 2007, Bahra 2001, Weiller 1995).

Keidel (2007) and Evers (2006) both take the view that it comes to a central facilitation of the trigeminal nerve. Thereby the activation of the brain stem, “migraine generator“, leads to a hypersensitivity of trigeminal neurons in the caudal nucleus (Evers 2006). This is also where the afferents from the cerebral membranes and blood vessels end. At the same time it comes to an inhibition of antinociceptive neurons in periaqueductal grey and locus caeruleus. However, the mechanism of this inhibition is not fully explained yet (Evers 2006). Thereby it comes to a decrease of the pain threshold and thus to an elevated pain sensitivity. It could be that thereby the trigeminal vascular system is activated (Keidel 2006). Furthermore the activation of trigeminal neurons leads to a release of vasoactive neurotransmitters, above all CGRP (calcitonin-gene-related-peptide) and serotonin (Evers 2006). These are released from trigeminal peripheral nerve endings in the meningeal blood vessels. These neuropeptides lead to a vascular dilatation of cerebral and dural blood vessels. As a consequence blood penetrates the vascular wall and extravasates into areas surrounding the vessels, which leads to a release of inflammatory substances (e.g. histamine, serotonin) and finally to a neurogenic induced inflammation. This means that the stimulation of the pain receptors of the trigeminal nerve in the

vascular wall by means of proteins that are released due to the inflammation of the vascular wall is what eventually triggers migraine pain.

2.4.5 Cortical stimulus processing

A further aspect for the explanation of migraine pain is an altered stimulus processing of migraine patients. Electrophysiological experiments revealed that migraine patients show an elevated irritability of the nerve cells of the cerebral cortex (Keidel 2007).

2.5 Trigger factors

Comprehensive knowledge of the trigger factors of migraine is of utmost importance for a successful treatment. The conscious avoidance of such trigger factors can positively influence the frequency as well as the severity of migraine attacks.

2.5.1 Psychosocial strain

One trigger factor of migraine that is frequently mentioned in anamnesis is stress (Spannbauer 2008, Zivadinov 2003, Robbins 1994, Fukui 2008). Furthermore there are “retrospective questionnaire studies“, in the course of which up to 62% of migraine patients mention psychosocial stress as one important trigger factor for their migraine attacks (Schoonman 2007, Tuchin 2000). Objective criteria associated with stress, such as cortisol-level, “heart rate average“ or “heart rate variability“ should not have any direct influence before or during migraine (Schoonman 2007). Besides psychic factors such as stress, relief after stress, fearful anticipation or special emotional situations also play an important role (Leitner 2006, Keidel 2007).

2.5.2 Altered weather conditions

The influence of (sudden) changes in the weather and temperature changes are further important trigger factors of migraine (Robbins 1994, Zivadinov 2003). Z.B. Robbins 1994, for example, mentions this as second most important trigger factor after stress. Intense light and especially bright sun are also named as trigger factors

(Robbins 1994). Furthermore a minor correlation with the changes of season has been detected as well (Robbins 1994).

2.5.3 Nutrition

Food, such as chocolate, cheese, oranges, tomatoes, onions, glutamates, alcohol (in particular red wine) and the excessive consumption of coffee are regarded as problematic (Sahai-Srivastava 2008, Müller 2007). Histamine containing food has also been detected as being a potential trigger (Gazerani 2003).
Irregular meals, such as e.g. fasting (Fukui 2008) and a lack of carbohydrates (Robbins 1994, Evers 2006) were identified as trigger factors as well.

2.5.4 Hormonal factors

Hormonal variations such as mensturation, pregnancy or the use of contraceptives have been identified as trigger factors (Müller 2007, Fukui 2008). Thereby in particular premenstrual oestrogen drop plays an important role. Furthermore the statistical data concerning the uneven distribution of migraine to men and women is indicative for the impact of hormonal factors (World Health Organization 2004).

2.5.5 Sleep disorder and changes in the circadian rhythm

There are several hints for a correlation between migraine and circadian rhythm (Baumhackl 2007) or sleep disorder (Fukui 2008, Vgontzas 2008). Frequent travelling has also been detected as being a trigger factor (Zivadinov 2003).

2.5.6 Anatomic factors

Some migraine patients report that they suffer from neck pain and stiff musculature before or during the migraine attack (Gallagher 2005, Müller 2007, Biondi 2005, Blau 1994, Hagino 1992). A significant restriction of mobility, especially of the upper cervical spine and the suboccipital has been detected (in particular c0-c1). Furthermore frequently tenderpoints in the upper cervical spine and the suboccipital could be found. This is similar in the case of migraine and in the case of tension

headache (Hagino 1992; NB: no control group used in this study). Another study confirms the restricted mobility of migraine patients and headache patients as compared to a control group (Kidd 1993). Scharff (1999) also detects a connection between positional abnormality and trigger points of migraine and tension headache. Certainly anatomic connections are of great importance here. Afferences end in the Trigeminocervicale Nucleus and the upper three cervical spinal nerves together with additional fibres from N.facialis,N glossopharyngeus and N vagus. The Trigeminocervicale Nucleus is the essential nociceptive nucleus of the head, throat and upper neck. Neurones in the C1 and C2 segments respond to stimulation of afferents in both the upper cervical spinalnerves and the trigeminal nerve. This concurrence forms the basis for this sort of pain that radiates to head and upper cervical spine (Bogduk 1995).

2.6 Comorbidity

In addition to migraine very often other diagnostically delimitable disease patterns occur as well. Concerning this Keidel (2007) and Evers (2006) give an overview of this comorbidity.

2.6.1 Accompanying neurological diseases

Women under the age of 40 who suffer from migraine run a two tho three times higher risk of suffering a stroke (Keidel 2007). However, the precise reasons therefore have not been fully explained yet. Possible reasons would be for example as vascular aspect such as vascular spasm or an open oval foramen.

2.6.2 Accompanying psychiatric diseases

There is a close connection and interaction between migraine and depression (Breslau 2003). Keidel (2007) hereto mentions numbers concerning frequencies: migraine patients run a six times higher risk of developing depressions and a three times higher risk of developing anxiety disorders.

2.6.3 Gastrointestinal diseases

There is a three times elevated risk for migraine patients to develop irritable bowel syndrome (Keidel 2007).

2.6.4 Accompanying cardio-vascular diseases

Migraine patients run a higher risk of suffering from arterial hypertension or from the Raynaud's syndrome (Keidel 2007, Evers 2006).

2.7 Migraine therapy

Several domestic remedies are recommended for the alleviation of migraine attacks, which are, however, not evidence-based (Evers 2006, p. 52):

- Rest
- Darken the room
- Cooling of the forehead
- Massaging pressure points of face and neck

2.7.1 Medical treatment

Currently existing medication alleviates migraine headache. Thereby different sorts of drugs are used for acute treatment and prophylaxis, respectively. Concerning this there is comprehensive literature, which is summarized, among others, by Mueller (2007), Gallagher (2005) and Diener (2002).

2.7.1.1 Acute treatment

The most effective substances concerning acute treatment are the so-called serotonin-receptor-agonists, called triptans. These are specific migraine drugs and do not have any effect in case of tension headache. Very often it is necessary to take in several drugs simultaneously in order to alleviate accompanying complaints, such as e.g. nausea (Keidel 2007).

2.7.1.2 Prophylaxis

For medical prophylaxis several different substance groups are available. These are, above all, beta-blocker and calcium-channel-blocker. Substances of second choice for migraine prophylaxis would be acetylsalicylic acid (ASA), non-steroidal anti-inflammatory drugs (NSAID), antidepressants and maybe also selective serotonin reuptake inhibitors (SSRI). The positive effect of magnesium is debated; however treatment with a high daily dose could probably slightly reduce the frequency of attacks (Evers 2006).

2.7.2 Biofeedback

Biofeedback is a process in which the patient is constantly informed about the active state of tensions of neck muscles, masticatory muscles and facial muscles as well as about skin resistance and body temperature. Thus, via technical feedback, the patient learns to become aware of usually unconscious bodily functions and, as a consequence, to consciously control and to change them. Thus the patient is enabled to consciously influence these bodily functions. In conventional medicine, biofeedback is an accepted method for the prophylaxis of migraine. In several clinical studies it has proved to be effective (Scharff 2002, Nestorivc 2007)

2.7.3 Relaxation training

In this context, particularly the muscle-centered relaxation technique according to Jacobson, has proved itself to be effective for migraine prophylaxis. It is also recommended in combination with aerobic training and biofeedback (Keidel 2007).

2.7.4 Cognitive behavioral therapy

It is based on the biopsychosocial model of pain, which states that there are biological, psychological and social factors that are responsible for the maintenance and the subjective experience of chronic pain. This method tries to decrease the impairment by pain and to increase self-control (Evers 2006, Martin 2007).

2.7.5 Aerobic endurance sports

Several studies revealed that regular, moderate aerobic training may positively influence the frequency and intensity of migraine attacks (Narin 2003, Darling 1991). In particular in combination with relaxation training it was quite effective (Dittrich 2008).

2.7.6 Physiotherapy

Physiotherapy is regarded as an effective treatment of migraine if it is applied together with other treatments such as thermo-feedback, relaxation therapy and endurance training (Biondi 2005).

2.7.7 Acupuncture

In several clinical studies, acupuncture proved to be effective (Linde 2009). A reduction of frequency as well as of intensity of migraine attacks could be achieved. However, particularly in the case of acupuncture the placebo-effect seems to be exceptionally high, as pseudo-acupuncture (which means that the needles were not placed at the correct acupuncture points) also had a positive influence on the migraine process (Linde 2009). However, it could also be the case that by means of acupuncture, as well as by means of pseudo-acupuncture a positive effect on the autonomous nervous system is achieved (Bäcker 2008). Thus acupuncture is regarded as effective prophylaxis for migraine and has, compared with medical treatment, no side effects (Linde 2009).

2.7.8 Homeopathy

In literature no studies could be found that directly prove the effectiveness of a homeopathic treatment of migraine. Possible successes of a homeopathic treatment rather correspond to a placebo-treatment (Ernst 2002, Linde 1999).

2.7.9 Chiropractic treatment

There are several studies, which state that migraine attacks can be reduced by means of a manipulation of the spine (Tuchin 2000, Müller 2007). However, the quality of some of these studies is controversial, as in many cases no control group was used or the number of test persons was too small (Fernández-de-las-Penas 2006). Furthermore Biondi (2004) states that the chiropractic method is more effective in the case of tension headache than for the treatment of migraine. Tuchin (2000), on the other hand, could show by means of a clinical study that a chiropractic treatment of the cervical spine can reduce migraine attacks. He traced the effect of the chiropractic treatment back to an alternation of the pain sensitivity of the central nervous system. The trigeminal nucleus innervates the cranium, as well as many intracranial and extracranial blood vessels. Afferents from the first three cervical nerve roots also innervate the dura mater, the scalp, and many suboccipital muscels. This is a similiar mechanism to regional pain syndroms, and also suggested as one mechanis for serptonin action.

2.7.10 Diet

As food intolerance is one trigger factor of migraine (cf. ch. 2.5.3), a conscious change of nutrition behavior is also recommended as a prophylactic measurement against migraine (Müller 2007). However, according to Evers (2006), so far there is no evidence that the abandonment of certain nutritional components or a change of diet composition, respectively, can alleviate or heal migraine headaches. Only a regular supply with carbohydrates is believed to be protective from migraine attacks. This, however, stands in contrast to the findings mentioned in ch. 2.5.3, which state that nutrition is a significant trigger factor of migraine.

2.7.11 Osteopathy

Only very few conventional medical studies that discuss the effectiveness of osteopathy on the treatment of migraine patients could be found. This conforms to Biondi (2004), who found no hint for the effectiveness of osteopathy or osteopathic manipulation, respectively in relevant literature. However, according to him the

personal experience and conviction of single osteopaths seem to verify the positive effects of osteopathy on the alleviation of pain. With this in mind I would like to summarize the present state of knowledge from osteopathic books and publications of osteopaths in journals.

2.7.11.1.1 Migraine in osteopathic books

Still (1910) classifies migraine among the disease pattern of nervous disorders. According to him migraine means a weakened state of the whole sympathetic system from atlas to coccyx. In the case of migraine he starts treatment at the coccyx and ends at the atlas. „Ich behaupte, dass mir kein einziger solcher Fall mit wirklich normalen Gelenkverbindungen im Kopf, Nacken, BWS, Lendengegend, Kreuz- und Steißbein begegnet ist“. [I claim to have faced no such case with absolutely normal conjointments in head, neck, thoracic spine, lumbar region, sacrum and coccyx.] He finds overburdened vertebral bodies and displaced ribs which lead to an undersupply of the nervous system. During the treatment he normalizes the position of spine and costal junctions and thus takes away pressure from blood vessels and nerves.

Sutherland (1930) thinks that migraine is caused by a traumatic, cranial form of dysfunction. He often detects in such cases a sphenobasilar sidebending/rotation dysfunction. From his point of view, reasons therefore are to be found in childhood traumata (hits, falls). These lead to dysfunctions, which subsequently cause structural malformations of the cranium in later life. Sutherland very often detects in such cases a blocking of the major wings of the sphenoid bone. Due to the malposition of the sphenoid bone, logically the temporal bone is out of position as well. This leads to a restricted mobility of the skull base, which in turn leads to an anomalous tension of the corresponding membrane tissue, which causes the impairment of the vascular channels. He calls this a cranial-membranous articular strain. Sutherland tries to re-establish mobility by means of the sphenobasilar technique and the pars petrosa technique.

Liem (2001) calls migraine and headache a multifactorial event. According to him, from a cranial perspective, several different structures may be affected thereby (Liem 2001, p. 567):

- SSB-dysfunctions including blocking of different sutures
- Tensions of the dura that affect the blood vessels
- The vagus nerve can be impaired at the jugular foramen due to dura tension
- Upper cervical spine and tension of the neck muscles: the sensitive innervation of one part of the skull and of the dura runs via first three cervical nerves
- Tension of hyoidal muscles and masticatory muscles
- The blood vessels of the head (of which the arteries are most pain sensitive) are supplied preganglionarily from C8-Th13, via the stellate ganglion (vertebral artery) and via the superior cervical ganglion (internal and external carotid artery)
- Visceral structures of the thorax or of the digestive system and their fascial connections

Liem (2001) lists the following techniques: CV4, atlanto-occipital relaxation, treatment of the SSB, ease the tension of sutures, intercranial dural relaxation techniques, relaxation of neck muscles and hyoidal muscles.

According to Milne (1999) that craniosacral techniques are highly recommendable for the treatment of migraine. To him it is important, to settle sphenoid, maxillae, mandible and upper cervical spine. In his point of view, position and mobility of the maxillae seem to decisive factors for triggering migraine and a hint why craniosacral treatment plays such an important role in this respect.

According to a lecture held by Ligner (2008) it is of great importance for the treatment of migraine to pay particular attention to the regions of C0-C1, C1-C2, C2-C3, as this is the area of the spine that is responsible for good circulation. Especially C0-C1 is associated with vasomotor disorders and thus has got an influence on migraine. Furthermore it is important to him, to treat clavicle and C6 because of their influence on arterial supply. In addition to that it is crucial to pay attention to the venous drainage of the cranium und to achieve the relaxation of the cranial fascia. Concerning hormonal balance it is important to pay attention to the position of occiput and temporalia and to relax the tentorium, in order to bring the sella turcica into a good position. Also changes of the dura tension, due to previous traumata, can lead to headache and migraine, as they affect the nurturing function of the fascias. In regard of digestion, the osteopath shall give the patient advice concerning nutrition and draw his attention to possible food intolerance, if necessary.

2.7.11.1.2 Migraine in osteopathic publications

To Gallager (2005) it is particularly important in case of migraine patients to normalize mobility and muscle tone of the spine by means of soft tissue techniques but also by means of manipulation techniques. According to his experience, special attention has to be paid to the muscles in the regions of neck and pericranium. As risk factors and trigger factors differ from patient to patient, Gallager recommends a trial-and error- approach. „Osteopathic physicians with expertise in holistic and muscoloskeletal concepts are particularly well prepared to help“ (Gallagher 2005).

