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Escherichia coli O157: H7 in food with health-related risks

Rabya A. Lahmer

Department of Food Science and Technology, Faculty of Agriculture, University of Tripoli. Tripoli, Libya.

Prysor A. Williams

School of Environment, Natural Resources & Geography, College of Natural Sciences, Bangor University, UK, LL57 2UWCC.

Davey L. Jones

School of Environment, Natural Resources & Geography, College of Natural Sciences, Bangor University, UK, LL57 2UWCC.

Email address:
Corresponding author: rabyalahmer@yahoo.co.uk

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Abstract: E. coli O157:H7 has been implicated in many cases of food contamination across the world, in both the beef and poultry industries, with approximately 1,000 E. coli O157 cases reported in UK each year. This includes 100 cases of haemolytic uraemic syndrome, a serious illness which can cause acute renal failure. Indeed, E. coli O157:H7 infections are of particular concern due to the potential severity of symptoms. An estimated 73,500 cases of illness, 2000 hospitalisations and 60 deaths occur each year in the USA due to E. coli O157 infection, costing approximately $1 billion a year in medical costs and lost productivity E. coli O157:H7 is regarded as being more transmissible than other E. coli serotypes for a number of reasons, including its increased tolerance to acid, which allows it to easily survive the acidic conditions of the stomach. This bacterium also produces Shiga toxins, which are heat stable, and therefore unaffected by conventional pasteurization methods. Small doses of fewer than 10 cells may lead to infection. Collectively, these factors make the control of E. coli O157:H7 an important issue in recent times for the food sector. Many preventative measures have been introduced and targeted at all stages of the food chain, from the farm, to the slaughterhouse, and to the preparation of food at home.

Keywords: Contamination, food safety, Pathogen, microbiological quality.

Introduction

The increasing number and severity of food poisoning outbreaks on a global scale have considerably increased public awareness of food safety (Food Standards Agency, 2012). Well publicised cases of Escherichia coli (E. coli) serotype O157:H7 infections in particular are of concern due to the potential severity of symptoms (HPA, 2013). Although E. coli O157:H7 was only first recognized as a cause of foodborne illness just over 30 years ago (Forsythe, 2010), it has been implicated in sporadic cases and large outbreaks of haemorrhagic colitis and fatal haemolytic uremic syndrome (Karmali et al., 2010). This serotype is regarded as being more transmissible than other E. coli serotypes due to a number of reasons, including its increased tolerance to acid, which allows it to easily survive the acid conditions of the stomach. This bacterium also produces Shiga toxins, which are heat stable, and therefore unaffected by conventional pasteurization methods (Rasooly and Do, 2010). Small doses of fewer than 10 cells may lead to infection (Forsythe, 2010). Collectively, these factors make the control of E. coli O157:H7 an important issue in recent times for the food sector.

The main causes for concern and product recalls associated with E. coli O157:H7 are meat products (Mor-Mur and Yuste, 2010). In particular, cattle and sheep are major reservoirs for this pathogen (Nastasijevicl et al., 2008; Hutchinson et al., 2005) and contamination of carcasses and food products by animal faeces can lead to transmission of foodborne pathogens to consumers (Oliver et al., 2008). Numerous interventions to be applied at the farm level have been investigated over the past 20 years, but most have proven to be ineffective and/or impractical (Soon et al., 2011). Furthermore, the conflict between demands for minimally processed foods and the modern requirement of long shelf-life and food safety is an issue for the food industry. This has led to interest in the use of natural antimicrobial products.

Clinical aspects of E. coli O157:H7

Infection with E. coli O157:H7 is asymptomatic in a large proportion of cases, but can also engender a wide range of clinical symptoms ranging from non-bloody diarrhoea to hemorrhagic colitis and other life-threatening complications. Serious health effects arising from infection can involve acute renal failure caused by haemolytic uraemic syndrome (HUS) (Rahal et al., 2012), and neurological problems in the form of thrombotic thrombocytopaenic purpura (TTP) (Duffy et al., 2006; Thomas and Elliott, 2013). Other rare complications include pancreatitis, diabetes mellitus, and pleural and pericardial effusions (Mead & Griffin, 1998). Occasionally, patients infected with E. coli O157:H7 suffer damage to their central nervous system as TTP, which typically includes seizures arising from hypertensive encephalopathy. Untreated TTP can have a mortality rate as high as 95%. Symptoms may include thrombocytopenia, fever, renal insufficiency, neurological deficit, microangiopathic haemolytic anaemia, headache, fatigue/malaise, altered mental status, and hemiplegia(Rahal et al., 2012).

Epidemiology

Vero cytotoxin_producing Escherichia coli VTEC has become the most frequently reported cause of bacteraemia

in England, Wales and Northern Ireland (HPA, 2007). A report from HPA (2013) (Figure 2.1) suggests almost a 100% increase, from 595 to 1182, in the annual totals of VTEC infections in England & Wales between 2002 and 2011. To date, many parts of the world have witnessed outbreaks of VTEC infections involving serotype O157 (Duffy et al., 2006). Infection rates differ widely between geographical regions. In Europe, Scotland possesses the highest infection rates with approximately 4 cases per 100,000 (Duffy et al., 2006), while in Northern Europe infection rates are very low (e.g. 0.04 per 100,000 in Norway and Finland). In North America, the infection rate for E. coli O157:H7 was 0.9 per 100,000 in 2004. In Asia, Japan has experienced the most problems related to E. coli O157:H7 (2.74 per 100,000 averaged between 1999 and 2004; Duffy et al., 2006). An estimated 73,500 cases of illness, 2000 hospitalisations and 60 deaths occur each year in the USA due to E. coli O157 infection (Mead et al., 1999), costing approximately $1 billion a year in medical costs and lost productivity (Wilks et al., 2005). E. coli O157:H7 cases in England and Wales have fluctuated somewhat over the last ten years (HPA, 2012; Figure 2.1).

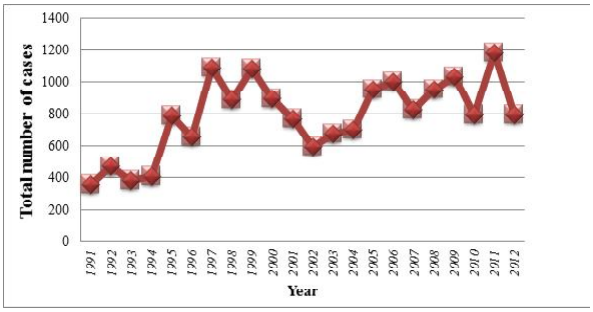

Figure 2. 1. Annual totals of VTEC (E. coli O157:H7) infections in England & Wales (HPA, August 2013).

Sources of infection

E. coli O157:H7 infections have been associated with a variety of sources and routes (Duffy et al., 2006). Apart from animal-to-person and person-to-person transmission, consumption of E. coli O157:H7-contaminated food, particularly in public places such as day care centres, is an important mode of transmission that has attracted much attention in recent years (Chang & Fang, 2007; Duffy, et al., 2006; EFS, 2007; Liu et al., 2009; Meyer-Broseta et al., 2001). To date, research has investigated survival of the pathogen in a wide range of foods, including meat and meat products (Hwang et al., 2009; Rhoades et al., 2009), dairy products (Voitoux et al., 2002), lettuce (Koseki et al., 2004), apples (Du et al., 2003), tomatoes (Eribo & Ashenafi, 2003), chocolate and other confectionery (Baylis et al., 2004), and drinking water (Schets et al., 2005).

Farm livestock, particularly ruminants like cattle, sheep, and goats, are regarded as the primary reservoirs for VTEC (Heuvelink et al., 1998). Numerous studies have investigated E. coli O157:H7 prevalence, transmission, survival and control in cattle and beef (Duffy et al., 2006; Rhoades et al., 2009). Among others, the review by Rhoades et al. (2009) discussed factors that influence the prevalence of three important pathogens, VTEC E. coli, Salmonella enterica, and Listeria monocytogenes in the whole process of meat production. It is estimated that the most severe cases of food-borne disease have been reported to be attributable to various foodstuffs containing beef. For instance, Adak et al. (2005) indicated that in England and Wales, 7% of the 1.7 million cases of food-borne disease in the period 1996-

2000, including 67 deaths, were associated with beef. In the Netherlands, undercooked ground beef and raw milk have most often been implicated in food-borne infections (Heuvelink et al., 1998). Different countries may present different situations of food-borne disease, depending on factors such as the pathogen load in the beef products consumed and the cooking and consumption habits of the country concerned (Rhoades et al., 2009). Products such as lightly-cooked burgers may be eaten more frequently in the USA, while people in France and the Netherlands consume more steak tartare than people in the UK and Greece.