From Müller's (2007) point of view, osteopathic manipulative techniques may have a positive effect on migraine. „Osteopathic manipulative treatment may reduce pain input into the trigeminal nucleus caudalis, favourably altering neuromuscular autonomic regulatory mechanism to reduce discomfort from headache“. As many foodstuffs are a trigger factor of migraine, for her this aspect also implies a probable treatment approach. As additional supportive influence on the alleviation of migraine she mentions relaxation exercises, biofeedback and yoga. It is striking that Müller, as an American osteopath, goes into very much detail about the support of medical treatment.

Ecker (2003) examines the effectiveness of osteopathic treatment of migraine in cases in which menstruation was detected as being the trigger factor. In his study he compares osteopathic treatment and medical treatment and states: „Die osteopathische ganzkörperliche Vorgehensweise erzielte ohne Nebenwirkungen deutliche Verbesserung, so dass wir daraus folgern, dass die Osteopathie in der Behandlung und Begleitung der menstruellen Migräne einen wertvollen Beitrag liefern kann“. [The osteopathic, holistic practice achieved notable improvements without side effects, from which we draw the conclusion that osteopathy can make significant contributions concerning the treatment of menstrual migraine.] Unfortunately no control group is mentioned in this study and the number of 30 test persons is rather small.

Spannbauer (2008) examines the effectiveness of osteopathic treatment on patients who suffer from migraine without aura by means of a so-called “Black Box Method“. She notices a positive influence on the condition of those patients that were treated.

„The considerable improvement in the conditions of the patients in their own opinions is a very rewarding outcome of this study“. Unfortunately this study does not use a control group either, as it is a within subject design study.

Van Tintelen (2002) works in his study with the aid of the Black-Box-Method, too. However, in his study he compares his results with those of a control group that was treated by “general or alternative practitioners“. He comes to the conclusion that an osteopathic treatment causes a notable improvement concerning the frequency and intensity of migraine attacks and has, in addition to that, a very positive influence on the patients’ well-being in general.

Loza (1998) deals in her study with the effectiveness of osteopathic treatment on migraine patients as well as on headache patients. She notices a positive effect on both groups, although better results could be achieved in case of headache patients. Concerning migraine patients she finds some anomalies regarding certain regions: occiput, laterality of Atlas, C3, C7-Th1, lateral strain and torsion of SSB, temporal bone, digestive system and genital system.

2.8 The philosophy of osteopathy

Starting from Still’s principles Ligner (1993) describes the fundamentals of osteopathy as follows (Ligner 1993, p. 22-24):

- All life is movement: to evaluate mobility is the prime criterion in osteopathic diagnosis. A restriction of mobility means an osteopathic lesion.
- Structure governs function and function forms structure: as soon as the ideal state of harmony in the body is disturbed the body does not operate optimally any longer. In turn, a malfunction in the body may cause structural impairment.
- The body is a unit: not the sum of all individual parts makes a well-functioning whole, but their interaction.
- The Law of the Artery: Life has to be nourished. Therefore good circulation is of utmost importance. In osteopathy circulation refers to, besides the arterial and venous vascular system, all body fluids such as liquor, lymph and synovial fluids. Furthermore gas exchange, unrestricted transmission of nervous impulses and the free circulation of bodily and spiritual energy are included.
- Self-healing mechanisms: Health is the result of a number of self-regulatory processes of the immune system, the endocrine system, the autonomous nervous system and other regulatory systems.

Osteopathy puts the holistic view of the human body at the center of its way of treatment. For this reason I regard osteopathy and its many different treatment models as an effective therapy of migraine patients.

3 Analysis of the individual interviews

3.1 Conduction of expert interviews (methodology)

3.1.1 The qualitative study

In order to gain sufficient information on the topic “osteopathic approaches to the treatment of migraine“, conducting a qualitative study seems to have many advantages. Compared with a quantitative study, in a qualitative study hypotheses are created, which are quite useful for investigations with only little information and which form the basis for further research work. Out of the many existing forms of qualitative interviews I chose the problem-centered interview and decided to use it for this paper at hand, in order to collect expert knowledge in a more targeted way. These problem-centered interviews are particularly useful when quite a lot is known about the topic already and when precise, specific questions are to the fore (Mayring 2002). Such an interview gives the interviewee the chance to speak rather freely and is thus very close to an open conversation. It is, however, focused on a certain topic or question, which is introduced by the interviewer and to which he/she returns again and again throughout the interview (Mayring 2002). Therefore previous to the interview a so-called interview-guideline is established, which is then used as a basis for the conduction of the concrete interviews. A further advantage of the usage of such guidelines is that they bring about a partial standardization of the interviews and thus the different interviews are comparable more easily. However, problems that occur at the conduction of such interviews are:

- An accumulation of suggestive questions
- Difficulties and a lack of patience when it comes to listening carefully or taking up ideas for further questions
- Unfreedom with the interview guideline resulting from fear and insecurity (Flick 2007)

3.1.2 Interview guideline

The central aspects of the interview guideline were established on the basis of previous literature research in order to analyze the topic more precisely. Subsequently this guideline was discussed with two osteopaths, to make sure that it contains the core points of migraine treatment. This guideline that was used in the expert interviews can be looked up in the appendix of this paper.
When compiling this guideline (cf. Appendix) I tried to sift out, how osteopaths deal with the diagnosis migraine, whether their treatment of migraine patients differs from their treatment of other patients, how their approaches of treatment look like and which techniques they use. Furthermore I tried to find out, how the osteopaths' interaction with patients looks like and up to what extent they think osteopathy is an appropriate method of treatment of migraine. In the interviews I focused on facts rather than evaluating the psychological background. I tried, however, to interrupt the interviewees' speech as rarely as possible. But, if necessary, I asked further questions concerning a certain topic, in order to get more information about this specific point. On the whole the previously developed interview guideline proved to be well-applicable during the individual interviews. Thus no modifications between the individual interviews were necessary.

3.1.3 Choice of osteopaths for my expert interviews

For the choice of the experts interviewed, I applied the following criteria:

- A minimum of five years of practical experience as osteopath with completed professional training
- Osteopathic degree Msc or DO
- Interviewees of either sex
- A sample of osteopaths that work with different treatment models
- Active occupation in osteopathy (education, supervision, assistant)

Furthermore I discussed my choice of experts with other osteopaths. First contact was established by phone. I was surprised how spontaneously and cooperatively the selected osteopaths agreed to do the interviews.

3.1.4 Evaluation of my expert interviews

With consent of the interviewees the interviews were recorded. Subsequently they were transcribed and transferred to Standard German, however, without correcting the grammar. Thus the focus remained on theme and content (Mayring 2002). Afterwards each interview was analyzed separately. Thereby the gained material was categorized and reduced in such a way that the essential topics remained in the focus without slipping into hasty quantifications. As a result an image of the basic material could be established. After that the most important aspects of the individual interviews were compared and a new categorization with regard to the similarities of the individual interviews was made.

3.2 Summary of the interview with expert M. (female)

In the following the interview with expert M., which was conducted on the basis of the interview guideline mentioned above, is summarized.

3.2.1 Anamnesis and clinical examination

3.2.1.1 Anamnesis

Basically M. always makes a very detailed protocol for every patient, in order to grasp all facets of a patient. In case of migraine patients she only asks more precisely when, how, how often and since when migraine attacks occur and whether they are accompanied by an aura or not. Furthermore it is important to her that migraine patients are previously examined by conventional medical practitioners, which is usually the case, as patients with this disease pattern normally have suffered from migraine long before attending therapy. The aspect of posture and stress is of great importance to her as well.

M.02:28-4: „Die Belastungsfaktoren von Haltung und Stress, sind ein wesentlicher Punkt für mich.“ [The strain factors of posture and stress are important aspects for me.]

In case of migraine patients she pays very much attention to those aspects in anamnesis that deal with nutrition, allergies, eyesight, teeth (occlusion), medication and hormonal problems, in order to be able to draw conclusions concerning posture, organ strain and the like. Furthermore she asks several questions regarding nutrition;

whether there are any food intolerances or not. In addition to that, digestion is of great importance to her, again in order to draw conclusions concerning the organs. She mentions the pelvic area as playing an important role as well, however, without going into further detail regarding the reasons.
M.04:41-9: „Für mich ist bei der Migräne eigentlich das Becken ein sehr wesentlicher Punkt.“ [To me in case of migraine the pelvis is a very important point.]
In case of hormonally conditioned migraine she regards osteopathy as not very useful, but leaves it open that other osteopaths probably have better experiences concerning this matter.

3.2.1.2 Clinical examination

By means of the biodynamic model she pays attention to the midline (there is a study concerning midline by Monika Dunshirn) and the cranial rhythm and thereby tries to find out where in the body the problem is located. This examination is carried out mainly while the patient is seated. Thereby security tests for the cervical spine and a careful examination of the transitions C0-C1, C7-Th1, Th12-L1 and sacrum-coccyx are important to her, whereby she states that she does not find the coccygeal bone in a malposition too often. In case of migraine patients she does not detect muscular dysbalances and malpositions of cervical spine and upper thoracic spine more often than in other patients.

3.2.2 Migraine- a vascular, neurochemic, myofascial, mental, structural, hormonal problem?

M. states that in her opinion things always run parallel. It is hard to come across with any kind of categorization here, although she suspects that the reason for the disease originates on a mental level, as migraine often implies a hidden depression, too. When it comes to effects, for her, the myofascial aspect is of great importance.
M. 16:32-6: „Myofascial auch aus dem Grund, dass irgendwo im Strukturellen etwas einmal nicht ganz passt. Das hat Auswirkungen ja auch auf das Organsystem. Ja? Und, ah, auch auf die nervale Versorgung, und somit schließt sich der Kreis. Und es ist eine Einheit, eins bewirkt das andere”. [Myofascial for that reason, that somewhere in the structure there is something wrong. This has effects on the organ

system. Yes? And, ahm, also on the nerval supply and this is where we've come to full circle. And it is a unit, one thing causes the other.]
M. 16:53-5: „Und, ich glaube, dass halt bei manchen, der Auslöser, eher im, ahm,..., wie soll ich sagen, der mechanische Auslöser, eher im strukturellen Bereich war, der dann irgendwo, gut kompensiert schlummert, und je mehr Auslöser dann, ah, zusätzlich, oder Faktoren zusätzlich dazu kommen, ist irgendwas der Auslöser."
[And, I think in some cases the trigger was rather, ahm…, how shall I put it, the mechanic trigger was rather in a structural area, that dozes somewhere, well-compensated and the more trigger, ahm, additionally, or the more factors are added, something is the trigger then.]
She mentions particularly stress and nutrition as additional trigger factors.

3.2.3 Treatment techniques

M. mainly works with the biodynamic model when it comes to the treatment of migraine patients.

- 50% biodynamic techniques
- 20% structural techniques
- 20% visceral techniques
- 10% cranial techniques

By means of the biodynamics she particularly aims at a good and well noticeable longitudinal fluctuation, which is a sign of vitality according to the biodynamic model.
M. 19:53-6: "Ja? Wenn ich das erreichen kann, eine gut Mittellinie die zentriert ist und eine longitudinale Fluktuation, wenn ich es jetzt so pauschal und … dann geht es ihnen eigentlich, auch auf der emotionalen Ebene, besser." [Yes? If I can achieve that, a good midline that is centered and a longitudinal fluctuation, generally… then they are feeling better on an emotional level as well.]
She applies structural techniques mainly when there is severe impairment, in order to progress faster on the biodynamic level. However, it also depends on the patient, whether she works structurally or biodynamically. But treatment does not differ from the treatment of those patients that do not suffer from migraine.
M. 25:45-2: „Weil ich trotzdem immer der Meinung bin, wir behandeln, oder nicht der Meinung bin, das ist es ja im Prinzip, behandeln ja den, Patienten, und ich muss schauen, dass er in all seinen Strukturen und Ebenen weitgehend frei ist, und das ist

eigentlich, wenn ich jetzt sage, egal mit welcher Symptomatik er kommt, es ist einfach Ausdruck seines, ah, Ungleichgewichts. Wo sich das halt dann, auf Grund seines Mosaikbildes, darstellt. Aber prinzipiell geht es immer". [Because I'm of the opinion that we treat, or I'm not of the opinion, that is it, basically, we treat the patient and I have to take care that he is free to a great extent in all his structures and that is actually what I say, no matter with which symptoms he comes, it is simply the expression of his imbalance. Where that comes to show, just like in a mosaic. But basically it always works.]
In particular working on the pelvis and to balance out head and pelvis in terms of good symmetry are highly important to her in the case of migraine patients. However, she does not prefer any particular technique, but decides individually for each and every patient.

3.2.4 Treatment intervals

M. treats migraine patients every three to six weeks. After some time, the intervals are lengthened to three to four months. It is important to her that the body has enough time to stabilize after the treatment.
M. 28:08-2: „Weil gewisse Veränderungen nicht gleich und sofort eintreffen, ja. Sondern im Laufe von 3 bis 4 Wochen, ah, sich eigentlich eher, oder eigentlich erst zum Ausdruck kommen können." [Because some changes do not come to pass immediately, yes. But, ahm, they actually take effect only over the course of three to four weeks.]

3.2.5 Measures in addition to the osteopathic treatment

Each patient is advised individually. If posture is the cause, this aspect is discussed in detail. If stress is the problem, she tries to find the best way of relaxation for this patient. Whether it is achieved by means of music or rather by means of exercise depends on the patient's preferences. Furthermore she sometimes recommends psychotherapy to her patients as well, particularly when she is convinced that they would not be able to come out of their problematic situations on their own. She also has good experience with acupuncture and homeopathy. If homeopathic treatment is

applied, e.g. for liver detoxication, she can feel during her next treatment that the organ has improved.

M. 31:46-6: „Das kommt dann,..., nein, ich glaube dass, das nicht so zu beantworten ist. Denn es gibt,..., einfach für jeden Patienten so, den Schüssel der passt. Bei dem Einen ist es die Homöopathie, beim Anderen ist es eher das autogene Training, und darum kann ich dass nicht sagen, dass ist wichtiger als das. Bei manchen ist Akupunktur." [… no I think that cannot be answered in any simple way, because there is… for every patient there is a key that fits. For some it's homeopathy, for others it is autogenic training and that's why I can't say this is more important than that. For some it's also acupuncture.]

3.2.6 Does the osteopathic treatment have a positive effect on migraine?

M. 32:45-0: „Es gibt einige wenige Ausnahmen. Also ich habe einen Patienten, den,..., ja, bei dem hat das einfach, nichts gebracht, ja. Aber ansonsten,..., sind die Intervalle, viel länger geworden, die Medikamente konnten zum Teil, reduziert werden, zum Teil komplett abgebaut werden, also,...ja". [There are a few exceptions. I had one patient who… where it helped nothing. But apart from that the intervals could be lengthened and partly the medication could be reduced, or even discontinued, well… yes.]

To M. osteopathy is a very good option to help migraine patients. She achieved remarkable successes by means of osteopathy. Only in case of hormonally conditioned migraine she is not convinced of osteopathic treatment. It is, however, difficult for her to say, whether the successes she achieves are lasting or not, as patients do usually not stay in touch with their therapist after therapy is completed. M. does not think, however, that migraine disappears completely due to osteopathic treatment, but that it has positive influence on intensity, frequency and aura. Can osteopathy have any influence on the course of the disease if therapy is started as soon as the attacks set in? M. cannot say anything about that, as she is rarely ever consulted at this stage of the disease.