Meat

E. coli O157:H7 exists as a normal coloniser of the gastrointestinal tract of cattle (Heuvelink et al., 1998; Nastasijevic et al., 2009). A number of studies have focussed on the prevalence of E. coli in the meat chain starting from the farm, the slaughterhouse, to the final, ready-to-eat products (Nastasijevic et al., 2009, Rhoades et al., 2009). The spread of E. coli O157:H7 has been identified in farm housing and faeces (Jones, 1999) and the pathogen is known to survive for considerable periods in faeces and slurry (Avery et al., 2004). This bacterium may readily leach from sheep and cattle faeces during rainstorm events thus leading to further infections (Williams et al., 2005). Pigs and poultry can also be a source of O157 VTEC strain. Heuvelink et al. (1999) found that E. coli O157:H7 were isolated from 1.4% of 145 pigs and from 1.3% of 459 pooled faecal samples from turkey flocks but was negative in faecal samples from chicken flocks. In a similar study, Kijima-Tanaka et al. (2005) isolated shiga toxin-producing Escherichia coli (STEC) from 23% of 62 bovine faecal samples and 14% of 25 swine samples and again there was no isolation from chicken samples. A Korean study by Jo et al. (2004) reported a higher prevalence of E. coli O157:H7 in cattle than in pigs (8.4% versus 0.3%) and none in chicken. At slaughter, transmission of E. coli from faecal material and hides to carcasses varies from 4.5% to 56% and from 1.1% to 43.4% respectively, which poses a great threat for the contamination of raw meat with this pathogen (Nastasijevic et al., 2009). In addition, contamination may occur during the dressing, skinning and evisceration phases (Nastasijevic et al., 2009). Reinstein et al. (2009) examined the prevalence of E. coli O157:H7 in organically and conventionally raised beef cattle at slaughter and found 14.8% and 14.2% positives, respectively. An Irish study recovered E. coli O157 from 2.4% of beef trimmings samples, 3.0% of beef carcasses and 3.0% of head meat samples (Carney et al., 2006). The probability of E. coli O157:H7 spreading during the mincing process may be highest in the meat chain (Hawker et al., 2001). One carcass contaminated with E. coli O157:H7 may quickly spread the bacterium across the whole batch of minced meat from uninfected cows. Cagney et al. (2004) detected E. coli O157:H7 in 2.8% of minced beef and beef burgers, both frozen and fresh, in the Republic of Ireland. Magwira et al. (2005) investigated 400 meat samples (134 meat cubes, 133 minced meats, 133 fresh sausages) collected from 15 supermarkets and butcheries in Botswana and found prevalence rates of E. coli O157:H7 were 5.2 % in meat cube samples, 3.8 % in minced meat samples, and 2.3 % in fresh sausages. In South Africa, the prevalence

of E. coli O157:H7 was identified on selected meat and meat products (45 samples each of biltong, cold meat, mincemeat, and polony) (Abong'o & Momba 2009). Strains of E. coli O157:H7 were isolated by enrichment culture and confirmed by polymerase chain reaction (PCR). Also investigated were the arteriogram profiles of the E. coli O157:H7 isolates. Five (2.8%) out of 180 meat and meat products examined were positive for E. coli O157:H7. A parallel study in Switzerland (Fantelli & Stephan, 2001) was conducted on minced meat (beef and pork) samples to test for the presence of STEC. STEC was isolated from 2.3% minced beef samples and 1% minced pork samples.

Dairy products

Outbreaks of E coli O157:H7 illness have been found to be linked with consumption of raw milk and cheeses made from unpasteurized milk (Elhadiay and Mohammed, 2012; Vernozy-Rozand, 2005). In 1999, more than 11% of the total number of E. coli O157:H7 infections in England and Wales were due to unpasteurized milk and dairy product (CDSC, 2000, cited in Vernozy-Rozand, 2005); most probably due to faecal contamination during milking (Hussein & Sakuma, 2005). Conedera et al. (2004) noted that although the prevalence of VTEC O157 in raw milk and cheese is low, the organism appears to be able to survive the various stages of the cheese-making process. They found that the heat treatment of milk at the beginning stages of cheese production is usually not sufficient to kill the contaminated vegetative bacteria which can later survive the manufacturing and curing procedures. For example, E. coli O157:H7 was found to survive during the manufacturing process of soft Hispanic-type cheese (Kasrazadeh & Genigeorgis, 1995). E. coli O157:H7 is characterized by its ability to survive in acidic environments (e.g. in cheddar cheese after a curing period of more than two months; Reitsma & Henning, 1996). Furthermore, fermented dairy products made from raw milk contaminated with E. coli O157 can pose a risk to human health (Vernozy-Rozand et al., 2005). Marek et al. (2004) examined the survival of E. coli O157:H7 in pasteurized and unpasteurized Cheddar cheese whey. Five strains of E. coli O157:H7 were used for the study and were inoculated into 100 ml of fresh, pasteurized or unpasteurized Cheddar cheese whey at 105 or 102 CFU ml-1, and stored at varying temperatures. Results showed that survival of E. coli O157:H7 was significantly higher in the pasteurized whey compared to that in the unpasteurized samples at all storage temperatures. Stringent sanitary practices should therefore be undertaken, particularly during the storage and handling of whey and use of pasteurized milk for cheese manufacture.

Vegetables and fruits

In the past ten years, an increased number of E. coli O157:H7-related outbreaks have been associated with fresh produce such as lettuce, cantaloupe, and alfalfa sprouts (Doyle & Erickson, 2008; Silagyi et al., 2009; Pathanibul et al., 2009). This growing tendency could be due to increased consumptions of potentially risky fresh-cut pre-packaged products (Doyle & Erickson, 2008). Four separate outbreaks of food-borne E. coli O157 infections were recorded in USA in 2006 (Doyle & Erickson, 2008). Common

vehicles of the disease noted were fruits and vegetables such as green-based salads, potatoes, lettuce, unspecified fruits, and sprouts (Doyle & Erickson, 2008). Among the reported outbreaks, lettuce was the single most frequently mentioned produce (Ackers et al., 1998; L?pez-G?lvez et al., 2009). Ackers et al. (1998) found 70% of patients in 40 Montana residents were infected with E. coli O157:H7 due to the consumption of purchased leaf lettuce. In addition, Eribo and Ashenafi (2003) demonstrated that E. coli O157:H7 could be found in tomato and processed tomato products as well as products containing vinegar. E. coli O157:H7 showed the ability to grow during germination a sprouting of alfalfa (Castro-Rosas & Escartin, 2008) and in acidic foods such as fermented Spanish-style table olives (Spyropoulou et al., 2001).

Resilience of E. coli O15:H7 to environmental conditions

Environmental conditions such as temperature, pH value, water activity, and sodium chloride have important implications in the survival and growth rates of E. coli O157:H7 in foodstuffs. The bacterium is known to have a typical resistance to heat (Kaur et al., 1998). It can proliferate at a temperature range of 8-44.5 °C, with the optimal temperature for growth at 37 °C (Edwards & Fung, 2006). Cooking beef thoroughly to 71 °C is effective in eliminating the organism (Doyle & Schoeni, 1984); although slow cooking of meats may not eradicate the organism as well as rapid heating (Edwards & Fung, 2006; Kaur et al., 1998). Regardless of pH and water activity, survival of E. coli was found to be better at 5 °C than at 20 or 30 °C in tryptic soy broth (TSB) (Rocelle et al., 1996). Moreover, E. coli was found to survive but not grow during fermentation, drying, or subsequent storage at 4 °C for 2 months (Glass et al., 1992). The heat-resistant property of E. coli O157:H7 is relative as it can be influenced by many other environmental factors, including growth phase, the amount of heat applied, the rate of heating and the water activity (Kaur et al., 1998). For instance, at 30 °C, inhibition of growth of E. coli O157:H7 in TSB was enhanced by reduction of the water activity (Rocelle et al., 1996) as well as increase of sodium chloride concentration (Jordan and Davies, 2001).