3.2.7 Interaction therapist - patient

M. is convinced that migraine patients do not recquire any special kind of interaction. She always relies on her "sixth sense", no matter who the patient is and what he/she is suffering from. This is the reason why she sometimes decides not to treat certain patients. At the beginning she defines the goals of the treatment.
M. 35:51-4: „"Was möchte ich erreichen, in welchem Zeitrahmen, ja. Und, für mich sind so 3 bis 5 Behandlungen, wenn ich bis dahin, nicht irgendwo eine Veränderung sehe, oder der Patient auch nicht für sich bemerken kann, dann höre ich mit der Therapie auf. Dann finde ich nicht den Schlüssel für das Schloss." [What do I want to achieve, in what time-span, yes. And for me that's three to five treatments, if I can't see any changes until then, or if the patient doesn't notice any for himself, then I decide to discontinue treatment. Because then I don't find the key to the lock.]

3.3 Summary of the interview with expert S. (female)

In the following the interview with expert S., which was conducted on the basis of the interview guideline mentioned above, is summarized.

3.3.1 Anamnesis and clinical examination

3.3.1.1 Anamnesis

S. carries out the anamnesis of migraine patients in the same way she does with other patients.
S. 02:35-3: „Also, grundsätzlich so wie in der normalen Osteopathischen- Anamnese interessiert mich halt Alles, ja." ["Well, basically everything is interesting for me, like in normal osteopathic anamnesis."]
In this process she stresses the mechanical aspect, looks for abnormalities in any structure, asks for traumata, accidents or downfalls in the past and also surgeries that have been carried under spinal or epidural anesthesia. She experienced that those interventions stress the dural system very much and thus secondary tensions occur which cause headache and migraine-like symptoms. In expert S.' opinion the dural system is a very important factor so she inquires trauma situations precisely.
S. 04:37-2: „Ja, da frage ich schon genauer nach. Also, das muss jetzt nicht unbedingt direkt am Kopf sein. Also es kann einfach im Laufe des ganzen

Duralsystems, sozusagen, irgendwo ein traumatisches Geschehen sein. Und beim Kopf weiß man es eben ganz genau, dass zum Beispiel, wenn auch Kinder, auf den Kopf stürzen, es immer wieder zu kleinst Blutungen auch kommen kann. Oder zu Fixierungen, oder zu Spannungen in der Dura." ["Of course I ask more specifically. It does not necessarily be at the head. There can be a traumatic situation anywhere within the dural system. At the head you know quite well what is going on, for example regarding children that fall onto the head, this can cause tiny bleedings every now and then. Or it causes fixations or tensions within the dura."]

To her those fixations or tensions within the dura as well as tensions in the bone are a common reason for migraine. But sometimes one cannot tell what the source of migraine is. In her opinion the most frequent cause is sciatica that comes from the tailbone, sacrum or the entire spine.

S. 07:01-9: „Diese mechanische Verbindung, die dann eine Migräne auslöst, die mechanische Spannung, ja. Das ist eigentlich das Häufigste was ich beobachten kann." ["This mechanical connection which causes migraine, this mechanical tension. That is what I observe most of the time."]

For S. it is a crucial point in anamnesis how migraine lapses. Since what point of time does migraine occur, in which rhythm the pain appears and if there is a hormonal coherence. But also if a change in weather of relaxing at the weekend trigger migraine.

S. 02:35-3: „Und dann ist sicherlich ganz wichtig, dass die Patienten beschreiben wie sie auch abläuft, ja. Und da gibt es wirklich die unglaublichsten Formen der Migräne eigentlich ja, also,..., vom klassischen Kopfschmerz mit Übelkeit, Erbrechen, Lichtempfindlichkeit bis hin zu,..., Ausstrahlungen in die Arme, in die Beine, oder im Gesicht halbseitig. Also, Migräne hat wirklich ein sehr vielfältiges Bild. Naja, und wenn man mal diese konkrete Bild hat". ["It is definitely that the patient describes how migraine lapses. There are really unbelievable forms of migraine, well,..., the range goes from classical headache with sickness, vomiting, light sensitivity up to,..., radiation to arms, legs or to half of the face. So, migraine is really many-faceted. Well, if you have once have this depict image of it."]

She experienced that the migraine patients consulting her, have already been examined by a conventional medical practitioner because they have already been suffering for a long time.

S. 03:01-8: „Weil, also der Großteil der Patienten, sagen wir mal so, kommen durch untersucht her. Und haben also die ganze Palette von Röntgen, MRT, EEG, ah, alles eigentlich schon hinter sich. “ [“The majority of the patients coming here have already been examined. They underwent X-ray, MRI, EEG, and everything else.”]

3.3.1.2 Clinical examination

Within clinical examination she investigates this mechanical connection by means of a complete structural examination and looks for blockages. She also tests the craniosacral rhythm according to the craniosacral model, examines the visceral area and often detects a limited mobility and motility of the liver. According to S., those patients mention dextral respectively frontal headache within anamnesis.

S. 08:57-4: „Das ist das Organ, das ich am ehesten noch der Migräne zuordnen kann. Und, und, das auffällig oft verspannt ist. Das sind aber doch Leute mit rechtseitigem Kopfschmerz, mit rechtseitiger Migräne bzw. frontaler Migräne.“ [“That’s the organ I can most likely associate with migraine. And that’s the one that’s significantly frequent tensed. But normally it’s only people with dextral headache, dextral migraine respectively frontal migraine.”]

She associates that with metabolism and detoxification induced migraine. Within anamnesis she often detects patients’ hints like hepatitis or the frequent intake of medicaments. Apart from structural examinations of the cervical spine, her clinical examination also includes the examination of vessels in this area.

S. 11:13-2: „Ob es irgendwelche Spannungen auf Gefäße gibt, die eventuell die Durchblutung oder die Physiologie im Kopf stören.” [“To find out if there are any tensions on vessels which may disturb blood flow or physiology in the head.”]

Those tensions on vessels can have many different sources.

S. 12:03-0: „Es ist unterschiedlich. Also, es gibt sicherlich bei jeder Migräne, in der osteopathischen Erstuntersuchung gibt es sicher immer einen totalen Hot Spot. Und das ist unterschiedlich, das ist entweder das Fascien- System, bei dem Einen, beim Anderen ist es eher das Duralsystem, bei dem Dritten sind es eventuell wirklich einmal grundsätzlich vertebragene Ursachen. Also, Wirbelblockaden die Spannungen in der Muskulatur und im, eigentlich im ganzen System dann hervorrufen.” [“It is quite variable. Well, every type of migraine has always a defined hot spot, this becomes obvious within the initial osteopathic examination. That’s various, for one it’s the fascial system, for another one it’s the dural system and for a

third it might really be sciatica. Vertebral blockages that cause tensions within musculature and the entire system."]

She does not detect more muscular imbalances and malpositions of the cervical or thoracic spine regarding migraine patients compared to other patients.

S. 14:45-0: „Nein. Könnte ich nicht sagen. Also es gibt Patienten, die haben, Wirbelblockaden und Verspannungen, der ersten Güte, und haben aber keine Migräne. Und dann gibt es also welche, die sind, ja, dort und da ein bisschen blockiert und haben aber eine ordentliche Migräne. Also, ist,..., nein, könnte ich keinen direkt, also, es tritt oft gemeinsam auf, aber als primäre Häufung würde ich es nicht bezeichnen." ["No. I could not say that. There are patients with really horrible vertebral blockages or tensions but without migraine. And there are others who are only a little bit blocked here and there but they do have rather severe migraine. So, no, I could not conclude, so, it often occurs together but I would not characterize it as a primary cluster".]

3.3.2 Migraine – a vascular, neurochemic, myofascial, mental, structural, hormonal problem?

S. considers that every of those facilities is possible. It depends on the individual person. Everybody has experienced different sensations and pre-existing diseases including psychic aspects.

S. 16:07-5: „Alles. Es ist also, ich denke ohne Wertigkeit ist alles möglich. Wichtig ist, dass man es eben von der Anamnese her genau abcheckt, und eben schaut, was hat er gehegt, wie fühlt er sich an. Bei dem Einen wird es vielleicht mehr vaskulär sein, bei dem Anderen wird es vielleicht mehr, durch Intoxikation sein. Ja, egal. " ["Everything. It's, I suppose everything is possible without valuation. It's important to do the anamnesis properly, check everything, what did he or she is dealing with, how is he or she feeling like. For one it is more a vascular problem, for another one it might be intoxication. Yes, does not matter."]

3.3.3 Treatment techniques

Concerning the treatment techniques it is very important for S. to handle migraine patients rather carefully. So she starts working distal to the head. Especially in the

first therapy session since the system is already overexcited. Sometimes migraine can be triggered during clinical examination if one touches a cervical vertebra or the head too harshly. This applies to structural as well as cranial techniques. Primarily S. tries to relax the dura via the sacrum. If that is not working well she uses intraoral techniques according to the biodynamic model and works via vomer and base of the skull at the dura. S. learned that this rarely causes reactions.
S. 21:07-7: „Ja schon die Dura. Also die Schädelbasis, und damit eben die ganzen Aufhängungen, der Falx, des Tentoriums und dann weiterführend dann eben der Duralsack." ["Yes, the dura. I mean the base of the skull and in addition to that the whole suspension, the falx, the tentorium and further the dural sac."]
Within the dura there are many blood vessels and so they are also effected by the treatment. This is the vascular element of her work. So to say she tries to loosen the system from within and to achieve a relaxation of the vessels. Regarding structural techiques, S. performs vertebral manipulations. Also here she starts distal to the head and handles especially anxious patients very carefully.
The treatment techniques performed split up in the following way:

- 40% structural
- 40% craniosacral + biodynamic (S. names this together)
- 20% visceral

Within the visceral model she oftentimes detects the liver as limited regarding its mobility. For the liver she uses biodynamic as well as visceral techniques like for example mobilization of the suspension of ligaments or the liver pump techniques. Depending on what the system shows. There is a certain technique from the biodynamic sector which has a positive effect on migraine patients. While performing this technique she works via the anterior transverse septum according to the biodynamic model. This treatment approach is known from biodynamics. S. recognized that this treatment approach works very well with migraine patients.
S. 26:12-7: „Genau. Aus dem strukturellen Bereich eher die Wirbelmanipulationen, dann halt auch, wie gesagt die Leber, wenn sie sich deutlich präsentiert. Dann die Dura. Es gibt in der Biodynamik so Techniken wo man dieses anteriore- transversale Septum, dass sich ja zurückzieht, schon relativ bald nach Geburt. Also es ist eben diese Haut, die das Gehirnwachstum stützt. Frontallappen vom hinteren, also vom parietal Bereich, das zieht sich ja dann zurück, hinterlässt aber so kleine,..., Bindegewebe. Und das ist zum Beispiel auch relativ häufig der Fall, dass weiß ich

aber erst, seit ich diesen, diese Technik kennen gelernt habe, dass bei diesen Ansätzen, auch beim Erwachsenen, dieses anterior- transversalen Septums, auch wenn es wahrscheinlich nicht mehr da ist, anatomisch, aber, dass es da schon Spannungen gibt, in Kombination auch mit dem Tendorium. Und das ist zum Beispiel etwas was ich mir angewöhnt habe auch, bei Kindern und bei Erwachsenen, über die Lösung dieser beiden Membranen zu arbeiten. Und, das bringt sehr viel." ["Exactly. From the structural sector rather vertebral manipulations, and, as already mentioned, the liver where it's clearly recognizable. And the dura. In biodynamics there are techniques dealing with the anterior transverse septum which retracts quite soon after birth. So it is this skin supporting the cerebral growth. Frontal lobe form the rear, the parietal area, retracts but leaves such little parts of,...,conjunctive tissue. That is being the case quite often but I only discovered that while learning this technique and so I saw that the anterior transverse septum is from an anatomical point of view not there anymore but there are still tensions, also in combination with the tentorium. And so I got used to work via the loosening of those two membranes within the treatment of children as well as grown-ups. That is really working out."]

3.3.4 Treatment intervals

S. treats migraine patients only every four to six weeks since many patients are already overexcited and hence she does not want to work to intensely and to perform too many different techniques. These intervals also do not disturb regeneration.

3.3.5 Measures in addition to the osteopathic treatment

S. recommends traditional Chinese medicine with acupuncture next to osteopathy. She also trusts in Shiatsu and Ayurveda. Homeopathy is appropriate when migraine is triggered due to hormones or mental stress or diet.
S. 33:04-4: „Also, in dem Moment, in dem die Migräne wirklich einen sehr hohen mechanischen- strukturellen Anteil hat, ist die Homöopathie wahrscheinlich nicht ausreichend." ["Well, when migraine has a large mechanic structural aspect, homeopathy is not enough."]
Classical massages or active training when there are already tensions has a negative impact on migraine. If stress is a trigger for migraine, she talks with the patient about

it, makes recommendations and counts on the patient's self-reliance (as she does with mental health problems).

3.3.6 Does the osteopathic treatment have a positive effect on migraine?

S. 35:45-9: „Ja. Absolut." ["Yes. Absolutely."]
After two to three therapy sessions the rate of the attacks considerably declines. It might be possible that migraine vanishes. But it is hard to track that since the therapist often does not meet the patient anymore.

3.3.7 Interaction thearpist – patient

It is important for S. mention that one has to be very careful when examining and treating migraine patients in order not to cause migraine. Patients need a lot of rest, also within therapy sessions. They should become aware of the factors that cause or stimulate migraine.

S. 39:44-4: „Also, Aufmerksamkeit, dass man ihnen vielleicht klar macht, dass es zwar eine Krankheit ist, aber dass es einfach einen sehr hohen Anteil gibt, den sie selber auch dazu beitragen können. Und insofern, quasi, sind sie auch eben, bis zu dem sehr hohen Anteil selbst dafür verantwortlich wie es ihnen geht." ["Well, you have to point out that it is a disease but that there are also a lot of things they can do on their own. This means, somehow they are responsible for how they are feeling to a large extent."]
S. 41:40-0: „Was man vielleicht abschließend sagen kann, oder soll, oder muss, ist, es gibt natürlich kein Kochrezept. Weder im Umgang, noch in der Behandlung. Ich glaube, die Osteopathie ist sicher eine der geeignetsten Methoden, um Migräne erfolgreich behandeln zu können, weil sie einfach die Möglichkeit hat, den Patienten genau zu zuhören. Verbal und auch das, was sein System bietet. Und wenn man das lesen kann, versteht was sich da tut, ja, also zumindest bis zu einem gewissen Ansatz, und darauf zugehen kann entsprechend, dann gibt es sicher eine Möglichkeit da was zu tun, therapeutisch. Das ist einfach der Vorteil den die Osteopathie hat. Deshalb glaube ich, dass es sicher, wie die Akupunktur auch, eine der geeignetsten Möglichkeiten überhaupt ist, Migräne zu behandeln." ["Finally one can or even should state that there is no recipe. Neither in dealing with it, nor within treatment. In my

opinion osteopathy is one of the most suitable approaches to treat migraine successfully since it is possible for osteopaths to listen to the patients very closely. Verbally and also to what his or her system is telling you. And if one can understand what is going on, at least to a certain point, and is able to react properly, then there is surely a way for therapy. That is the advantage of osteopathy. This is why I believe it is, as well as acupuncture, one of the most suitable possibilities to treat migraine."]

3.4 Summary of the interview with expert B. (female)

In the following the interview with expert B., which was conducted on the basis of the interview guideline mentioned above, is summarized.

3.4.1 Anamnesis and clinical examination

3.4.1.1 Anamnesis

B. asks those that patients who suffer from migraine and that consult her about the exact course of their migraine. Whether it is accompanied by nausea or diarrhea or if circulation problems occur. She collects hints that she analyses in more detail during the subsequent clinical examination. Furthermore it is important to her to find out whether food is a trigger and if there is any histamine intolerance. In addition to that she tries to find out if there were any injuries of the coccyx in the past and if due to such injuries there is a possible interrelation with migraine symptoms via fascias and dural tension. Furthermore she investigates whether there is any hormonal involvement. If yes, she examines the urogenital area precisely during the clinical examination. Additionally she tries to find out whether stress could be another trigger factor as well and pay attention to the patient's eyesight; has it possibly declined or are the glasses no longer correct? Usually the patients that come to see B. because of migraine have already been examined by conventional medical practitioners. However, in case of altered or new symptoms she advises them to see a doctor.
B. 3:40-3: Ja, wenn es eine neue Art von Migräne wäre. Also wenn er sagt, ich hatte immer die und die und die Migräne, aber jetzt kommt das und das dazu, dann würde ich ihn sofort zur weiteren Abklärung schicken. [Yes, if it was a new form of migraine. I mean, if he said I always had this and that form of migraine and now something new arises I would immediately tell him to see a doctor again.]

3.4.1.2 Clinical examination

During clinical examination she checks in the visceral model whether there are any tensions in liver or gallbladder and how mobility and density of these areas feel like. In case of hormonally-conditioned migraine she examines the urogenital area (above all hypophysis, ovaries). Concerning the structural level she pays close attention to spine, C0-C1, sacrum, pelvis and coccyx. In regard of the thoracic spine she checks mainly those areas that correspond to liver and gall. Craniosacrally and structurally she examines mandibular joint, sphenoid and SSB.

B. 6:20-8: "Und in der Wirbelsäule, also jetzt vom strukturellen, besonders Kreuzbein, Becken, Steißbein, C0, C1, eh klar. In der Wirbelsäule auch natürlich den Bereich der Leber, Galle präsentiert, in der Brustwirbelsäule. Also bei den Lendenwirbeln schau ich jetzt nicht besonders genau, sondern grad nur so, dass ich weiß, ist eine gröbere Blockade, ja oder nein. Aber hoch zervikal sehr genau" [And concerning the spine, from a structural part, especially pelvis, coccyx, C0, C1, of course. And of course also liver and gall, presented in the thoracic spine. Regarding the lumbar vertebrae I don't look that closely, just close enough to find out whether there is severe blocking yes or no. But higher up cervically, very closely.]

On the craniosacral side especially the aspect of dural tension is particularly important to her.

B. 6:40-7: "Und was vom kranio- Bereich noch wichtig ist, die ganze Dura Spannung. Ob da vielleicht eine besondere Spannung von irgendwo anders, eben von ganz unten oder irgendwo dazwischen kommt, die einen Einfluss hat." [And what is important in the cranio-field is the dural tension. Whether there is a specific tension, coming from somewhere else, from the bottom up or from somewhere in between, that has an influence.]

From B.'s point of view in the case of migraine patients, muscular dysbalances, mainly in the upper cervical area, are very striking; by all means more striking than in the case of cervical-spine-patients. She encounters the upper part of the thoracic spine stiff either in extension or strong kyphosis.

B. 7:37-7: „Ich glaube, ich habe kaum einen Migränepatienten gebaht, der nicht hoch cervical oder in der oberen Brustwirbelsäule irrsinning steif und grad ist oder diese starke Kyphose hat und damit ganz verpacken ist. Und hoch cervical hat jeder irgendeine Verspannung." [I think I've never faced any migraine patient that wasn't or

still is extremely stiff, cervically or in the upper thoracic spine or has this strong kyphosis. And further up cervically everyone has some sort of tension.]

3.4.2 Migraine- a vascular, neurochemic, myofascial, mental, structural, hormonal problem?

B. is mostly inclined to the vascular aspect and thinks that the causes may very well be found in another area, but that the effects surface mainly in the vascular area. However, the hormonal aspect is an important one for her as well. According to her the human psyche has no influence and she has not experienced migraine patients to suffer from depressions more often than others do.
B. 10:50-0: "Also vaskulär ist es sicher. Aber warum die vaskulären Systeme da so reagieren, die Ursachen, die sind recht unterschiedlich. Also hormonell ist sicher. Also das weiß ich, dass es sehr viele Migränen gibt, die hormonell kombiniert sind, gibt. Ich würde jetzt mal sagen, (Pause), neurochemisch ist für mich nur der Übertragungsmechanismus. Aber natürlich, wenn man Gifte zu sich nimmt, oder manche kriegen es natürlich über irgendwelche Nahrungsmittel, die auf die Nerven wirken. Ich glaube ich könnte zu jedem, habe ich ein, alles dabei. Aber letztendlich glaube ich schon, dass alle diese Dinge auf das vaskuläre System einwirken. Und dann, damit, widerspricht es sich für mich nicht, ob es hormonell oder vaskulär ist." [Well, I'm sure it's vascular. But why the vascular systems react like that has quite different causes. And I'm sure it's hormonal, too. I know that there are many migraines that are hormonally combined. I would say (pauses) neurochemical is from my point of view only the mechanism of transmission. But certainly, if you take in toxins or some people consume them via certain foods that affect the nerves. I think I could, everything is included. But in the end I think all these things affect the vascular system and from that point of view there is no contradiction whether it is vascular or hormonal.]

3.4.3 Treatment techniques

B. applies the following techniques:

- 33% structural
- 33% biodynamic and craniosacral

- 33% visceral

Concerning structural work she frequently applies muscle-energy-techniques and balance-techniques, because, as mentioned above, she encounters strong muscle tensions in the area of C0-C1. Furthermore she often finds muscular trigger points in the sternocleidomastoid and the trapezoid muscle. She tries to mobilize structural blockings of the coccyx and the pelvic ring. B. does not manipulate C0-C1, as for her muscular problems play the central role. However, she manipulates the blockings of the thoracic spine.

B. 15:40-2: „Nein, aber es widerstrebt mir, weil ich glaube, dass es sich durch die Muskeln, es ist nicht, durch eine Bewegung, sondern durch diesen Schmerz, verzieht es sich dort so. Und darum denke ich mir, löse ich es sicher nicht mit Gewalt auf. Also das widerspricht mir, widerstrebt mir. Ich mein, wenn jetzt einer beim Autodrom fahren, und nachher hat er plötzlich Kopfweh, dann würde ich ihn schon manipulieren. Aber Migräne irgendwie" [No, I'm against that, because I think it's because of the muscles and not because of some sort movement, because of this pain that it comes to shifts there. And I think, I certainly won't loosen the blockings forcefully, I reject that. I mean if somebody has a headache after a ride on the autodrom (some kind of leisure time motor-racing; translator's note), I would definitely manipulate him. But in case of migraine.]

Concerning the visceral field, she frequently resorts to the liver-pump technique, as there is very often a congestion of the liver. However, if the hormonal aspect is in the foreground, she harmonizes along the hormonal axis. In case of patients, who suffer from food intolerances, she treats the whole intestinal area employing the visceral model.

B. 17:07-9: „Also bei einigen Patienten, wo es auch mit Nahrungsmittel Unverträglichkeit einhergeht, und das spürt man aber dann auch gleich. Da zieht es dich gleich zum Darm hin, da behandle ich auch den Darm, und die ganzen Verklebungen. Dünndarm auf Dickdarm, und den Dickdarm an sich, und diese, ja, diese ganzen Veklebungen". [Well, in case of patients where it is accompanied by food intolerance, that's something you feel immediately. Then it draws you to the intestinal area immediately and then I directly treat the bowel and all those adherences. Small bowel to large bowel and the large bowel itself and yes, all those adherences.]

For the treatment of the hormonal axis she likes to resort to the biodynamic and craniosacral model and furthermore those techniques that affect the dural system. She treats the SSB and tendorium by means of craniosacral techniques, if she detects any tensions there. In addition to that she balances the sacrum if it is in a malposition. In case there are problems concerning the venous drainage from the head and she can feel density in the thoracic outlet area, she tries to relax the diaphragm, in order to improve the permeability. Furthermore she aims at opening the jugular foramen, at relaxing the superficial cervical fascia and at treating clavicle, first rib and pectoralis minor. And finally she applies a sinus drainage using cranial techniques according to the craniosacral model.
B. starts her therapy of migraine patients away from the head and applies the techniques rather carefully, in order not to trigger anything. She only does what the patient really needs and uses only few techniques; also in order to find out if and how the patient responded to them.

3.4.4 Treatment intervals

B. adjusts the treatment intervals to the techniques she uses during the first treatment. If she works mainly structurally during the first session, she tells the patient to return after two weeks. In case the patient has suffered from migraine for many years already, the intervals are longer. If she is afraid of having stirred up something she tells the patient to return after only one week. On average the intervals are from two to five weeks. After about five treatments the interval can lengthen up to two months.

3.4.5 Measures in addition to the osteopathic treatment

B. thinks that traditional Chinese medicine and homeopathy are useful additional measures.Furthermore she thinks that Shiatsu and Ayurveda treatments are helpful measures.
B. 32:33-1: „… damit diese Funktionskreisläufe und diese Energiebahnen wieder normal funktionieren." [… in order that these functional circuits and energy pathways run normally again.]

She recommends nutrition counseling if food intolerance is the cause. In case of migraine triggered by stress, she advises her patients to see a conversational therapist. According to her infiltrations into the sub occipital area have a negative influence on the osteopathic treatment, because it is difficult for her to work with muscle and fascial techniques in this area in that case.

3.4.6 Does the osteopathic treatment have a positive effect on migraine?

B. is sure that osteopathy can successfully treat migraine and even achieve its disappearance. However, she also experienced that the osteopathic treatment turns out to be inefficient. According to her this is the case when patients are not ready for collaboration.
B. 35:03-7: "Ich habe auch erlebt, dass es ganz weg ist. Vor allem bei Jugendlichen und Kindern. Bei Erwachsenen die Frequenz deutlich reduziert wird. Aber ich habe auch schon erlebt, dass überhaupt nichts geholfen hat. Das habe ich auch schon erlebt." [I witnessed cases where it totally disappeared. Especially adolescents and children. Regarding adults usually a significant decrease of frequency can be achieved. But I've also experienced cases where it did not help at all. That's what I've experienced as well.]

3.4.7 Interaction therapist-patient

B. thinks that migraine patients demand a special form of interaction, because the therapist depends on his/her patients' collaboration in such cases, for example if patients have to make dietary changes or if they have to do something against their feeling of stress. To B. it is particularly important to explain her patients exactly what she is doing and how all factors interdepend and interact in order to motivate them.

3.5 Summary of the interview with expert A. (male)

In the following the interview with expert B., which was conducted on the basis of the interview guideline mentioned above, is summarized.

3.5.1 Anamnesis and clinical examination

For A. it is important that patients are examined by a conventional medical practitioner beforehand. Otherwise he does not treat them, as he lacks necessary and important information. He regards himself as being one part of a bigger network.
A. 1:45-5: „*Wenn sie nicht schulmedizinisch abgeklärt sind, würde ich sie auch nicht nehmen, weil, ich brauche Informationen und das ist wichtig für den Osteopathen. Wir sind ein Teil eines Netzwerkes, und wenn zu mir ein Patient kommt, sagt, nein ich war noch nicht beim Arzt, würde ich ihn auch nicht nehmen, weil die Migräne ist, unter Anführungszeichen Migräne, ein sehr komplexes Bild.“ [I would not treat them, if they didn't see a conventional medical practitioner and had not done all necessary investigations before, because I need information and that is important for an osteopath. We are part of a bigger network and if a patient came and said, no I haven't seen a doctor yet, I would not take him, because migraine, migraine in inverted commas, is a very complex picture.]*
If the patient has been examined by a conventional medical practitioner beforehand, he asks in anamnesis precisely how often and since when the patient has suffered migraine attacks and if the patient can remember when they occurred for the first time, if that was before or after puberty and if he can think of any specific trigger that caused the disease.

A. conducts a short neurological test, which implies a sensibility test and has a look whether nystagmus occurs. Furthermore he checks the patient's tooth-position as well as the mobility of the upper and lower cervical spine. He asks the patient if he/she suffers from defective vision, checks the function of the eye muscle and asks the patient if he/she suffers from chronic sinusitis at the moment or if he has ever suffered from it. Furthermore he asks whether he/she had an operation of the nasal septum and if he/she is prone to infections of the middle ear. In addition to that he tries to find out all about the traumata that have occurred since the patient's birth and if the patient has any information about his/her own birth. As distinct from patients who suffer from headache or cervical spine disorders, A. always detects malpositions or muscular dysbalances in cervical spine and upper thoracic spine in case of migraine patients.
A. 3:32-2: „Alle. Ausnahmslos, alle.“ [All. All without exception.]

3.5.2 Migraine- a vascular, neurochemic, myofascial, mental, structural, hormonal problem?

For A. the vascular aspect plays the most prominent role. He assumes that a "derailment" of the system is the cause for migraine and looks for combinations that allow conclusions concerning the reasons for this derailment.
A. 4:44-2: Eine Ursache kann zehn Auswirkungen haben. Eine Auswirkung zehn Ursachen. Ja, ich glaube nämlich nicht an irgendeine Struktur. Weil so was gibt es nicht, leider. Denn sonst wäre es ja für uns und die Mediziner die Sache ganz einfach. Also ich sehe welche Kombinationen sich da aufgebaut haben, die zu einem Migräne Fall geführt haben. Also, man beginnt mit der Struktur, dann schaut man die knöcherne Struktur, im Vergleich zum Hirn bzw. zum Duralsystem. Dann das Duralsystem, inkludierend das venöse System bzw. Sinuse." [One cause can have ten effects, and one effect ten causes. Yes, because I don't believe in one structure, unfortunately something like that does not exist. Otherwise everything would be so easy for us and the physicians. Well, I see combinations that have established and that have led to migraine. You start with the structure, then you take a look at the bony structure, as compared to brain or the dural system, respectively. An then you turn to the dural system, including the venous system and the sinuses, respectively.]
A. thinks that there are some forms of migraine that are caused by a vasculitis. In such cases he closely collaborates with conventional physicians.
As a next step he tries to find out which inner organs affect the system or can evoke a membranous reaction via the autonomic nervous system, respectively. He regards extreme dysfunctions – intratentorial and underneath the tentorium cerebella- as a further important factor in the case of migraine patients. He detects massive compressions in the area C0, C1, C2 and in the area of the sinuses, which are caused by development and growth. Again this is a matter of combinations that have established over the course of time. He looks for causes and effects and thereby follows an order that arises from his osteopathic viewpoint.
Concerning the visceral area, A. frequently encounters a dysfunction in the upper abdomen. Very often he detects abnormities in liver and gall, but sometimes also in the duodenum.
A. 8:13-5: *„Duodenum ist für mich noch ein sehr wichtiges Organ. Wir wissen, dass relativ viele Stoffwechselzonen vorhanden sind, im Duodenum. Und da kann auch eine massive Dysfunktion stattfinden. Und die Synchronisation im Bereich des*

Stoffwechsels ist deutlich spürbar. Also, Dudenum würde ich nicht vernachlässigen“ [The duodenum is another important organ for me. We know that it contains several metabolic zones. Massive dysfunctions can occur there. And the synchronization in the metabolic areas is clearly perceptible. I would not neglect the duodenum.]
Stress may be one of the causes, too.