Much evidence has shown that pH value plays a primary role in the growth rates of E. coli O157:H7. For instance, growth rates are similar at moderate pH values (pH 5.5-7.5), but decrease significantly at lower pH values (Edwards & Fung, 2006). Yet, Benjamin & Datta (1995) found the organism to be acid tolerant under the optimal temperature (37 °C), surviving at pH 2.5 for up to 7 h. The pathogen is capable of acid-adaption and adapted cells have shown increased survival in shredded dry salami and apple cider (Leyer et al., 1995). E. coli O157:H7 has been reported to survive for months in acidic foods, such as fermented sausages (CDC, 1995) and apple cider and apple juice (Du et al., 2003); even though products such as fermented sausage may also lead to water stress in bacteria. The resilience of the organism to a combination of factors such as temperature, pH, water activity and sodium chloride can all contribute to the survival and growth of E. coli O157:H7 in foodstuffs. Its ability to withstand low pH environments is also of course crucial during passage through the gastro-

intestinal tract of livestock and humans.

E. coli O157 can survive and grow in both aerobic and anaerobic conditions as well as modified atmospheres used for food packaging (Bromberg et al., 1998). As a facultative anaerobe, the heat resistance of this pathogen can vary between anaerobic and aerobic environments. For instance, it has been documented that there was little influence on the capability of E. coli O157:H7 under anaerobic conditions, but when aerobically-situated, the pathogen showed reduced heat-resistance (Bromberg et al., 1998). Consequently, this has important implications in food packing. Therefore, there may be increased risk of E. coli O157:H7 surviving during heating treatments of foodstuffs that are packed under vacuum or reduced oxygen atmospheres (George et al., 1998).

Control of E. coli O157:H7

The increase in number of food-borne pathogenic infections has generated considerable efforts in the control of organism such as E. coli O157 in food. Many preventative measures have been introduced and targeted at all stages of the food chain, from the farm, to the slaughterhouse, and to the preparation of food at home (Vernozy-Rozand et al., 2002; Zhu et al., 2009).

Although total elimination of E. coli O157:H7 carriage in livestock appears unlikely, pathogen transmission can be reduced through a number of farm management practices, such as to forbidding farmers from applying slurry and animal manure to vegetables and fruit plants (Jones, 1999). Good hygiene practices such as careful preparation and cooking of food and interventions such as pasteurization, organic acid washes, and stream vacuuming, as well as the use of antimicrobial solutions (e.g. dilute lactic acid, trisodium phosphate and chlorine) can be effective means to eliminate E. coli O157:H7 from food (Marshall et al., 2005; Rhoades et al., 2009; Vernozy-Rozand et al., 2002). For instance, to prevent minced meat from contamination with E. coli O157:H7 during the mincing process, cooking at a high temperature can destroy E. coli O157:H7 cells (Abong'o & Momba, 2009). To prevent contamination of apple cider, it is suggested to wash and brush apples and preserve the cider with sodium benzoate (Zhao et al., 1993; cited in Chapman, 1995) or aqueous commercial cleaner (Kenney & Beuchat, 2002). To reduce the number of VETC on salad vegetables, storing salad vegetables at 4 °C can be an effective means (Abdul-Raouf et al., 1993).

In recent years, advanced technologies have also been explored in the produce industry to reduce E. coli O157:H7and other pathogens as well as to maintain the sensory quality of the produce itself (Arqu?s et al., 2015). In 2007, Muthukumarasamy and Holley investigated the effect of probiotic incorporation in dry fermented sausages before and after they were micro-encapsulated on the viability of E. coli O157:H7. The researchers found that there is a reduction in the viability of E. coli O157:H7. On the other hand, they reported that micro-encapsulation increased survival of probiotic strains, maintain sensory properties but reduced their inhibitory action against E. coli O157:H7. One study by Selma et al. (2008) showed the combined application of gaseous ozone and hot water could effectively control microbial growth in cantaloupe melon as well as maintain its

initial sensory quality such as aroma and texture. However, this study failed to point out specific action of ozone in inactivating E. coli O157:H7. Mahmoud (2010) explicitly demonstrated the efficacy of X-ray on inoculated E. coli O157:H7 (also including L. monocytogences, S. enterica and S. flexneri) on shredded iceberg lettuce. By treating iceberg lettuce with 1.0 and 2.0 KGy X-ray, the study detected significant reductions of E. coli O157:H7 population in both conditions. This approach also showed its promising application because the sensory quality (i.e., visual colour) of leaves was not adversely affected during subsequent storage. Recently, the development of multistrain probiotic dairy products with good technological properties, has gained increased interest as protective cultures against infections (Arqu?s et al., 2015).Although controlling E. coli O157:H7 in food through thermal treatment, chemical destruction and preventative interventions have showed some due efficacy, some studies also report negative findings. For instance, organic acids such as lactic acid and citric acid were reported ineffective in controlling E. coli O157:H7 in beef burgers, even when combined with freezing at -20 °C for 2 hours (Bolton et al., 2002). Another study on traditional Iranian barbecued chicken (TIBC) reported that although essential oils of oregano and nutmeg showed effectiveness in inhibiting the growth of E. coli O157 H:7 in a broth culture system, they reported no inhibitory effect against this pathogen in ready-to-cook TIBC, suggesting that in vitro investigation may not necessarily be applicable to food conditions (Shekarforoush et al., 2007). Although the importance of temperature control and protective packaging has been emphasized in reducing pathogen growth on raw meat, inoculated E. coli O157:H7 strain NCTC 12900 could still increase when lamb chops were kept at 4 °C for 12 days (Barrera et al., 2007).

Conclusion

Escherichia coli O157 is an important food-borne bacterial pathogen closely associated with many severe human illnesses such as haemolytic uremic syndrome. Many of the intervention measures described are still effectively at experimental stage and are unlikely to be widely implemented in the foreseeable future due to a lack of commercial viability, geographical differences in the regulatory framework, or a lack of acceptance by consumers. Elevated public concerns about the adverse consequences of chemically synthesized preservatives used in food industry have diverted research to the application of natural antimicrobials to inhibit E. coli O157:H7 growth and activity.

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Effectiveness of application of darconvalization for improvement of the state of a mucosium shell of a prosthetic speed in patients used by removable plastic prosthesis

Ziyadullaeva Nigora

Tashkent state dental institute, Republik of Uzbekistan.

Email address:
nigorazstom@yandex.ru (Ziyadullaeva Nazima)

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Abstract: We suggest applying a darsonvalization method to improvement of a condition of a mucous membrane of a prosthetic bed. We have investigated 38 patients using complete removable dentures. After the carried-out darsonval-therapy for correction of haemodynamic of a prosthetic bed the level and intensity of a bloodstream have increased that has caused restoration of efficiency of the microcirculation. The long-term examination of patients after the darsonval-therapy has shown that it is necessary to correct the microcirculation of prosthetic bed tissues by method D'Arsonval each 6 months.

Keywords: microcirculation, prosthetic bed, D'Arsonvalization, LDF, removable prosthetics, complete removable plate prostheses.

Эффективность применения дарсонвализации для улучшения состояния слизистой оболочки протезного ложа у пациентов, пользующихся съёмными пластиночными протезами

Многие аппаратные процедуры в лечебной медицине основаны на воздействии на кожу человека электрическим током. Одной из таких процедур является дарсонвализация. Дарсонвализация - это физиотерапевтический метод, основанный на воздействии импульсного тока высокого напряжения, высокой частоты и малой силы.

Аппарат для дарсонвализации был изобретен 120 лет назад. Его созданию предшествовал ряд экспериментов с переменным током, которые проводил французский врач-физиолог Жак Арсен Д'Арсонваль. Он доказал, что воздействие импульсного тока благотворно влияет на состояние здоровья человека. Метод дарсонвализации оказался настолько действенным и недорогим, что быстро распространился по разным странам. Дарсонвализацию включили в схему лечения большинства болезней, а в последние десятилетия она широко применяется в косметологии.

Цель исследования. Доказать эффективность применения дарсонвализации для улучшения состояния слизистой оболочки протезного ложа у пациентов, пользующихся съёмными пластиночными протезами.