3.5.3 Treatment techniques

A. applies the biodynamic model 100%.
A. 10:37-7: *„es ist für mich die Technik, wo man nur beobachten muss, wie sich der Körper reguliert. Die Diagnose ist viel präziser, die Differenzierung ist viel präziser. Und selbstverständlich, der Körper freut sich sehr, wenn er selbst arbeiten darf, sozusagen, und wenn nicht in einer oder anderen Art manipuliert wird.“*
[For me it is a technique where you just have to observe how the body regulates itself. Diagnosis is much more precise, differentiation is more precise. And of course the body is happy, when it can work by itself and is not manipulated in one or the other way.]
In A.‘s opinion the biodynamic model gives precise information about the patient’s condition. From his point of view it is not possible to talk about “techniques” in regard of the biodynamic model. He thinks that by means of biodynamics he is able to carefully follow each level step by step and layer by layer and thus is able to establish a more precise diagnosis. Like that he can clearly differentiate in terms of causes and effects.
A. 12:09-8: „*Also Techniken aus dem biodynamischen Bereich, das ist einmal falsch ausgedrückt. Es gibt keine Techniken. Es gibt einfach die biodynamische Osteopathie. Techniken gibt es nicht. Das heißt, währenddessen ich, ich kann sehr deutlich differenzieren. Also ist es, in einem, also diese Kombination eine Ursache zehn Auswirkungen, eine Wirkung, zehn Ursachen.“ [Biodynamic techniques is a wrong expression. There are no techniques. There is just biodynamic osteopathy. No techniques. That means, during that process I can differentiate very clearly. That means it’s one, I mean this combination one cause ten effects, one effect ten causes.]*
In addition to that he also investigates the fluid and lymph area as well as the visceral area and feels vitality and quality of the system. These are the parameters that give him indication of the patient’s condition. He re-examines these areas in every session

and makes notes about every single investigation. For A. it is important that concerning quality the patient makes great leaps forward from session to session.
A. 12:37-2: *„Also es geht immer um die Qualität“ [Well, it’s all about quality.]*
In his opinion a reaction is desirable after a treatment according to the biodynamic system.
A. 13:43-5: „*Es ist so. Wenn man die Biodynamik gut verstanden hat, ja. Man kann ja nur erwarten, dass eine Reaktion nach der Behandlung stattfindet. Das heißt, der Patient besitzt noch eine Reaktionsfähigkeit. Also, eine Erstverschlimmerung, das ist selbstverständlich. Die soll auch statt finden, in irgendeiner Form. Und das wird dem Patienten erklärt und gesagt, bitte wir erwarten eine Reaktion, ich hoffe sie kommt. Das heißt, dann hat der Körper die Kapazität aus seinem alten Muster heraus zu kommen, und wieder in Richtung Besserung sich bewegen. Richtung, in die Gesundheitsebene hinein zu kommen, zu einer Stabilisation, zu einer Synchronisation der Systeme.“ [It‘s like that. If one has really understood biodynamics, yes. One can only wait for a reaction to occur after the treatment. That means that the patient still has got the ability to respond. An initial exacerbation, that’s natural. That should happen in some way. And you explain the patient, ok, please, we are waiting for a reaction, I hope it will occur. That means the body has the capacity to come out of its old pattern and move towards improvement, towards a healthier level, towards stabilization and a synchronization of the systems.]*

3.5.4 Treatment intervals

A. treats his migraine patients every three to four weeks, whereby it is always important to him that his patients make qualitative leaps forwards. These are indicators for him when the next treatment shall be scheduled.

3.5.5 Measures in addition to the osteopathic treatment

For A. the most important additional recommendation for patients with migraine is breathing exercise, because this leads to an improvement of the tissue’s supply with oxygen. Furthermore he thinks that singing is helpful, as it brings vibration into the system.

A. 17:10-8: *„Vibrationen, mobilisiert das ganze Lymphsystem, mobilisiert die Stimmung.“ [Vibrations mobilze the whole lymph system and raises spirits.]*
A. experienced, too, that psychic strain has a negative influence on migraine, as it can trigger attacks. However, he could not detect that migraine patients suffer from depressions more than other patients do.

3.5.6 Does the osteopathic treatment have a positive effect on migraine?

A. 20:04-5: „*Ja, ja, ja, ja, ja, ja“ [Yes, yes, yes, yes, yes, yes.]*
A. found out that some patients even became totally free of complaints after being treated by means of the biodynamic system.
A. 20:31-6: „*Also aus meiner Praxis kann ich sagen, sind wirklich Patienten, die nie wieder Migräne hatten. Aber die haben hart gearbeitet von ein bis zu eineinhalb Jahren*“ *[From my experience in practice I can say there are really patients who have never suffered an attack anymore. But they worked really hard for it, from one to one and a half years.]*

3.5.7 Interaction therapist - patient

To A. the interaction between therapist and patient is of great importance. In case of migraine patients one has to be especially mindful and to care for body, mind and soul. One has to pay very much attention to what the patient says, as those things are important hints for the individual advice the therapist gives.
A. 22:07-9: „Und man muss immer schauen, und schauen, welche Ebene Vorrang hat. Sei es die körperliche, die seelische oder die geistige Ebene. Und dann weiß man, wenn man biodynamisch arbeitet, auch wo ist der Schwerpunkt in der Therapie in diesem Fall“ [And one has to look carefully, which are the levels that are most prominent at a time. Be it the bodily, the emotional or the spiritual level. And then, if you work with biodynamics, you know where the focus in therapy has to be placed on.]

3.6 Summary with the expert P. (male)

In the following the interview with expert P. which was conducted on the basis of the interview guideline mentioned above, is summarized.

3.6.1 Anamnesis and clinical examation

3.6.1.1 Anamnesis

During anamnesis gathers exact data concering the course of migraine. When, whereby and how it started. Which pattern it shows. Thereby he does not consider trigger factors very important. P. thinks that in case of 40% of patients it is not obvious what triggers it. If any, P. considers the hormonal system or stress a trigger factor. He doesn't encounter nutrition a trigger. The patients which see him have been well examined by a conventional medical practitioner due to their long course of treatment.

3.6.1.2 Clinical examination

During the clinical examination P. considers it important to check the patient from head to toe.

P. 2:53-1: *„Einmal rauf und runter und einmal alles durch"[One time up and down and one time thoroughly]*

He dedicates special attention to the pelvic area and thereby above all to the sacrum.

P. 2:13-7: *„Kreuzbein ist das allerwichtigste"[The sacrum is most important.]*

In case of migraine patients, he considers the approach to examine the patient from head to toe very important. In case of a headache he examines the area where the pain is situated, more locally. P. does not think that migraine patients have more malposition or muscular dysbalances of the cervical spine or the upper thoracic spine than other patients.

3.6.2 Migraine – a vascular, neurochemic, myofascial, mental, structural, hormonal problem?

P. considers migraine a mixture of different causes. He uses a good example to describe this system in which all things influence each other:

P. 05:07-0: *„Zum Beispiel eine verdrehtes Kreuzbein, das einen Zug auf die Gehirnhäute ausübt. Durch die falsche Statik, Blockaden kreuzen quer durch die*

Wirbelsäule. Irgendwann hervorgerufene Blockaden von ersten Rippen, die dann den ganzen Tonus in der Halswirbelsäule verschlechtern. Die Mechanik der Halswirbelsäule verschlechtert, dadurch eine verschlechterte Gehirndurchblutung, plus irgendwelche seien es toxische Überspannungen in Gehirnhäuten. Irgendwelche traumatischen Blockaden von Schädelnähten, da kommt ein System aufs andere drauf. Ich hab das Gefühl, dass man wirklich erst im Nachhinein, wenn es den Patienten sehr viel besser geht, dass, es quasi dann den einen Tropfen gibt, der das Fass zum überlaufen bringt. Wo dann Frauen beim Zyklus plötzlich, kippt das System, weil es eben hormonelle Schwankungen gibt. Und dadurch kommt die Migräne. Die käme gar nicht, wenn eben diese ganzen Läsionen nicht da wären.“ [For example a distorted sacrum which puts a strain on the cerebral membranes. Because of faulty statics, blockades traverse across the spine. Blockades of the first ribs once evoked, which then pejorate the tonus of the cervical spine. The mechanic of the cervical spine worsens, thereby the blood flow in the brain is worsens, plus be it some toxic surge of the cerebral membranes.
Some traumatic blockades of cranial sutures, then one system follow the other. I think that only afterwards,wen the patient feels a lot better, that there is a last straw that breaks the camels back. In the case of women during the cylce suddenly, the systems tips over, because there are hormonal oscillations. And thus the migraine starts. It would not start if it wasn’t for all these lesions.]

3.6.3 Treatment technique

P. uses structural, biodynamic, cranciosacral and visceral techniques to the same extent while working with migraine patients. He does not specify a certain percentage. His personal concept consits in determining the treatment in two to three therapy sessions. In every session he proceeds as follows:
1. Therapy session: During the first therapy session P. works structurally on the pelvis, whereby the sacrum is of great importance to him.
P. 06:36-7: „*Vorlauf Test, Beinlängen Test, schau mir mal das ganze Becken an. Habe eine extreme Kreuzbein Affinität, da kommt fast keiner raus, ohne dass ich am Kreuzbein irgendwas mache.“ [Forerun test, leg length test, I take a look at the pelvis. I have a real affinity to the sacrum, next to noone gets away with me doing nothing on the sacrum]*

He cannot find a specific pattern of lesions for the position of the sacrum in case of migraine patients. P. diagnoses the pattern of lesions of the sacrum via the fascial system with the aid of respiration.

P. 7:21-0: *„.Also, einatmen, ausatmen lassen. Und so wie das Kreuzbein fascial in der Ausatmungsphase hinein, sich dreht, das verwende ich quasi zu Grunde liegend, für die Korrektur. Und seither habe ich die stabilsten Befunde im Gegensatz zu Vorlauf Test und Sulcus und Angulus und hin und her. Also, seitdem ich das nur noch fascial teste, habe ich das Gefühl, ist es wirklich eine eindeutigere Aussage.“ [Letting them breathe in, breathe out. And just as the sacrum turns fascially during the phase of respiratio, this is what I use as a basis fort he correction. And since then I have the most stable findings, contrary to forerun test and sulcus and angulus and so on. Since I limit myself to fascial test, I have the feeling of gaining a more unambiguous information.]*

For correction he likes to use Mitchell-techniques.

P. 05:18-3: *„Also ich hab das Gefühl, dass die, dass seitdem ich das Becken mit involviere und extrem viel Arbeit am Kreuzbein mache, dass es seither ein extrem hoher Prozentsatz von Langzeit-Migräne-Patienten ist, denen es wirklich besser geht.“[I have the feeling that there is an extremely high percentage of long-term migraine patients who feel much better, since I started involving the pelvis and do a lot of work on the sacrum.]*

Furthermore, in the first session the entire abdominal area and the diaphragm. But he did not observe a certain abdominal organ being affected more frequently. He treats what he finds. At the end the biodynamic model results in a basic adjustment.

2. Therapy session: During this therapy session P. tests the entire spine structurally, starting at the coccyx up to head and loses blockades he finds. On lumbar spine P. works with lumbar-roll- and contract-release-techniques. On the throracic spine P. often manipulates, and losens the blockades of the cervical spine with functional mobilisations, tries to reach the point of release until it reopens. According to P., in case of migraine patients the first ribs are blocked nearly 100%. The patients feel immediate relief when the first rib becomes unblocked (e.g. using Mitchell-techniques and the cervical spine is functionally mobilized. He considers the blocking of the atlas as compensation, due to the malposition of the first rib.

At the end of this session he works craniosacrally applying the craniosacral model.

P. 9:58-0: *„Da mache ich dann eine Dura-Rebalancing am Schluss, aus der Kranio quasi dieses Synchronisieren von Occiput und Sakrum, und das schön zu integrieren.“ [At the end I’m rebalancing the dura, from the cranio, effectively the synchronisation of occiput and sacrum, in order to ingetrate it nicely.]*
3. Therapy session: In most cases the first two sessions are sufficient. If not, a third therapy session is carried out. During this sesion P. works nearly exclusively according to the craniosacral model. He start with a cranio-structural approach, tests the mobility of each skull bone, loses the sutures, proceeds to the level of fluids and then works mainly on the cerbral membranes. He concludes the therapy session biodynamically, in order to integrate everything.
P. 11:34-6: *„Im Grunde ist die Motivation das System so gut wie irgend möglich auf die Beine zu stellen, und das von Kopf bis Fuß“ [It’s basically the motivation to set up the system as good as possible, from head to toe]*

P. does not treat migraine patients more cautiously than other patients. The osteopathic treatment can cause a reaction in the patient and trigger and additional migraine attack. Previously to the treatment he explains to the patient that a reaction might occur, normally the patients agree.

3.6.4 Treatment intervals

In case of P. the interval of treatments is about five to six weeks. In case of long-term migraine patients, it is six to eight weeks. Normally he treats them two to three times.

3.6.5 Measures in addition to the osteopathic treatment

P. considers it important for his patients to do sports respectively weight training in the gym, in order to work on their posture and a stable circulaion. Additonally, endurance training would be good. He advises the patients to drink a lot and take mulitvitamine supplements, in order to cover possible deficites of nutrition. Referring to stress and relaxation, P. says:
P. 18:17-9: *„Also für mich ist es wichtiger, dass ich sie schmerzfrei bekomme oder die Ursache finde. Damit die dann in ein ruhigeres Leben hinein kommt, weil dann ein großer Stress weg fällt, und dann kommt sie ein bisschen mehr zur Ruhe.“[For me it is more important to relieve them of pain or find the cause. In order to make*

them have a calmer live, because a big stress disappears and they gain a little more peace.]

P. sees negative effects on the osteopathic treatements if patients resort to accupuncture simultaneously or attend the chiropractor. He prefers working with one system only. According to him, treatment becomes difficult, in case of medical intake and when patients start with the reduction of the drugs. This makes it hard for him to control the system.

3.6.6 Does the osteopathic treatment have a positive effect on migraine?

P. made the experience, that most migraine patients are free of complaints after two to three therapy sessions. In some cases a periodically occuring headache remains. But not in the form of the migraine attacks the patient had before. In rare cases he can only achieve that the attacks become less frequent and less intense. However, so far he did not have a patient, in whose case he didn't have any success with this approach. P. ask the patients for an anual follow-up check.

P. 14:04-1: *„Ich mach ganz gerne so Check- up´s. Jedes Jahr einmal. Wobei am Anfang, wenn wir so ultra Langzeitpatienten haben, mit vielen Therapien, dann sag ich meistens, kommen sie nach sechs Monaten wieder, und dann erst 3/4 Jahr und dann ein Jahr und dann zieht man das so auseinander.“[I like doing these check-ups. Every year. However, at the start, when we have these really long-term patients with many therapy session, I say, come back in six months and then three quarters of a year later and then one year and you lenghten the intervals.]*

3.6.7 Interaction therapist – patient

P. thinks that migraine patients should not be pitied to much, in order not to push them in to the role of the poor. It is better to encourage them to take the improvement respectively the healing of their migraine in their own hands, with the help of the therapist.

P. 20:33-5: *„Also indem ich versuche sie wegzuführen, ich bin ein armes, siechendes Hascherl, ja, sondern, ich sage, ok, und jetzt einmal Vollgas. Das man ihnen erklärt, ok, ich kann ihnen was anbieten. Wir haben Strategien, machen wir was“[By trying to lead them away from, I'm a poor, sick thing, yes, instead I say, alright, and now at full*

throttle. Explaining them, right, I can offer you something. We have strategies, let's go]
P. has not experienced migraine patients suffering from depressions more frequently than others.

3.7 Summary of the interview with expert R. (female)

In the following the interview with expert R. which was conducted on the basis of the interview guideline mentioned above, is summarized.

3.7.1 Anamnesis and clinical examation

3.7.1.1 Anamnesis

R. considers it important to ask in anamnesis: 1) Since when do the patients suffer from migraine, how often it occurs, whether it is accompanied by an aura, and whether vomiting is a factor of migraine. 2) For her it is important whether there is a genetic background, i.e. whether migraine occurs frequently within the family. 3) The third question about the trigger of migraine is especially important for her. Are there connections, e.g. intolerance of certain food, or do patients react with migraine to changes of the weather, whether there were certain traumata over the course of their life, how the trauma was triggered and whether the migraine started at this specific moment. This is important to her, because falling on the head or the back could have increased the tension of the dura, and because of this dural problem the vascular system of the head can be affected. A neurochemic disorder which also affects the vascular system could be another reason.
R. 27:50-1: *„Aber Dura Spannung ist ein ganz ein wichtiger Faktor bei Migräne Patienten." [Dural tension is a very important factor in case of migraine patients.]*
The migraine patients attending R.'s surgery have been previously examined by a conventional medical practitioner.
R. 1:50-7: *„Sie kommen zu mir, weil sie Migräne haben. Die Patienten haben schon Jahre lang Migräne und nicht erst seit einem Monat. Und, haben das sicher schon abgeklärt."[They come see me, because they suffer from migraine. The patients have had migraine for many years, not only for a month. And they have surely got themselves examined before.]*

3.7.1.2 Clinical examination

In clinical treatement R. tests the area of C0-C1 very carefully, and also the mobility and motility of the liver applying the visceral model. R. thinks that the liver plays a big role in case of histamine intolerance and allergies. She examines the SSB following the cranial model, the reciprocal tension membrane and the dura. Structurally, she places the focus on Th7 and Th8. The area of the thoracic spine, which associated to the liver. According to R., migraine patients do not have malpositions or muscular dysbalances of the cervical spine or upper thoracic spine more frequently than other patients.

R. 4:52-5: *„Nein. Würde ich jetzt nicht sagen, dass das häufiger ist.“[No. I wouldn’t say it’s more frequently.]*

3.7.2 Migraine – a vascular, neurochemic, myofascial, mental, structural, hormonal problem?

According to R. the cause lies mainly within the vascular and neurochemic area. She thinks that migraine is a neurochemic functional disorder, which has vascular effects. But she also sees hormonal factors and the psychy having an influence on migraine.

3.7.3 Treatment technique

R. treats migraine patients as follows:

- 70% biodynamic and craniosacral
- 15% structural
- 15% visceral

R. likes to start a therapy session with structural techniques. In case of a blocking of C0-C1 she sometimes manipulates. Dealing with older patients however or in case of having found a clue for a counterindication in examination, she prefers myofascial techniques. She treats the liver following the visceral model. If necessary, she manipulates the corresponding thoracic vertebrae.

R. 12:37-4: *„Wenn wir jetzt bei den strukturellen Techniken sind, C0, C1. Weil ich einfach finde, das geht manchmal so viel leichter. Wenn ich das strukturell wirklich auch öffne. Oder es kommt auf den Patienten an. Ob das ein älterer Patient ist oder*

irgendwelche, Gefahren, ja, Kontraindikationen. Dann würde ich C0, C1 eben myofascial, zum Beispiel myofascial machen. Viszerale, wie gesagt, weil die Leber für mich ein sehr wichtiger Punkt dabei ist. Und es kann auch sein, dass ich, wenn ich viszeral arbeite, koppel ich das auch oft, dass ich den dementsprechenden Wirbel dazu manipuliere“[Talking about structural techniques, C0, C1. Because I think this is sometimes easier. If I can really open it structurally. Or it depends on the patient. Whether it is an older patient or some danger, well, counterindications. In this case I would treat C0, C1 myofascially. Visceral, as mentioned, because I consider the liver an important aspect. It is also possible that I combine it, while working viscerally, I additionally manipulate the corresponding vertebra.]

In the visceral field she often finds a problem in the intestinal area. She balances sacrum and occiput according to the biodynamic or craniosacral model. She resorts to biodynamic techniques when working on the vascular system in the head area and on the hormonal axis (ovaries, hypohysis, thalamus,...), if she gained an indication in anamnesis that the migraine attacks depend on the menstrual cycle. She treats the malpositon of the SSB with cranial techniques. She frequently encounters a compression in this area. Additionally she often finds a compression and rotational malposition in the C0-C1 segment. R. thinks that caution is in demand in the case of migraine in order not to provoke an attack. She starts where she can find a lesion. This can be distal or proximal to the head.
R. 20:48-0: *„Ja. Nicht zu viele Techniken. Das finde ich gerade bei Migräne Patienten wichtig, dass man nicht zu viel macht. Weil die sind eh sehr heikle Patienten, Migräne Patienten.“[Yes. Not too many techniques. Especially in case of migraine patients I consider it important not to do too much. Because they are very delicate patients anyway, the migraine patients.]*

3.7.4 Treatment intervals:

R. does not assign different treatment intevals to migraine patients and other patients. She conducts the first two or three sessions at an interval of four weeks. Then she proceeds to an interval of six to eight weeks.
R. 18:22-7: *„Also ich fange an, dass ich so die ersten zwei, drei Behandlungen in vier Wochen Abständen machen. Und geh dann aber auf 6 bis 8 Wochen Abstände über,*

weil das allgemein mein Behandlungsabstand ist.“[I start off doing the first two or three sessions at an interval of four weeks. And then I proceed to intervals of six to eight weeks, because this is generally my treatment interval.]

3.7.5 Measures in addition to the osteopathic treatment

R. considers the combination of acupuncture and osteopathy good.
R. 22:32-2: *„Ich finde die Kombination Akupunktur und Osteopathie irrsinnig gut. Ich habe die Erfahrung gemacht, dass das wahnsinnig gut wirkt.“[I really like the combination of acupuncture and osteopathy. I experienced this working amazingly well]*
She also thinks that the entire traditional Chinese Medicine and homeopathy make a good combination with osteopathy. In case of patients who name allergies as trigger factors, R. believes traditional Chinese medicine to bring about better results than homeopathy. She considers it important, that patients try to omit certain food in order to asssess their influences on migraine attacks. As an example for such foodstuff R. names cheese, dairy and red wine. R. also thinks that the factor stress as a certain influence on migraine, but not to such an extent as nutrition.
R. 24:09-9: *„So wie Stress ein Faktor ist. Nur glaube ich nicht, dass das ein primärer Faktor ist. Bei Stress kriegen sie halt noch leichter Migräne. Dann haben die halt statt, 3 Mal im Monat Migräne, 10 Mal im Monat Migräne.“ [Just as stress is a factor. But I don’t think it is a main factor. Stress makes them even more like to get migrane. In this case they suffer from migraine ten times a month instead of three times.]*
R. cannot name treatments which have a negative mgirane. But according to her, weight training carried out incorrectly can be a problem.

3.7.6 Does the osteopathic treatment have a positive effect on migraine?

50% of patients do not suffer from migraine attacks anymore after R.’s treatment. In case of 30%, the intervals between the migraine attacks get longer and/or the intensity of the attacks diminishes. In the remaining cases she has to state that the treatment does not have any success.
R. 25:30-6: *„Auf jeden Fall. Also, wie ich vorher gesagt habe: 50 Prozent sind meiner Erfahrung nach so gut wie geheilt. Und bei 30 Prozent haben Frequenz und Schwere nachgelassen.“[Surely. As I have said before: 50 percent are as good as healed,*

according to my experience. And in the case of 30 percent, frequency and severity diminished.]

3.7.7 Interaction therapist - patient

In case of patients who have been suffering from migraine for many years and with a high frequency of attacks, the application of osteopathic techniques has to be carried out very delicately. It is also required to be very sensitive while dealing with these patients, because they suffer a lot. R. did not experience migraine patients suffering from depressions more frequently than others.
R. 26:29-3: *„Wenn einer alle zwei, drei Monate Migräne hat, dann ist das nicht so dramatisch. Aber wenn einer sehr häufig Migräne hat, dann ist er ein sehr leidender Typ. Und der braucht oft mehr Feinfühligkeit und mehr Aufmerksamkeit und mehr.... ja, sachte Behandlung." [If somebody suffers from migraine every two or three months, it's not that dramatic. But if someone has from migraine very frequently, they are very suffering persons. And they need more delicacy and more attention and more, tender treatment.]*

3.8 Summary of the interview with expert C. (male)

In the following the interview with expert B., which was conducted on the basis of the interview guideline mentioned above, is summarized.

3.8.1 Anamnesis and clinical examination

3.8.1.1 Anamnesis

For C., as being physician and osteopath, internistic findings are particularly important. Do the patients have circulation problems, do they suffer from hypertension, are they exposed to increased toxic strain? Furthermore he is very interested his patients' vaccinations, as he assumes that there is a connection between vaccinations and changes of the dura.
C. 1:53-2: „Und die Impfungen, gang wichtig. Weil Impfungen auch die Dura soweit verändern, dass ein neuer Reiz praktisch die Dura wieder triggern kann und dann kann es zu Auftreten von Kopfschmerzen kommen." [And vaccinations, very

important, because they cause changes of the dura in so far, as a new stimulus can trigger the dura again and then headache may be the consequence.]
Additionally C. asks his patients whether their migraine is accompanied by an aura or not and if there are any abnormities during the prodrome phase. The hormonal aspect plays an important role for him as well and he tries to find out whether it has an influence on migraine or not. Furthermore he asks his patients if they could detect any connection between lunar phases or changes in weather and their attacks. And if they have ever suffered a whiplash or any pulmonary diseases, as these can constrict the thorax via fascial tension and, as a consequence, can lead to the development of migraine.
C. 2:57-1: „Es ist weniger, bei Migräne, glaube ich weniger an Ursachen als an Mosaiksteinchen. Weil für mich das ein ziemlich ein komplexeres Thema ist." [It's less, in case of migraine I believe more in "pieces of a puzzle" than in causes. Because in my opinion that's a highly complex subject.]
He thinks that the psychosomatic aspect plays a very important role concerning juvenile migraine. But also in case of adults this aspect should not be disregarded. However, in case of adults this psychosomatic element is structurally overlaid a little more and surfaces only after a few treatments. C. detected a connection between migraine and depression.

3.8.1.2 Clinical examination

C. examines the patient by means of biodynamic palaption according to the biodynamic model. He pays special attention to the dura and watches out for possible compressions in this area and if he encounters some, tries to find out where it is compressed. In case of a total compression very often a general trauma in the past is the cause; for example a whiplash trauma or a cerebral concussion or a toxic cause. Subsequently he investigates the horizontal gates, applying the biodynamic model, in order to find out if the dura is compressed there. During the biodynamic palpation, he also checks whether there is a possible eversion or inversion blockade.
C. 5:27-9: „Klinische Untersuchungen, da gehe ich, in de biodynamische Palpationen, wenn du so willst. Das heißt, ich schau mir einfach vom Kopf an, was ich so spüre. Also der erste Eindruck ist es eine eversions oder inversions Blockierung. Eine Dura Kompression, das ist einmal das Erste. Ich nehme den Kopf

und schaue, ob er schwer ist oder nicht. Wenn der 50 Tonnen hat, dann weiß ich, hoppala, die Dura ist in einer schweren Kompression drin. Und da kann ich schon einmal anfangen, mich zu konzentrieren, wo könnte die Dura komprimiert sein. Und schau mir die horizontalen Gates an um zu schauen ob die Dura da komprimiert ist. Und wenn es aber eine total Kompression ist, im Kopf Bereich. Dann ist es meistens entweder toxisch oder auf Grund eines allgemeine Traumas, im Sinne, von Peitschenschlag, Commotio“ [Clinical examination, I go into biodynamic palpation, let's put it like that. That means, I look from the head what I feel. The first impression, is there an eversion or inversion blockade. A dura compression that's the first thing. I take the head and take look whether it's heavy or not. If it weighs 50 tons, I know, oops, the dura is in a severe compression. And then I can start to concentrate, where could it be compressed. And then I take a look at the horizontal gates and try to find out where the dura is compressed. And if it is a total compression, in the head area, then it's mostly toxically conditioned or caused by a general trauma, just like whiplash, commotion.]

C. states that in his opinion the dura is frequently compressed in case of migraine patients. He traces this back to blockades in the area of the tendorium; that these tensions compress an artery and when it is de-blocked, headache might be the result. According to him metabolism may be one of the causes as well, for example if the patient is slagged and thus acetose. This again leads to a vascular compression that opens due to an additional occurring factor and thus triggers pain, once more via vasodilatation.

C. also conducts a general vascular palpation by means of biodynamic palpation and very often feels a general vasoconstriction (a marker of latent hypertension proneness) in case of migraine patients. He thinks that these patients possibly suffer from a permanent psychic compression and that relaxation (e.g. on weekends) can lead to vasodilatation, which causes the headache.

C.7:33-1: „Da habe auch sehr oft Leute, die Migräne haben. Die dann oft in einer psychischen Dauerkompression drin sind, wo die Gefäße einfach zu sind. Und das sind dann die Leute, die die Migräne dann am Wochenende bekommen, wann sie sich entspannen können. Weil dann gehen die Gefäße auf, und dann haben sie die Beschwerden und Schmerzen. Solange sie zu sind, spüren sie eigentlich nichts.“ [I often have patients who suffer from migraine who are in a permanent psychic compression and whose vessels are simply closed. And these are the people who

suffer migraine attacks on weekends, when they can relax. Because that's when the vessels re-open and then they feel pain. As long as they are closed they feel actually no pain.]

Furthermore C. thinks that concerning mentally triggered migraine also a reverse pattern exists, namely Sunday-night-migraine.

C. 8:05-9: „Nein, das ist diese vor, vor ziehende Angst. Was wird morgen sein. Während die Wochen Migräne, Wochenend- Migräne ist eine Entspannungsmigräne." [No, that's this sort of fearful expectation of what's going to happen tomorrow. During the week migraine; weekend migraine is a sort of relaxation migraine.]

During the clinical examination C. also investigates the temporal bone, the skull base and the vertebral artery. He also examines the patients' eyes, as from his point of view problems in this area very often reflectorically lead to a tension of the occipital muscles which can trigger migraine as well. In his opinion migraine patients very often have malpositions and muscular dysbalances of cervical and upper thoracic spine.

C. 9:21-2: „Ja, Ja. Hundertprozentig." [Yes, yes. A hundred per cent.]

C. encounters whole chains of lesions in compression on the cervical spine, a whole number of vertebrae that do not move. Very often the cervicothoracic transition is affected as well. Many times compressions are associated with a rotation.

C. 15:59-8: „Ja. Der cervico-thoracale Übergang. Oft dann, es geht da in einem zick zack Muster rauf. Da habe ich einen auf der rechten Seite und einen auf der linken Seite. Den muss man in der richtigen Reihenfolge manipulieren, damit man die Kette wirklich auflöst. Wenn man nur so hinein manipuliert, dann geht es einfach wieder zu." [Yes, the cervicothoracic transition. Very often it takes a zigzag line. One is on the right hand side and the other one on the left. In such cases you have to manipulate in the right order in order to really loosen the chain. If you manipulate around just like that, it closes immediately again.]

He encounters the occipito-atlanto-axial (OAA) complex blocked as compensation on the left hand side in 85% of cases.

C. 10:03-2: „Und das, zu 85 Prozent haben sie das OAA auch auf der linken Seite blockiert. Warum das so ist, das weiß ich nicht." [And that, in 85% of cases the OAA is blocked on the left hand side. I really don't know why it is like that.)

3.8.2 Migraine- a vascular, neurochemic, myofascial, mental, structural. hormonal problem?

For C. in case of migraine the hormonal factor plays a prominent role, but the neurochemic as well as a mental aspect are important for him as well.
C. 12:58-0: „Eigentlich schon. Also, ich würde das Hormonelle sehr stark im Vordergrund haben. Das Neurochemische auf jeden Fall. Und das Psychische mit einer myofascialen Auswirkung dann." [Actually yes. The hormonal aspect is definitely in the foreground. And the neurochemic one as well. And the psyche with all its myofascial effects.]
C. regards the whole neuro-immune-humeral system as a unit in which one element influences the other. For him the only exceptions are toxic causes, such as vaccination damages or expired meningitides that trigger the dura in such a way that it goes into compression.