Показания к применению дарсонвализации:

- Заболевания периферической нервной системы (невралгии, гипо- и парастезии, остеохондроз позвоночника, радикулит)
- Расстройства центральной нервной системы (неврозы, бессонница, мигрень, нейроциркуляторная дистония, энурез, нейродермит)
- Патологии кожи (угревая сыпь, экссудативный диатез, зудящие дерматозы, воспалительные инфильтраты, гиперфункция сальных желез)
- Целлюлит
- Нарушения периферического кровообращения (трофические язвы, варикозное расширение вен, грибковое и бактериальное поражение кожи)
- Заболевания ЛОР-органов (нейросенсорная тугоухость, вазомоторный ринит, хронический гайморит)
- Воспаления слизистой оболочки полости рта
- Заболевания половых органов (простатит, импотенция, воспалительные процессы женских половых органов, сухость влагалища)

Противопоказания к применению дарсонвализации:

- наличие доброкачественных и злокачественных образований и опухолей,
- наличие кардиостимулятора,
- беременность,
- туберкулёз,
- эпилепсия,
- острые психические расстройства,
- лихорадочные состояния,
- индивидуальная непереносимость электрического тока.

Механизм лечебного действия дарсонвализации. При контактной методике электрод скользит непосредственно по поверхности кожи или слизистой оболочки. Токи раздражают чувствительные нервные волокна, расположенные в толще кожи или слизистой, что активирует циркуляцию крови. Происходит кратковременный спазм сосудов, который сменяется длительным расширением за счёт прогревания тканей. В результате устраняются застойные явления, снимаются отёки. Лейкоциты интенсивно поглощают патогенные микроорганизмы (фагоцитоз), что приводит к скорейшему устранению воспалений. При бесконтактной дарсонвализации под действием разрядов электрического тока кислород из воздуха преобразуется в озон, который хорошо воспринимается кожей. Улучшается питание клеток и клеточное дыхание, активируются местная иммунная система.

- При бесконтактной методике расстояние между электродом и поверхностью кожи составляет 2-10 миллиметров.

- Общая дарсонвализация (индуктотерапия) - воздействие высокочастотным переменным током на все тело. Для этой процедуры используется аппарат - "клетка Д'Арсонваля". В последнее время общая дарсонвализация применяется редко.

- Процедура дарсонвализации совершенно безболезненная. При проведении сеанса пациент может ощущать легкое приятное тепло или незначительное покалывание.

Материалы и методы исследования. Основу аппарата для дарсонвализации составляют:

1) высокочастотный генератор, который формирует электрические импульсы,

2) повышающий трансформатор, питающий высоким напряжением электроды,

3) насадки, представляющие собой электрод для передачи импульсов пациенту. Электрод заключен в герметичную стеклянную колбу, заполненную разреженным воздухом. В комплект аппарата входит несколько насадок.

Нами было исследованно 38 пациентов, пользующихся частичными и полными съёмными пластиночными протезами. Процедуры проводились в положении больного сидя. Электроды дезинфицировали спиртом и смазывали вазелином для лучшего движения электрода. Воздействие проводили лабильным путем, при котором электрод свободно перемещался по слизистой протезного ложа. Напряжение на выходе электрода составляло 230 В на частоте 50 Гц. Во время процедуры пациент испытывал слабое тепло, иногда - ощущение пощипывания.

Процедуры проводили через день. Курс состоял из 6 процедур.

Результаты исследования. Клинико-стоматоскопическое исследование пациентов этой группы выявило улучшение цвета слизистой оболочки протезного ложа уже на 6-7-й день лечения. Субъективные жалобы пациентов, чувствовавших дискомфорт при ношении протезов, выявил, что уже на 5-6 день лечения все неприятные ощущения в виде жжения и фантомных болей значительно уменьшались или проходили вообще. При объективном обследовании пациентов отмечалось улучшение состояния слизистой протезного ложа, которое характеризовалось ее уплотнением, улучшением цвета, выделением сосудистого рисунка. Улучшалась фиксация протеза на протезном ложе. На 11-12-й же день лечения цвет слизистой протезного ложа приобретал естественный равномерный бледно-розовый цвет без синюшных, бледных и гиперемированных участков.

Результаты ЛДФ-грамм на 7-й день лечения свидетельствовали о повышении уровня кровотока и его интенсивности соответственно, при этом вазомоторная активность микрососудов уменьшалась. Анализ динамики амплитудно-частотных характеристик тканевого кровотока, проведенный на 11-12-й день лечения, обнаружил увеличение уровня вазомоций и высокочастотных флаксмоций, что свидетельствовало об усилении кровотока в артериальном и венулярном звеньях микроциркуляторного русла. Снижение уровня пульсовых флаксмоций свидетельствовало об улучшении венозного оттока в микроциркуляторном русле протезного ложа.

При повторном обследовании пациентов через 6 месяцев после проведенной дарсонваль-терапии результаты ЛДФ-грамм показали, что уровень микроциркуляции понизился, по сравнению с результатами последнего дня лечения, однако он был выше исходного значения на 4%. Интенсивность капиллярного кровотока была снижена даже по сравнению с исходным значением, в ответ на что повышалась вазомоторная активность сосудов. Анализ АЧС ЛДФ-грамм показал, что уровни амплитуд всех волн приближались к исходным значениям.

Выводы. Таким образом, после проведенной дарсонваль-терапии с целью коррекции гемодинамики протезного ложа уровень и интенсивность кровотока увеличились, что повлекло за собой восстановление эффективности функционирования микроциркуляции.

Обследование больных, проведенное в отдаленные сроки после терапии, показало, что коррекцию микроциркуляции тканей протезного ложа методом Д'Арсонваль следует проводить каждые 6 месяцев.

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Obstetric hemorrhage is as one of the causes of maternal deaths

Irina Akperbekova

Department of Obstetrics & Gynecology, Tashkent Medical Academy, Uzbekistan.

Bekhzod Abdullaev

Scientific Researcher, 6th Year Student GP Faculty, Tashkent Medical Academy, 2 Str. Farobi, Tashkent, Uzbekistan. 100109.

Email address:
author.uzb@mail.ru (I. Akperbekova), abdullayev-behzod@mail.ru (B. Abdullaev)

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Abstract: Obstetric hemorrhage as a cause of maternal morbidity and mortality, over a long period it is one of the leading places in the world and among the five major causes of maternal mortality (MM). We aimed to analyze the reasons for MM in obstetric hemorrhage and to determine the complex of measures on prevention of maternal mortality from obstetric hemorrhage. Clinical, retrospective clinical and statistical analysis of data were studied in 67 stories of births ended in maternal mortality from obstetric hemorrhage. The dead women were aged 20-29 years- 38 (57%), 30-35 - 19 (28%), over 36 - 10 (15%). By parity of predominated over repeatedly pregnant. The first pregnancy was 23 (34.3%), repeatedly pregnancy - 25 (37.3%) and multiple pregnant women - 19 (28.4%). Causes of bleeding were placenta abruption - in 31 (46%), placenta previa in 2(3%), Hypo - or atonic bleeding in 24 (36%), injuries of the birth canal - in 6(9%), intra-abdominal vascular bleeding - 2 (3%), coagulopathies bleeding - in 1 (1.5%) women. Bleeding due to an ectopic pregnancy in 1 (1.5%). Bleeding in the late postpartum period occurred in 5 (8%) women. Bleeding is diagnosed late in 4 due to the fact that in 3 cases, the women were not observed after birth (14%) and in 1 case (1.5%) - after the surgery. The most frequent omissions and unrecorded features were late admission to hospital in the state of hemorrhagic shock in 40%. Late deliveries were in 31%; delayed cesarean section were in 27%; bleeding after cesarean section was in 25%; wrong choice of surgery volume in 22%; underestimation of blood loss in 52%; non-compliance with protocols in 54%, non-surgical method for stopping bleeding was 12%, not the source of bleeding was 6%. These data indicate the need to improve emergency care in maternity institutions. We can deduce the following recommendations for the prevention of mortality from hemorrhage: improvement of antenatal care and the treatment of pregnant women of groups with risk factors for bleeding, in the first place, suffering extragenital diseases and training of obstetricians and gynecologists.