3.8.3 Treatment techniques

C. mostly works by means of the biodynamic model, followed by structural and visceral techniques. Biodynamically he mainly treats the dura and the level of fluids. On a biodynamic level it is very important to him to relax the dura, but also the area between dura and arachnoid, where he frequently encounters adherences. On a structural level he manipulates the spine. Via fascial flow or potency, respectively, C. can feel which of the vertebrae have to be manipulated.
C. 16:55-6: „Oft ist es so, dass mir die Potency den Weg zeigt. Das heißt, wenn ich Potency orientiert arbeite, nicht läsionsorientiert, dann habe ich von der Potency serviert kriegt, die Reihenfolge der Intervention. Wenn ich das nicht mache und Läsionsorientiert arbeite, dann manipuliere ich irgendwas und weiß nicht ob ich in der richtigen Reihenfolge bin." [It's the potency that very often shows me the way. I mean if I work in a potency-oriented and not so much lesion-oriented way, it tells me the order in which the interventions shall take place. If I don't do so, I mean, if I work in a more lesion-oriented way, I manipulate just something and I don't know whether it is the right order.]
Very often C. encounters blockades at the upper thoracic spine. However, cervical spine, sacrum and coccyx are not blocked that many times. In case of migraine patients C. sometimes detects a blockade of metatarsus or ankle joint that, according

to him, can lead to a lateralization of the midline and, as a consequence, can affect the head. Thereby he refers to the model of midline, Dunshirn 2006.
C. applies the visceral model to work on the organs of excretion, i.e. kidneys, liver, lymph and bowel, whereby the liver seems to be most important to him. Furthermore C. frequently discerns that omentum minus and gall duct are twisted, which leads to a congestion in liver and gall bladder.
If stress is one of the trigger factors, he pays special attention to the area of the sacral plexus and the hypogastric plexus and tries to achieve harmonization in this area.
C. 28:56-5: „Weil, oft ist es auch eine unterdrückt sexuelle Energie, oder auch eine Zwerchfellblockierung, die die Migräne auslöst. Das sind alles Dinge die wichtig sind. Aber ich bin ja kein Psychologe. Das heißt ich frage nicht, ob sie nicht schlafen will mit ihrem Freund oder sonst was oder irgendwie Dings. Das geht mich nichts an. Aber ich spüre dass das, sogenannte zweite Chakra, das heißt, diese Nervenkomplexe im unteren Bauchbereich, dass die bei der Migräne sehr wichtig sind.“ [Because very often it is suppressed sexual energy or a blocking of the diaphragm that triggers migraine. All these things are very important. But I'm not a psychologist. I don't ask her if she does not want to sleep with her boyfriend or something like that. That's none of my business. But I can feel that they, the so-called second chakra, these nervous complexes in the area of the lower abdomen that they are important in case of migraine.]
When C. treats migraine patients, he follows the potency to those areas where treatment is necessary. Thereby it is irrelevant if he starts proximal or distal to the head or not. The potency shows him the way.
C. 26:45-1: „So wie es sich anfühlt. Ich bin im Zentrum des Geschehens. Aber wenn das Potential mich weg führt, dann führt es mich einfach weg. Manchmal bei akuten Schmerzen ist es gescheit mit der Leber anzufangen oder mit dem Bauch.“ [The way it feels like. I'm right there in the middle. But if the potency leads me away, then it just leads me away. Sometimes, in case of acute pain, it is useful to start with liver or abdomen.]

3.8.4 Treatment intervals

C. treats migraine patients approximately every six weeks. He thinks it is no good to treat them too often, because there is congestion existent already.

C. 23:46-9: „Ich habe, ich hätte nicht da Gefühl, dass Migräne Patienten, eine, massive, weil alles was du ihnen zusätzlich als Energie hinein gibst, müssen sie zuerst verarbeiten. Migräne Patienten haben sehr gerne einen Stau. Wenn du zu sehr intervenierst, dann wirst du den Stau einfach auch vermehren. Darum bin ich nicht dafür, dass man die ziemlich häufig behandelt.“ [I have the feeling that in case of migraine patients, if you fill them with too much energy they have to process them at first. Migraine patients frequently have congestions. If you invest too much you will simply increase that congestion. That's why I'm against treating them too often.]
C. thinks that too much therapeutic input can have negative effects on migraine. All techniques should be applied carefully.

3.8.5 Measures in addition to the osteopathic treatment

C. thinks that every measure that leads away from the head is a useful additional measure, such as e.g. foot baths, Kneipp cures, matrix treatments and cupping. In case nutrition is one of the triggers, one should check out different foodstuffs with the aid of homeopathy, in order to find out which are the ones the patient does not tolerate. C. found out that milk and wheat are very often not tolerated. However, he noticed that glutamate intolerance is the most common one.
C. 19:10-7: „Und vor allem die Glutamate. Weil die dürften Gefäßreaktionen hervorrufen, im Sinn von einer Histaminaussschüttung, die dann zu einer lokalen Übersäuerung führen. Und zu einer Durchblutungsstörung, zu einer regionalen. Und dann kann es auch zum Kopfschmerz kommen.“ [And above all the glutamates. Because they seem to evoke vascular reactions in terms of histamine release which in turn causes overacidification and local circulation disturbance.]
C. thinks that - if carried out incorrectly - massages and yoga have negative effects.
C. 27:02-9: „Massieren, das schlimmste was es gibt. Und Yoga. “ [Massages, the worst thing possible. And yoga.]
Furthermore he states that crash diets can have a negative influence on mirgaine, too, because they can bring about changes in metabolism.

3.8.6 Does the osteopathic treatment have a positive effect on migraine?

C. clearly answers the question with yes.

C. 29:26-0: „Ich habe auch Leute die keine Migräne mehr haben.“ [I have patients who suffer from migraine no longer.]
Thus there are patients' whose migraine totally disappeared. However, C. also has patients whom he could not help.
C. 30:10-4: „Wo das Umfeld so stark ist, dass man eigentlich keine Chance hat.“ [When the environment so strong that you have no chance at all.]

3.8.7 Interaction therapist - patient

According to C. it is better to treat migraine patients not too cautiously, although he states that they would wish for that. He thinks that they tend to behave oversensitively. Under pressure they go down immediately. By means of using a biodynamic technique from the biodynamic model C. tries to accommodate them to their environment, make them to accept wideness in order to improve drainage. It is important to him that treatment is not too focused but takes into consideration a wide range of aspects.

4 Discussion of the treatment approaches mentioned in the expert interviews

The individual expert interviews that were summarized under chapter 3 of this paper, revealed impressive, but rather individual results concerning the different osteopaths' approaches of the treatment of migraine patients. As a next step it is important to interrelated these results and compare them to the available literature. Subsequently due to the accordances significant statements concerning “treatment approaches in osteopathy for the therapy of migraine” can be made. Furthermore it is possible to draw conclusions whether osteopathy is a useful method of treatment for patients who suffer from migraine. Additionally practical advice concerning the concrete osteopathic treatment of migraine patients, e.g. on which aspects the therapist should place special emphasis, can be gained.

4.1 Anamnesis

It is important for all my interviewees that their migraine patients have been examined previously by a conventional medical practitioner. Usually they come to see the osteopath after having suffered from migraine already for a long time.
If they have not been examined beforehand, the osteopaths tell them to see a physicians for further clearing investigations. Basically anamnesis does not differ very much from the anamnesis of other patients. All osteopaths ask patients about the precise course of the disease: How? How often? Since when? Was there any specific trigger? Is the migraine accompanied by an aura? For C. as a physician internistic findings are of particular interest, e.g circulation, toxic strain, vaccinations etc. For R. it is important whether there is a genetic background (cf. ch. 2.1.2). Four of the seven interviewees ask detailed questions about traumata in the past: were there any accidents? Falls? Operations? They found out that such traumata can secondarily lead to tensions in the dural system (Ligner 2008, Liem 2001). Six of the seven interviewed osteopaths consider the hormonal factor important (Müller 2007, Fukui 2008, WHO 2004). Furthermore most of them try to find out whether their patients‘ suffer from defective vision, food intolerances, stress, change of weather and dental problems (cf. ch. 2.5). This corresponds to Zvadinov 2003, Robbins 1994, Fukui 2008, Baumhackl 2007, Keidel 2007, Spannbauer 2008, Tuchin 2000.for C. the psychosomatic aspect plays a major role as well, especially in the case of juvenile migraine. A. asks if the patient has got any information about his/her own birth. To S. it is important to find out if the patient has had any operations in spinal anesthesia or epidural anesthesia because of possible influences on the dural system. Only for P. the trigger factors are not that important, maybe except for stress and hormonal contribution. All osteopaths agree that stress is a prominent trigger factor. B., P. and R. could not detect any connection between migraine and the development of a depression. By contrast, C. and M. experienced that there is a connection between migraine and depression (Breslau 2003, Keidel 2007, Spannbauer 2008).

4.2 Clinical examination

C., A. and M. examine the patient applying the biodynamic model. Thereby for M. the model of midline and the model of the craniosacral rhythm are an important orientation. C. pays attention to the dura, whether he encounters any compression in

the biodynamic model and conducts a general vascular palpation and feels where there are any spinal blockades. A. and M. conduct additional neurological tests, including sensibility testing of the cervical spine. For M. and P. the pelvic area plays an important role in clinical investigation. P. and S. thoroughly test their patients structurally from coccyx to head (cf. Still 1910). B., M. and R. consider it essential to structurally examine the upper cervical spine, and thereby mainly C0-C1 as well as thoracic spine (above all that part that is associated with the liver) (cf. Ligner 2008, Liem 2001, Gallagher 2005, Loza 1998 sowie Kap. 2.5.6). R., C. and A. frequently notice a compression connected to rotation in the upper cervical spine of migraine patients. According to P. in case of migraine patients the first ribs are blocked nearly 100%. C. sometimes finds a blockade of the metatarsus or ankle joint which can lead to a lateralization of the midline and thus affect the head. Concerning issue of organs that are problematic in case of migraine, there is great accordance between the interviewees as well. B., R., C., A. and S. detect that migraine patients show a decrease of mobility and/or motility of liver, gall and bowel. Most often these symptoms are to be found in the liver. A states that the duodenum can be impaired as well. C. pays special attention to all organs of excretion, i.e. kidneys, liver, lymph and bowel. The model of the craniosacral system places emphasis on SSB, sphenoid, reciprocal tension membrane, dural tension, temporal bone, vascular tension and jaw bone (Sutherland 1930, Ligner 2008, Liem 2001, Milne 1999).

4.2.1 Accordances concerning clinical examination

No matter which model the osteopaths apply to examine their patients, they all detect a problem in the area of the upper cervical spine, especially in the area of C0-C1 (Ligner 2008, Loza 1998). In terms of the visceral model there is major consensus regarding the liver. Except for P. this organ plays a central role for all interviewees. A third accordance regards the dura as a decisive factor in respect of migraine. This also corresponds to Ligner 2008, Loza 1998, Liem 2001.

4.2.2 Abnormities concerning the cervical spine

The answers to the question whether migraine patients more frequently show malpositions or muscular dysbalances of cervical spine and upper thoracic spine

were divided but clear. Four of my interviewees do not see any connection here. As R. puts it (4:52-5): *„Würde ich jetzt nicht sagen, dass das häufiger ist“*. *[I wouldn’t say that that’s more frequent.]* However, the other three are of the opinion that there is a connection. A. answers the question as follows (3:32-2): *„Alle, ausnahmslos, alle“ [All. All without any exception.]* and C. states (9:21-2): *„Ja, ja, hundertprozentig“*. *[Yes, yes. A hundred per cent.]*

Literature reflects these divided opinions as well. Studies by Hagino (1992), Kidd (1993) and Marcus (1999) revealed such a connection. Evers (2006) on the other hand could not detect this connection, whereby he does not rely on studies but interprets anatomic connections in his work: „Verspannungen der Nackenmuskulatur sind keine Trigger für die Migräneattacke sondern Ausdruck einer gleichzeitigen Mitaktivierung von Nervenzellen, die die Muskulatur des Nacken und Halsbereiches innervieren“ (Evers 2006, Seite 41). [Tensions of the neck muscles are no trigger of migraine attacks but an expression of a simultaneous co-activation of nerve cells that innervate the neck muscles.]

The problem in unambiguously answering the question about this connection mentioned above seems to be, that migraine often occurs in combination with tension headache or cervical headache. As for example C. puts it (12:27-0): „[…] *Dass der sowohl einen echten Kopfschmerz hat, als auch eine Migräne. Und es ist so, dass es oft in der Therapie dann so ist, dass zuerst die Kopfschmerzen verschwinden. Und zwar wirklich verschwinden. Er hat dann noch immer den Migräne Anfall, Fälle, die werden aber weniger heftig, in der Dauer. Und sind auch weniger häufig. Und dann muss man da weiter tun. Und da muss man dann meistens auf die toxische oder psychologische Ebene gehen. Das heißt, es gibt sowas wie einen zusammengesetzten Kopfschmerz, auch bei der Migräne. Und den Teil, den strukturellen Teil kann man relativ bald abbauen. Also, die Leute haben dann nicht mehr diese Konstanzen in den Beschwerden. […]“. [That he has real headaches as well as migraine. And it’s like that that in therapy the headache often disappears, and I mean really disappears. He still has the migraine attack, attacks, but they are less intense in duration. And they occur less often. And then you have to proceed, go to a toxic or psychological level. That means that there is something like compound*

headache, even in case of migraine. And that part, the structural part is easy to reduce. People don't have these constant complaints anymore. […]]
Thus the treatment of malpositions or muscular dysbalances of cervical spine and upper thoracic spine can lead to the disappearance of headaches and, as a consequence, can also change migraine pain.

On the whole it is difficult to assess up to what extent dysfunctions of the cervical spine is an additional trigger of a migraine attack. The statements and opinions on the part of the interviewees are ambiguous. Furthermore it seems as if in practice sometimes it would be hard to distinguish migraine from tension headache. Additionally the corresponding statements in literature are incomplete (lacking control groups (Hagino 1992), small numbers of test (Kidd 1993, Marcus 1999), no consideration of the current headaches (Kidd 1993)).

4.3 Factors of influence on migraine

In my interviews I asked the osteoptahs if migraine is a vascular, neurochemic, myofascial, mental, structural and/or hormonal problem. According to the answers the hormonal factor plays a major role for all interviewees (Müller 2007, Fukui 2008). For C., M. and R. the mental factor with all its myofascial expressions is important, too; as well as the neurochemic model (cf. ch. 2.4.4). By contrast, B. could not detect a psychic influence on migraine. B.,R. and A. put the vascular factor to the fore. However, all osteopaths agree that basically all the different factors could be relevant. One system influences the other. In this respect A. refers to the osteopathic philosophy of treatment: „*Eine Ursache kann zehn Auswirkungen haben. Eine Auswirkung zehn Ursachen. Ja, ich glaube nämlich nicht an irgendeine Struktur. Weil so was gibt es nicht, leider. […] Also ich sehe welche Kombinationen sich da aufgebaut haben, die zu einem Migräne Fall geführt haben. Also, man beginnt mit der Struktur, dann schaut man die knöcherne Struktur, im Vergleich zum Hirn bzw. zum Duralsystem. Dann das Duralsystem, inkludierend das venöse System bzw. Sinuse*". *[One cause can have ten effects, and one effect ten causes. Yes, because I don't believe in one structure, unfortunately something like that does not exist. Otherwise everything would be so easy for us and the physicians. Well, I see combinations that have established and that have led to migraine. You start with the*

structure, then you take a look at the bony structure, as compared to brain or the dural system, respectively. An then you turn to the dural system, including the venous system and the sinuses, respectively.]
All of them stress that everything interrelates (cf. ch. 2.8) and that this is the reason why detailed anamnesis and osteopathic examination are of such great importance. Only then the osteopaths can puzzle out where to begin. This is one of the reasons why osteopathy seems to be an appropriate and useful method of therapy for the treatment of migraine patients.

4.4 Treatment techniques

4.4.1 General information about treatment techniques

With the aid of the diagnosis the osteopath tries to improve the disturbed function of the tissue by means of certain techniques. Among the many available osteopathic techniques there are rather gentle ones but there are also manipulations by means of which the osteopath tries to re-establish mobility or motility, respectively. Which technique is chosen depends on diagnosis, the therapist's approach and his/her environment. It is one of the most important abilities of an osteopath to adjust and apply the right technique to the individual patient. There is no real division into cranial, visceral, venolymphatic or parietal osteopathy. How the osteopath works, i.e. what he/she concretely applies depends on time and case. However, one always has to respect the osteopathic principles in order to achieve lasting results (Liem 2002). An overview of all treatment techniques that are applied in osteopathy can be found e.g. in *Leitfaden Osteopathie* (Guideline osteopathy) (Liem 2002). Nevertheless I decided to categorize my interviews according to the treatment techniques used by my interviewees. This helped me in analyzing which osteopathic models the experts apply.