Keywords: Maternal Mortality, Obstetric Hemorrhage, Extragenital Diseases.

Introduction

Obstetric hemorrhage as a cause of maternal morbidity and mortality, over a long period occupies one of leading places in the world and it is among the five major causes of maternal mortality. In despite of significant advances development and implementation of clinical protocols are the basis of life saving and recovery of patient in efficient and well-organized work multidisciplinary team capable of providing timely and quality medical care. An important role in this sense, the play worked out unified approaches and standards for the provision of skilled care. Huge efforts of the Ministry of Health, leading experts and international organizations have a goal to reduce the maternal mortality rate in Uzbekistan through the introduction of new technologies, methods of prevention and treatment of the main types of obstetric pathology [21].

Early postpartum hemorrhage accounts for a large part of all obstetric hemorrhages [5, 8]. According to WHO, annually 127 thousand women (25%) in the world die from bleeding. According to some authors, obstetric hemorrhage as the primary cause of maternal mortality is in pure form 20-25%, as a competing cause of 42%, as a background to 78% [18, 22].

Material and Methods

2.1. Material

A retrospective analysis of 67 confidential birth history, ending maternal mortality from obstetric hemorrhage in 2014-2015 in the Republic of Uzbekistan by random sampling using developed by use of the program.

2.2. Patient Statistics

The dead women were aged 20-29 years- 38 (57%), 30-35 - 19 (28%), over 36 - 10 (15%). The social status of Housewives was the most - 57 women (85%), 10 employees (15%). In the outpatient sector on the account consisted of 63 pregnant women, obstetrician-gynecologist was observed by 24 women (35.8%), had a record 4 (6%). Of those who consisted on the account, visited the doctor 4 times - 28 (42%), and 5 or more times - 35 women (52%).

For delivery came in the obstetric Department of level 1 - 24 (36%) women, 2 level - 33 (49%) and 3 level - 10 (15%). The place of death occurred in the institution of the 1st level in 21 cases (31%), 2nd level - 24 (36%) and 3rd - 22 (33%).

By parity of predominated over repeatedly pregnant. The first pregnancy was 23 (34.3%), repeatedly pregnancy - 25 (37.3%) and multiple pregnant women - 19 (28.4%).

The gestational age was 22 weeks in 2 (3%), 23-28 weeks in 5 cases (7.5%), 28-32 weeks in 8 (12%), and 33-37 weeks 19 (28.2%), 37 and more weeks in 33 cases (49.3%) pregnant women. Thus, ? of the deceased women had a full-term pregnancy.

From the extragenital diseases in women has been revealed anemia in 49 (73%) pregnant women: mild in 11 (16%), average in 15 (22%), and severe - in 23 (34%). With chronic pyelonephritis was suffered 7 (10%) women, the varicose disease is established in 2 (3%), and 1 case revealed rheumatism, thyroid disease, cardiovascular system and bronchial asthma. Hypertensive status was

detected in 29 (43%) pregnant women with pre-eclampsia in 25 (37%) and eclampsia in 3 (5 %).

Results

Births occurred in 66 women, of which vaginal in 21 (32%), elective caesarean section was made in 2 (3%) and emergency caesarean section in 43 (65%). 1 woman died from an ectopic pregnancy. Indications for cesarean section were: placenta abruption in 24 (36%) cases. Severe pre-eclampsia in 7 cases (11%), eclampsia in 2 cases (3%), uterine scar - 4 (6%), uterine rupture in 2 (3%), inconclusive for the fetus found in 2(3%), pelvic-disproportion of head in 3 (5%), placenta previa in 1 (1, 5%), liver in 1 case (1, 5%), unsatisfactory progress in labor - in 1 (1, 5%).

Causes of bleeding were placenta abruption - in 31 (46%), placenta previa in 2(3%), Hypo - or atonic bleeding in 24 (36%), injuries of the birth canal - in 6(9%), intra-abdominal vascular bleeding -2 (3%), coagulopathies bleeding -in 1 (1.5%) women. Bleeding due to an ectopic pregnancy in 1 (1.5%).

Bleeding in the late postpartum period occurred in 5 (8%) women. Bleeding is diagnosed late in 4 due to the fact that in 3 cases, the women were not observed after birth (14%) and in 1 case (1.5%) - after the surgery.

The volume of blood loss up to 1 l was 11% of the cases, from 1 to 1, 5 l in 30%, from 2 to 2.5 liters is 34%, 3 liters or more is 19%, and it was impossible to determine the amount of blood loss in 6% of cases.

The number of surgeries was as follows: ligation of three pairs of vessels was performed in 27 (40%) cases, the seam along B-Lynch was applied in 6 (9%), amputation of the uterus produced in 11 (16%) women, hysterectomy 27 patients (40%), and relaparotomy in 18 (27%) and rerelaparotomy - in 5 (8%) cases. Late surgical assistance was provided to 44 (66%) women.

Discussion

The low level of skilled medical care exemplified by the following: underestimation of blood loss was detected in 52 % [12], the delay of the operation was in 58% of cases, the management guidelines in 61% of cases, Infusion-transfusion therapy was not adequate in 58%, and blood transfusion was not made in time 43% of women. These data indicate the necessity of improvement of emergency care in maternity institutions.

These data indicate the need to improve emergency care in maternity institutions. According to the study of MM in France (2013)[9], a 10-year period of inadequate assistance of 80-90% was determined fatal in women with obstetric hemorrhage and hypertensive disorders. According to H. Lombaard et al. (2009), in the cases of MM from postpartum haemorrhage, inadequate medical assistance was more often registered.

The most frequent omissions and unrecorded features: late admission to the hospital in a state of hemorrhagic shock - 40%, late deliveries - 31%, delayed cesarean section -27%, bleeding after cesarean section - 25%, the incorrect choice of operation volume - 22%, underestimation of blood loss is 52%, the failure of the protocols is 54%, not

produced by surgical method to stop bleeding at 12%, is not installed the source of bleeding was 6% [6].

Traditional measures to stop hemorrhage are immutable, but they must be supplemented by modern methods [23, 1]. The interdisciplinary questions of continuity is extremely important, because a successful outcome in the fight against obstetric bleeding is hampered by the lack of sequence of actions that requires the integrated work of obstetricians, anesthesiologists, surgeons, assistance, ranging from prevention and ending late transfer to the surgical stage, the rejection of organ preserving surgery [16]. With the ineffectiveness of conservative treatment is extremely important to choose the time for radical intervention [2, 4]. The scope of surgical intervention is a question that is constantly debated in the pages of domestic and foreign literature [14, 15, 17, 3]. It should be noted that, despite the use of such methods stop atonic uterine bleeding, as a superposition of compression sutures, ligation of the vessels of the uterus, the frequency of hysterectomies in the world is not only not reduced, but on the contrary increases. So, in Israel hysterectomy were as follows: 0.04% of all births in 1988-1994 years, a 0.05% in 1995-2000 and 0, 095 % in 2001-2007 [7]. In the USA the frequency of hysterectomies equal to 0.05 % of the total number of births and 0.5 % of the number of caesarean sections [10]. Population-based study in Washington state showed an increase in the frequency of hysterectomy with 0.25% in 1987 to 0.82 % in 2006 (p=0.001). The main indication for surgery hysterectomy - bleeding associated with previa, delay parts of the placenta, atony, uterine rupture and other causes [11].

There were transferred to the Emergency Department 12 (18%), in departments of an artificial kidney on hemodialysis were 4 (6%) women.

The post-mortem (pathological anatomy) examination was made in only 19(28%) cases.

The possibility of preventing MS depends on several factors: how fast was provided to obstetric care, training of specialists, medical personnel, medicines, equipment [13, 19, 20, 24].

Conclusion

Recommendations for the prevention of bleeding from MM: improving antenatal care - treatment group of pregnant women with risk factors for bleeding in the first place, suffering with extragenital disease. The training of obstetricians-gynecologists on the issue of "Obstetric hemorrhage: diagnosis, management of pregnancy, childbirth and after delivery" and a clear knowledge of protocols; improvement of the operative technique of cesarean section and hysterectomy; adequate assessment of blood loss and indemnity in accordance with existing protocols; the presence in each maternity facility of a stock of blood components, colloids and crystalloids; increasing medical knowledge, strengthening of explanatory work among the population by threatening conditions in pregnant women with mass media, National governmental Organisations and communities.

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Using the sonography in the diagnostics of the rolling of the orbit boards

Akramova Nazima

Tashkent State Dental Institute, Republik of Uzbekistan.

Email address:
nozima.akramova@gmail.com (Akramova Nazim)

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Abstract: The aim of the study is to assess the possibilities of sonography in the diagnosis of orbital wall fractures

Materials and methods: 21 patients with suspicions of fractures of orbital walls were examined. X-ray films, MSCT scans were taken for all patients and were compared with the ultrasonography findings.

Results: Sonography revealed 18 fractures of 21, which were certified with MSCT. Signs of the fracture not detected in 3 patients, 2 of them were patients with fractures of the lower wall and 1 of the medial wall of the orbit. In 2 cases the fractures of the lateral wall of the orbit were false positive on sonography. Sensitivity of sonography in fractures of the orbital walls was 86%, radiography 81%, respectively.

Conclusions: Sonography does not replace, but supplement radiography, and allows to get a complete panoramic image of the maxillofacial region. Increasing of the sound conductivity of the bone is the indirect sonography sign of fractures of the lower and lateral walls of the orbit. The causes of sonographic diagnostic errors are fractures without displacement of fragments, minor damage of the cortical layer, small fracture size.

Keywords: orbital wall, fractures, sonography.

Использование сонографии в диагностике переломов стенок орбиты

Анотация: Целью исследования является оценка роли и значения сонографии в общем комплексе лучевых методов диагностики переломов стенок орбиты.

Материалы и методы: Проведен анализ данных обследования 21 больных с подозрениями на переломы стенок орбиты. У всех больных выполнены двухмерная серошкальная сонография, рентгенография и многосрезовая компьютерная томография.

Результаты и их обсуждение: При сонографии признаки переломов стенок орбиты выявлены у 18 из 21 больных, с удостоверенными при МСКТ переломами. Признаки перелома не выявлены у 3 больных, в том числе у 2 с переломами нижней стенки и у 1 медиальной стенки орбиты. В 2 случаях сонографически были получены ложноположительные результаты о наличии переломов латеральной стенки орбиты. Чувствительность сонографии при переломах стенок орбиты составила 86%, рентгенографии 81% соответственно.

Выводы: сонография не заменяет, а дополняет рентгенографию, при которой возможно получение полного панорамного изображения челюстно-лицевой области. Переломы нижней и наружной стенок орбиты на сонограммах проявляются косвенным признаком - усиление звукопроводимости кости. Причинами диагностических ошибок сонографии при травматических повреждениях стенок орбиты являются переломы без смещения отломков с незначительным повреждением кортикального слоя, малые размеры перелома.

Ключевые слова: стенки орбиты, перелом, сонография.

Актуальность

Травмы глаза и структур орбиты составляют приблизительно 20,0 % патологии органа зрения, которые являются основной причиной слепоты и слабовидения лиц детского и трудоспособного возраста. В 50,0 % случаев повреждения органа зрения приводят к слепоте одного глаза, в 20,0 % -обоих глаз [4]

В структуре травм органа зрения у взрослых первое место занимают проникающие ранения, составляющие от 67,0 до 84,0 % [5,7]. У детей около 50,0 % травм составляют контузии, на долю проникающих ранений приходится не более 5,0 % [9]

Сочетанное повреждение нескольких анатомических структур глазного яблока, полиморфизм клинических проявлений, необходимость выработки оптимальной тактики хирургического лечения требуют применения комплекса методов лучевой диагностики [2].

Основным и наиболее доступным лучевым методом исследования больных с повреждениями глаз и структур орбиты остается рентгенологический метод, но в ряде случаев этот метод является малоинформативным [3]

В последние годы метод ультразвуковой диагностики высокого разрешения получил более широкое распространение в офтальмологической практике. Преимущество ультразвукового исследования (УЗИ) связано с его доступностью, высокой информативностью и разрешающей способностью, узким кругом противопоказаний [6,11].

На сегодняшний день увеличилось использование ультразвукового исследования в оценке переломов ЧЛО, за счет быстроты, неинвазивности, относительной дешевизны, портативности метода исследования. Быстрота исследования, отсутствие необходимости специальной подготовки пациентов делают возможным использование сонографии уже в приемном покое, отделениях неотложной хирургии [10].

Не смотря на то, что данный метод не имеет широкое признание, ультразвуковое исследование позволяет выявить различные переломы челюстно-лицевой области. Важную диагностическую ценность ультразвуковой метод имеет при наличии кровоизлияний в переднюю камеру и в стекловидное тело, при дислокациях хрусталика, отслойках

сетчатки. УЗИ позволяет выявлять инородные тела и судить о глубине их залегания [9]. По данным зарубежных авторов (Незафати и др., 2010) в выявлении переломов ЧЛО чувствительность и специфичность ультразвукового исследования достигает 88.2% и 100% соответственно.

Травмы органа зрения характеризуются высокой степенью осложнени и последующей инвалидизацией. В зарубежной и отечественной литератур встречаются лишь отдельные публикации, посвященные вопроса совершенствования лучевой диагностики травм глаза и структур орбит [9-11].

Целью исследования является оценка роли и значения сонографии в общем комплексе лучевых методов диагностики переломов стенок орбиты.

Материалы и методы

Проведен анализ данных обследования 21 больных в возрасте от 18 до 60 лет, с подозрениями на переломы стенок орбиты. Большинство обследованных больных составили мужчины - 16. У 1 пациента перелом стенок орбиты были изолированные, у 20 множественные и сочетались с повреждениями скуло-орбитального комплекса. Среди всех повреждений преобладали переломы латеральной стенки орбиты - у 13 пациентов, дна орбиты - у 16 пациентов. Перелом медиальной стенки встречался у 5 больных, перлом крыши орбиты у 1 пациента.

В рамках использованного протокола у всех больных выполнены двухмерная серошкальная сонография, рентгенография и многосрезовая компьютерная томография. Сонография использовалась для диагностики переломов, а также для мониторинга и контроля репозиции костных отломков интраоперационно после репозиции. Исследования проводили на аппарате SLE-501 (Литва) с линейным датчиком частотой 7,5 МГц в положение пациента лежа на спине, полипозиционно с получением продольных и поперечных срезов. Рентгенография челюстно-лицевой области выполнялась в полу-аксиальной проекции.

Многосрезовая компьютерная томография (МСКТ) выполнена в аксиальной проекции с последующей трехмерной реконструкцией на аппарате "Somatom Emotion 6" (Siemens, Германия).

При сонографии оценивались следующие анатомические структуры: кожа, подкожная жировая клетчатка, кортикальный слой костей - латеральной, медиальной стенок и нижнего контура орбиты. Одновременно проводилось исследование здоровой стороны для сопоставления выявленных патологических изменений. Эти структуры оценивались также при МСКТ, кроме того компьютерная томография позволяла дополнительно оценить состояние глубоко расположенных костных и мягкотканных структур челюстно-лицевой области.

МСКТ также явилась референс-методом оценки диагностической эффективности сонографии и рентгенографии.

Контрольную группу составили 20 здоровых лиц, которым была

проведена сонография ЧЛО. Кроме того, контролем служили симметричные соответствующие неповрежденные костные структуры.

Результаты и их обсуждение

При сонографическом исследовании пациентов контрольной группы анатомические структуры челюстно-лицевой области проявлялись следующими особенностями: кожа выглядела как гиперэхогенная линейная структура, подкожно-жировой слой - как гипоэхогенная структура с чередующимися тонкими гиперэхогенными соединительнотканными волокнами. Жевательные мышцы выглядели как гомогенные гипоэхогенные участки, разделенные множественными параллельно идущими гиперэхогенными прослойками соединительной ткани. Наружная поверхность подлежащей кости характеризовалась в виде гиперэхогенной линии с полным отсутствием дистальной ультразвуковой проводимости (рис.1).