4.4.2 Frequency of osteopathic models applied

In my interviews I tried to get my interviewees to assign their treatment techniques to the osteopathic models "structural", "visceral", "craniosacral" and "biodynamic". Thereby could be revealed that usually all models are applied for the treatment of migraine patients and that many of the osteopaths even switch from one model to

another during one session. They hardly ever made a distinction between biodynamic and craniosacral model. Summarizingly the results of the interviews can be depicted as follows:

Expert	Structural model	Visceral model	Biodynamic and craniosacral model
S.	40%	20%	40%
B.	33%	33%	33%
R.	15%	15%	70%
C.		least of all	most of all
P.	equal in all models		
M.	20%	20%	50% biodynamic 10% craniosacral
A.			100% biodynamic

Fig. 3: Models of the osteopathic treatment

This diagram shows that the biodynamic-craniosacral model seems to be most important (Liem 2001, Sutherland 1930, Milne1999). Treatments following the visceral model seem to be applied least of all. This corresponds to literature again, where rather few indications to visceral techniques can be found either.

4.4.3 Structural model

Six of the seven interviewees manipulate or mobilize, respectively, those vertebrae they find blocked in the same way as Still 1930, Ligner 2008 and Gallagher 2005. R., B. and P. additionally apply muscle-energy techniques, contract-release techniques and balance-techniques. C. manipulates those vertebrae of the cervical spine that he finds in lesion, mostly in a compression-rotation-malposition. The cervicothoracic transition is frequently affected, too. Mostly he finds the left occipito-atlanto-axial joint as compensation. Furthermore he manipulates upper thoracic spine and metatarsus or ankle joint if he encounters them blocked during the clinical examination. P. structurally treats the pelvis, and therebyespecially the sacrum, by means of Mitchell-techniques. He treats blockades of the lumbar spine in a lumbar role position by means of contract-release techniques. Furthermore he manipulates the thoracic

spine and conducts functional mobilizations of the cervical spine. If necessary he loosens the first rib, again by use of Mitchell-techniques. M. uses structural techniques mainly in case of severe impairment, as this makes it easier to subsequently apply the biodynamic model. B. applies Mittchell-techniques and balance techniques in order to loosen C0-C1. In case of muscular tigger points she uses a contract-release technique. She mobilizes blockades of the coccyx and the pelvic ring and manipulates blockades of the thoracic spine. S. conducts spinal manipulations of the whole spine- depending on what she finds during the previous clinical examination. R. also manipulates those vertebrae she finds in lesion. However, in case of C0-C1 she additionally uses myofascial techniques.

4.4.4 Visceral model

The visceral model focuses on organs that have shown abnormities in clinical examination. S. assumes that the organ function can be improved by techniques such as mobilization of liver suspension or liver pump (in case of congestion). B., too, applies the liver pump in such cases and treats the intestinal area with its adherences in case of food intolerances. C. tries to untwist twistings of omentum minus with the gall duct, which can lead to liver congestions in order to achieve relaxation within the visceral model.

4.4.5 Craniosacral model

R., C., S. and P. pay special attention to a good function of the skull base (cf. Sutherland) which is particularly important according to the craniosacral model. P. tries to harmonize the mobility of the individual cranial bones and to release sutures and subsequently works on the level of fluids by use of the craniosacral model. To B. it is important to achieve a relaxation of the tendorium and a harmonization along the hormonal axis, which is both significant in the craniosacral model. In this sense she balances the sacrum. In case there are problems concerning venous drainage, she relaxes the diaphragm, the superficial cervical fascias and carries out a sinus drainage (cf. Ligner 2008). By means of interoral techniques S. tries to work on the skull base whereby she expects, according to the craniosacral model, a relaxation of the dura. All osteopaths agree that in the craniosacral model the relaxation of the

dura is of major importance. This corresponds to Ligner (2008), Loza (1998), Liem (2001). According to the interviewees there are several different techniques that can be applied in order to achieve a relaxation of the dura, such as interoral techniques, working on the sacrum, balancing/synchronizing sacrum and occiput.

4.4.6 Biodynamic model

The biodynamic model aims at a relaxation of the dura as well. With this in mind S., C., R. and M. apply this model in the treatment of migraine patients. Working on the level of fluids according to this biodynamic model is of great importance for C., M. and R. S. thinks that within this model a relaxation of the anterior transverse septum or of its onsets, respectively can be achieved which can have positive effects on migraine. To M. furthermore working according to the model of midline and working on the pelvis is important. M. considers feeling a strong longitudinal fluctuation important, which is a sign of vitality according to the biodynamic model. P. calls it making a basic adjustment. C. finds even further treatment approaches for the therapy of migraine in the biodynamic model: he loosens the area between dura and arachnoid where he frequently detects adherences and thereby achieves a relaxation of the dura. He pays special attention to sacral plexus and hypogastric plexus if stress is one of the trigger factors of migraine. Applying the biodynamic model, R. aims at harmonizing the hormonal axis (ovaries, pituitary, thalamus) and works on the vascular system of the cranial area. A. examines by means of the biodynamic model each level step by step and layer by layer in order to be able to clearly differentiate, where the problem is located. Thereby he investigates the level of fluid, lymph area and the visceral area. He orients himself by vitality and quality of the system, which is a highly important aspect in the biodynamic model.

4.4.7 Is it necessary to be particularly cautious?

Most osteopaths consider it important to be particularly cautious when it comes to applying the treatment techniques to migraine patients, because the system is overwrought anyway and thus migraine attacks may be triggered easily. However, P. and A. are of adverse opinion. According to A. in the biodynamic model an initial exacerbation is a sign that the patient's ability to react is still existent, i.e. that the body still has got the capacity of coming out of its old pattern and to move towards

improvement. A. and P. explain their patients in very much detail that due to the treatment certain reactions can set in.

4.5 Treatment intervals

Expert	Intervals	Number	Remarks
S.	4 - 6 weeks	Not specified	
B.	2 - 5 weeks		Depending on treatment techniques
R.	At first 4 weeks subsequently 6 -8 weeks	Not specified	No difference as compared to other patients
C.	Every 6 weeks	Not specified	
P.	5 - 6 weeks	2 - 3 times	
M.	3-6 weeks Later 3-4 months	Not specified	
A.	Every 3-4 weeks	Not specified	Depending on qualitative leaps foreward between treatments

Fig.4: Treatment intervals concerning the treatment of migraine patients

C., S. and M. are of the opinion that especially migraine patients should not be treated too often. On the one hand because there are already congestions and on the other hand because those patients are already at an overwrought level and thus additional energy that is brought into the system has to be measured carefully. The body should get enough time to stabilize after treatment and regeneration should happen in an unimpeded way.

4.6 Recommendations for additional therapy

The interviews reveal that the osteopaths largely agree that traditional Chinese medicine, and above all acupuncture, can have positive effects on the alleviation of migraine symptoms (Müller 2009, Bäcker 2008, Linde 2009). Many of the

interviewees point out that osteopathy and acupuncture complement each other in a favorable way (S., R., B., M.).
Furthermore they regard homeopathy as useful complementary therapy. From S. point of view homeopathy is particularly recommendable in case of hormonally, mentally or nutritionally triggered migraine. For C., R., S. and B. testing out food intolerances and a subsequent dietary change can have opsitive influences on migraine, too (Sahai-Srivastava 2008, Müller 2007, Gazerani 2003). C. thinks that Kneipp cures, foot baths, matrix treatments and cupping are recommendable additional measures. A. considers breathing exercises and in this connection also singing having positive effects on migraine. He traces these effects back to the fact that by means of breathing exercises and singing the tissue is better supplied with oxygen. B. and S. regard Shiatsu and Ayurveda as useful complementary therapies. M. pays special attention to posture and treats postural defects, if necessary. In this connection, P. suggests weight training in the gym. Additionally he recommends the intake of multivitamine supplements. M. and C. recommend psychotherapeutic measures if they have the feeling that the patients are not able to come out of their problematic situations on their own. In this connection C. mentions family constellations as one possible method.

During the interviews the osteopaths furthermore named several activities that, in their opinion, have negative effects on migraine. Regarding this C. lists massages and yoga, as well as crash diets (Fukui 2008). S. also mentions the traditional massage, too, and advises against active training in such a state of increased basic tension. B. considers infiltrations into the suboccipital area problematic.

In this connection the statements of P., in which he says that from his point of view therapies like acupuncture should be avoided, are striking. He regards simultaneous work in different systems as problematic.

4.7 Effectiveness of osteopathic treatments

All interviewees are convinced that osteopathy is an effective therapeutic method for the treatment of migraine patients. P., B., A., C., S. and R. experienced that migraine can be made disappear entirely by means of osteopathic treatment. (M. and S.,

however, question this because they think it is not sure whether the osteopath meets the patient ever again.) M., on the other hand thinks, that migraine symptoms cannot be healed but only alleviated. But all interviewees agree that the osteopathic treatment leads to a reduction of frequency and a decrease of intensity of migraine attacks. P. reports that he noticed that after the osteopathic treatment in some cases migraine attacks transform into regularly occurring headaches. The following authors also write about the positive effect of osteopathy on migraine: van Tintelon 2002, Spannbauer 2008, Gallagher 2005, Mueller 2007, Still 1910, Sutherland 1930, Liem 2001, Ligner 2008, Ecker 2003, Loza 1998.

For A. and C. psychic strain coming from the patient's environment can negatively influence the treatment. Furthermore B. states the treatment may remain inefficient as well if the patient does not collaborate, e.g. if he/she does not make recommended dietary changes in case he suffers from migraine triggered by food intolerances. M. states that her treatments of patients with hormonally triggered migraine were not successful. By contrast, Ecker (2003) very well mentions successes concerning the treatment of menstrually triggered migraine.

4.8 Interaction therapist -patient

One part of the osteopaths interviewed (A., B., S. und R.) thinks that one has to be more cautious when it comes to the treatment of migraine patients as compared to the treatment of other patients. This refers to the application of techniques on the one hand as well as to particular tactfulness in dealing with the patients on the other hand. This corresponds to Tuche 1955, who thinks that due to the close interpersonal relation that is established during osteopathic treatments, the osteopath is particularly qualified for the treatment of migraine patients as this close relation satisfies the emotional needs of the patients in a psychological sense. C. and P. consider it better not to show too much delicacy. The patients should be rather motivated to balance with their environment (C.) and to face reality (P.). M. does not think particular cautiousness is demanded by migraine patients and relies on her osteopathic intuition, like always.

In case of migraine patients it is very important to pay attention to every detail the patient talks about - especially for A. because this allows him to give more individual and precise advice. B. thinks that special interaction is necessary because according to him the osteopath very much depends on the patient's collaboration in such cases in order to be able to successfully treat the migraine. S. states that patients should become aware of the factors that cause or stimulate migraine.

5 Summary

I have tried to comprehensively and carefully describe the osteopaths' way of proceeding when it comes to the treatment of migraine patients – beginning with the moment the patient enters the osteopath's office to the point of time when therapy ends. All interviews showed that migraine patients usually have suffered from the disease for a long time and have been examined by conventional medical practitioners before consulting an osteopath. This is one of the core statements of my investigation.

Anamnesis and clinical examination do not differ from that of other patients. The clinical examination of migraine patients showed that there are very often abnormities concerning the upper cervical spine as well as concerning dural tension and a restriction of mobility and/or motility of the liver. Due to the holistic approach of the osteopaths, impacts on all systems (vascular, hormonal, neurochemic, myofascial, mental, structural etc.) can be found. These systems seem to influence each other mutually. My first hypothesis, which assumed that the treatment of migraine patients mainly focuses on the craniosacral model, was not confirmed. In fact the interviewees rather combine the craniosacral model with the biodynamic model. This expanded model proved to be useful for most of my interviewees.

Concerning the application of concrete techniques the interviewees named a large number of techniques, which makes it difficult to sift out whether there are real accordances. A further difficulty hereby was that the osteopaths' definitions of techniques and to which model they are assigned differ from one another. During the interviews the importance of treatments according to the biodynamic model was pointed out repeatedly.

Concerning treatment intervals the osteopaths tend to longer intervals in case of migraine patients. According to my interviewees the reason therefore is that the system of migraine patients is overwrought anyway and thus a longer, unimpeded regeneration is necessary after the treatment.

All osteopaths agree that by means of their treatments they are able to achieve a reduction of frequency as well as an improvement of intensity of migraine attacks. This can even lead to a total disappearance of the attacks. Thus my second hypothesis is confirmed. To listen carefully to what the patient says and to look closely at what his/her body shows in anamnesis and during the treatment is an efficient method to cater for his/her individual needs. The osteopathic examination with all its possibilities of examining all systems on all levels step by step is an efficient method of the clinical investigation of migraine patients and very well complements the diagnosis from conventional medicine. The possibility to use different models for the treatment of migraine patients, which can be adapted individually to every patient and also be altered from treatment to treatment and even within one therapy session, enables the osteopathy to conduct a successful treatment even while dealing with a disease pattern as complex as migraine. Furthermore it proved important to give patients individual advice and to recommend additional measures in order to guarantee a lasting success. All experts agree on osteopathy being one of the most appropriate methods for treating migraine patients successfully.

Finally I would like to name some points of criticism and options for improvement of my thesis. In my interviews I tried to ask the osteopaths about techniques of treatment. This proved difficult, because osteopaths conceive and treat patients holistically, corresponding with the philosophy of osteopathy (see chapter 2.8). Thereby a single treatment technique according to a specific osteopathic model does not stick out. Due to my lack of knowledge concerning the biodynamic model, it was also difficult to conduct a target-aimed interview in this field. I did not focus sufficiently on this point while preparing for my qualitative investigation. Perhaps it would have added an interesting diversification, if I had included more than one physician in my choice of interviewed experts. Thus I could have figured out whether there are any differences in treatment depending on the osteopath being either a

physician or a physiotherapist in his basic profession. Furthermore this would have added more clinical experience to my thesis.

6 Outlook

For the future I would consider it important to prove the effectiveness of osteopathy in the treatment of migraine using large-scale clinical studies. Hereto I could find only very few corresponding works in literature. Either there is a control group missing, which was assigned by random or the number of test persons was quite small, thus limiting the expressiveness of the study. However, this would be very important for osteopathy, in order to point out our importance in the treatment and prevention of migraine to conventional medicine. I tried to sum up the experience of osteopathic experts in my qualitative study, in order to provide a basis for such studies in this field.

7 Literature

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8 Appendix

8.1 Interview guideline

Treatment approaches in osteopathy for the therapy of migraine

1. Which criteria do you follow in anamnesis when examining a migraine patient? Which information is especially important for you?
2. What is the clinical examination like? To which structures, areas do you pay most attention?
3. Regarding the last migraine patients, were there more often malpositions and muscular imbalances at the cervical or upper thoracic spine compared to other patients?
4. Within literature there are many causes of migraine described. It is for example characterized as vascular, neurochemic, myofascial, mental, structural, hormonal, etc. phenomenon. Which theory would you most likely assent and why?
5. Concerning treatment techniques – do you apply treatment techniques of the structural, cranial, visceral or biodynamic model when it comes to the treatment of migraine pateints? Can you make percentage specifications?
6. Which techniques for example from the structural, cranial, visceral and biodynamic field do you apply most often and why?
7. In what rates do you treat migraine patients? What decides the treatment frequency?
8. Which additional methods, guidelines and other therapies would you recommend migraine patients?
9. Do you think that osteopathic treatments positively influence the duration or the severity or frequency of migraine attacks?
10. Do you have any other hints concerning the handling of migraine patients during therapy? Do they need special attention, tactfulness? Is the interaction therapist – patient particularly important?

8.2 Table of figures

8.3 Table of content