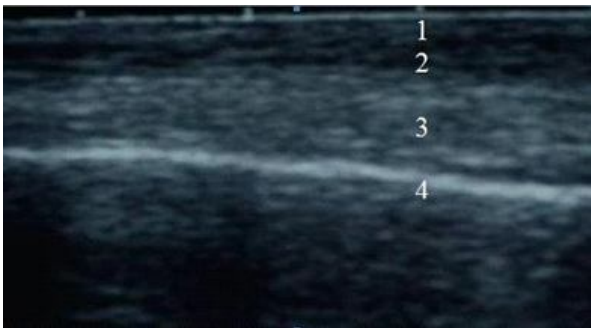

Рис.1. Сонограмма левой скуловой дуги в норме у пациента Ш., 28лет. 1 - кожа; 2 - подкожно-жировая клетчатка; 3 -мышца; 4 - наружный кортикальный слой кости.

Прерывание поверхности кости на сонограммах у здоровых лиц визуализировалось у нижнего края орбиты в месте прохождения нижнеглазничного отверстия. Глазные яблоки проявлялись округлой формы анэхогенными структурами, а медиальная и нижняя стенки орбиты полностью отражали ультразвук с образованием гиперэхогенного контура вокруг дистальных отделов глазных яблок.

Переломы нижней и медиальной стенок орбиты проявлялись косвенным признаком в виде повышения их звукопроводимости. Ушибы мягких тканей приводили к их утолщению, понижению эхогенности с нечеткими границами; подкожные гематомы выглядели как гипо- и анэхогенные участки с четкими границами.

При сонографии признаки переломов стенок орбиты выявлены у 18 из 21 больных, с удостоверенными при МСКТ переломами. При этом переломы стенок орбиты проявлялись только косвенным признаком в виде повышения звукопроводимости стенок орбиты (рис. 2а, 2б). Признаки перелома не выявлены у 3 больных, в том числе у 2 с переломами нижней стенки и у 1 медиальной стенки орбиты. У этих больных при компьютерной томографии визуализировалось нарушение целостности кости без смещения отломков.

Ошибка, вероятно, была связана также с большой поверхностью использованного датчика, не позволяющей добиться полного контакта поверхности датчика и кожи в области орбит, что приводило к артефактам на изображении. Подтверждается это исследованиями Friedrich и соавт. [6], которые используя специальный датчик с

маленькой поверхностью значительно повысили качество диагностики переломов дна орбиты.

В 2 случаях сонографически были получены ложноположительные результаты о наличии переломов латеральной стенки орбиты, что возможно обусловлено неправильным интерпретированием лобно-скулового шва как перелом.

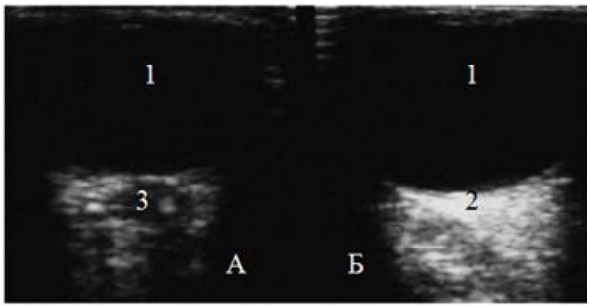

Рис.2а. Сонограммы правой (А) и левой (Б) орбит больного Х., 41 год. 1 - глазные яблоки; 2 - нижняя стенка левой орбиты, эхогенность ее сохранена; 3 - снижение эхогенности нижней стенки правой орбиты в результате повышение ее звукопроводимости (перелом).

Рис 2б. КТ того же больного, коронарное изображение средней зоны лица. Определяется переломы нижней стенки правой орбиты, скуловой кости и латеральной стенки правой гайморовой пазухи, с пролабированием костных отломков и клетчатки орбиты в сторону пазухи.

Рентгенография не выявила перелом латеральной стенки орбиты в 3 случаях, нижнего контура в 1 случае. Причинами ложноотрицательных результатов были несмещенные переломы, которые затруднили интерпретацию снимка.

При переломах стенок орбит ошибки возникли примерно одинаково часто и при сонографии и при рентгенографии. Поданным других авторов основными причинами являются несмещенные переломы, без повреждения глазничных краев стенок орбит. На это, в частности, указываются и в работах Л.И.Сангаевой (2009), M.Sallam (2010), M.P.Sreeram (2016). По мнению Fredrich и соавторов (2004) качество диагностически переломов стенок орбит улучшается при использовании датчика с маленькой поверхностью, позволяющего добиться полного контакта поверхности датчика и кожи в области орбит [6]. Как показали наши исследования, следует уделять внимание такому косвенному признаку, как повышение звукопроводимости стенки орбиты, так как он соответствует ее перелому.

Обладая высокой специфичностью рентгенография, к сожалению, не имеет такой же чувствительности, из-за чего некоторые переломы могут быть пропущены. Ошибки в диагностике переломов стенок орбит нередки и при сонографии, в наших исследваниях они имели место в 3 случаяхкак при сонографии так и при рентгенографии. Основной причиной их невыявления являлись неполные переломы. Данное обстоятельство подчеркивает целесообразность применения при травмах указанной

локализации компьютерной томографии, не ограничиваясь рентгенографией и сонографией.

Чувствительность сонографии при переломах стенок орбиты составила 86%, рентгенографии 81% соответственно. Указанные цифры подчеркивают полезность применения этих взаимодополняющих методов при обследовании больных с травмами ЧЛО. Достоинствами рентгенографии являются высокая специфичность и возможность получения панорамного снимка всем зубочелюстной системы, что важно для распознавания множественных и сочетанных поражений который часто сопровождаются с травмами орбиты. В то же время, сонография оказалась более чувствительной в выявлении переломов стенок орбит.

По данным отечественных авторов [1], сонографию можно использовать интраоперационно и в раннем послеоперационном периоде для определения состояния костных отломков при переломах средней зоны лица при закрытых репозициях[1]. Все это предотвращает лучевую нагрузку на больных. Тем не менее, Friedrich и соавт (2003) сообщили что гиперкоррекция скуловой дуги особенно при оскольчатых переломах сонографически плохо визуализируется. Но, при закрытых репозициях интраоперационно строго рекомендуется визуализировать поверхность скуловой дуги [3].

Выводы

Проведенные исследования показали, что сонография является информативным методом диагностики переломов челюстно-лицевой области, не уступающая рентгенографии. Вместе с тем, сонография не заменяет, а дополняет рентгенографию, при которой возможно получение полного панорамного изображения челюстно-лицевой области.

Переломы нижней и наружной стенок орбиты на сонограммах проявляются косвенным признаком - усиление звукопроводимости кости.

Причинами диагностических ошибок сонографии при травматических повреждениях стенок орбиты являются переломы без смещения отломков с незначительным повреждением кортикального слоя, малые размеры перелома.

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Epilepsy and affective disorders: depression as a suicide risk (review article)

Gulnoza Ruzieva, Komila Porsokhonova, Bekhzod Abdullaev

Department of Psychiatry, Tashkent Medical Academy, Tashkent, Uzbekistan.

Email address:
author.uzb@mail.ru (Gulnoza Ruzieva, Komila Porsokhonova, Bekhzod Abdullaev)

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Abstract: Affective disorders are perhaps the main practical importance among the variety of mental disorders in patients with epilepsy, defining the range of diagnostic and differential-diagnostic problems, treatment and rehabilitation tactics. Incidentally arising in patients with epilepsy' mood disorders attracted the attention of many researchers. Mood disorders are considered as diagnostic feature for the recognition of genuine, "true" epilepsy, with the possible absence of other manifestations of the disease and indicates that the leading place in the structure of mental disorders in epilepsy is affective disorder observed in the onset of the disease and the disease process.

Introduction

Currently, the goal of the doctor treating a patient with epilepsy is not only preventing attacks, but also help the patient in optimizing his quality of life. Meanwhile, the quality of life of patient with epilepsy not only affects the presence or absence of drug-free remission but also its psychosocial adaptation to his illness and is associated with the presence or lack of affective disorders. It is known that the risk of suicide is 5 times higher in patients with epilepsy and 25 times higher in temporal lobe epilepsy and complex partial seizures than in the General population.

The main factors that increase the risk of suicidal behavior in epilepsy, consider concomitant affective disorders (depression) and psychosis. Suicidal thoughts, suicide attempts and completed suicide represent different states within the continuum, where suicidal thoughts can be placed on one end of the spectrum, to attempted suicide in the center and completed suicide at the other end of the spectrum. Many authors indicate a relationship between epilepsy and

increased risk of suicide. Suicide is an important cause of death in patients with epilepsy, the frequency and significance of which is often underestimated. The relationship between epilepsy and suicide is complex, multifactorial and bidirectional. The reason may serve as features of the disease - epilepsy (depending on the form of epilepsy, type of seizure, location of brain damage), and limitations encountered by people with epilepsy in society (social stigma or "stigma of epilepsy"); also, we cannot exclude a causal role of some antiepileptic drugs (AEDs) [1].

Epilepsy and suicide

The frequency of suicidal phenomena significantly higher in patients with epilepsy than in general population and reaches 8-12%, compared to 1.1-1.2 percent in general population and even higher (about 25 times) in temporal lobe epilepsy and complex partial seizures [1, 2]. Any case of completed suicide is always the result of a complex set of factors. In turn, some of these factors are interrelated. The relationship between epilepsy and increased risk of suicide may influence psychiatric, demographic (including sex-linked) and socio-economic factors. However, even adjusted for these factors, the risk of suicidal behavior in people with epilepsy is much higher than in general population. Risk factors, of course, is related to psychiatric disorders: affective disorders.

Epilepsy and depression

According to most authors [1, 2, 3], the main reason for the development of affective disorders (depression) or psychosis in a patient with epilepsy that may be caused by disease, and AEDs. Most important, according to many authors, is the increased frequency of accompanying mental disorders, particularly affective and anxiety disorders. The risk of suicide with these disorders varies, but not installed. However, it is considered that special importance are mood disorders (depression) and epileptic psychoses, in which the possible suicidal thoughts and behavior. Note that in many cases mental disorders in epilepsy not diagnosed in a timely manner. In the study, Christensen J. et al. (2007) the risk of suicide was particularly high in patients with concomitant psychiatric disease in the anamnesis. Kwon O.Y., Park S.P. (2013) examined 568 patients with epilepsy with neuropsychological questionnaire that includes metrics to assess symptoms of depression, anxiety, social stigma, suicidal ideation and quality of life. In 30.5% of patients were identified with emotional disorders. The frequency of depression and anxiety is 27.8 % and 15.3 %, respectively, and was significantly higher than in healthy persons of the control group. The frequency of patients feeling "stigma of epilepsy" and frequency of suicidal thoughts was higher in patients with epilepsy and affective disorders compared with those without affective disorders.

H. Hecimovic et al. (2012) prospectively examined 193 consecutively recruited adult patients with epilepsy to assess the level of depression and suicidal thoughts. The proportion of patients who have had suicidal thoughts for the last 2 weeks was 11.9%. Although these analyzed factors, such as the toxic effects of therapy, health-related quality of life and the indicator of the Beck depression scale was associated with suicidal thoughts when conducting bivariate analysis, only one indicator - a score on a Beck depression

inventory - maintained statistical significance when applying logistic regression. However, 1/4 of patients with suicidal thoughts significant symptoms of depression were absent [4].

The study Buljan R., Santic A. M. (2011) were the reasons of suicidal behaviour of patients with epilepsy receiving treatment in a hospital: 14.6% of epilepsy patients have made suicide attempts. Unfavorable atmosphere in the family and related psychiatric pathology played a significant role in the formation of suicidal behavior. In this study, the factors associated with the disease, did not play a statistically significant role in establishing the link with suicidal behavior [5].

The relationship between epilepsy and depression is bidirectional - not only epilepsy increases the risk of depression and suicide, but also depression with suicidal phenomena may increase the risk of epileptic seizures.

It is important that the relationship of epilepsy and affective disorders (that increase the risk of suicide) are often underestimated. Psychological research has identified in patients with epilepsy (31 patients) with long-lasting symptoms of mental disorders - 21 (91.4 %) case - suicide attempts, however, only 5 (16%) patients were examined by a psychiatrist, and only 3 of them received treatment. The authors emphasize that the known fact of the frequent combination of epilepsy and affective disorders are often underestimated, and affective disorders often are not detected in a timely manner. At the same time overdose of AEDs can lead to death, so it is necessary to assess the risk of suicide among patients with epilepsy [6].

A number of scholars have obtained data indicating a reduction in the frequency of seizures in patients before the manifestation of depression. Mendez et al. found that patients with epilepsy associated with depression, were recorded fewer generalized seizures than in patients that do not have affective disorders. The authors suggested that non-reactive depression can be a consequence of suppression of generalized epileptic activity from the epileptogenic focus [8].

How can we identify depression in epilepsy?

Depression in patients with epilepsy can often manifest symptoms that can be viewed as side effects of antiepileptic drugs and as a manifestation of epilepsy per se. Such a disorienting physician complaints can include trouble to sleep, changes in appetite, decreased libido, braking or excessive anxiety, difficulties with concentration and behavioral disorders.

Classic depressive symptoms rarely occur in patients with epilepsy. According to a study by Mendez et al., in 50% of cases in patients with epilepsy depression is manifested atypical.

Blumer et al. described a pleomorphic affective disorder epilepsy, characterized by 8 key symptoms such as: labile depressive symptoms (depressive behaviour, asthenia, insomnia, pain), labile affective symptoms (fear, anxiety) and supposedly "specific" symptoms (irritability, euphoric mood) [7].

Kanner et al. prefers the term, "disorder, like dysthymia, epilepsy" and says the presence of this disorder in 70% of patients with epilepsy requiring treatment. The atypical symptoms of depression in patients with epilepsy leads to a low detection rate [5].

It is important to remember that patients with epilepsy suffers from a number parietal symptoms lasting for hours or days. Perhaps these parietal violations to some extent are the cause of atypical manifestations of depression in epilepsy. Parietal symptoms usually occur dysphoria appearing a few days or hours before the attack and continuing for several days thereafter.

The connection between the attack and postictal disorders can be subtle, as the "lucid interval" between them can last from 1 to 5 days.

Depression and anxiety disorders (characteristic, according to various estimates, 25-50% of patients with epilepsy) have a significant impact on the quality of life of patients with epilepsy, leading to growth in the number of suicides. According to various estimates, from 5 to 14% of patients with epilepsy commit suicide or attempt suicide (compared to 1,1-1,2% in general population).

Identified a number of risk factors for suicidal behavior in patients with epilepsy. In a number of studies have shown a connection to increased risk of suicide after temporal lobectomy and left-sided resection with worsening of seizures and right-sided temporal resection, which has led to the emergence of psychotic symptoms and worsening of seizures. Risk factors for completed suicide include: a history of inflicting deliberate self-harm, cases of suicide in the family, serious stressful situations, decrease mood, stigma and psychiatric disorders, especially such as alcoholism or the abuse of prescription substances as well as interictally depression, psychosis and personality change.

Moreover, Blumer D. et al. (1991) introduced the concept of "interictal dysphoric disorder", which can be a predictor of development interictal psychosis, and suicide [1].

Interictal depression

It is a mood disorder that occurs in the period between attacks has a different (often-short) duration, and a tendency to self-limitation.

Blumer, 1998 noticed that this particular mood disorder is inherent in patients with refractory epilepsy, especially in the localization of epileptic focus in the temporal lobe. As a rule, interictally mood disorders occur years later (two or more) after the debut of epilepsy. Interictal dysphoric symptoms are presented in various combinations and typically last a relatively short (from several hours to two or three days). Blumer and co-authors identified eight affective-somatoform symptom dysphoria.

Most researchers believe that diagnosis interictal dysphoric disorder enough the presence of three symptoms. Interestingly, the usual premenstrual dysphoric disorder in symptomology identical interictal dysphoric disorder. In women suffering from epilepsy and experiencing interictal dysphoric disorder psychopathology, symptoms intensify and expand the adult period. Interictal dysphoric disorder is considered as a risk factor for sudden suicide attempts and interictal psychosis. Anxiety often accompanies depression in primary mental disorders. At least half of the patients with depression have anxiety symptoms. The presence of anxiety symptoms may also significantly degrade the quality of life of patients and increase the risk of suicide. Kanner A.M. (2004) with co-authors utilized a structured clinical questionnaire

for the diagnosis of psychiatric disorders according to DSM-IV, found that symptoms in one third of patients with epilepsy corresponds to the major depressive episode, dysthymia, anxiety disorder, mixed anxiety-depressive disorder [5, 6].

Depression is extremely violates the patient's quality of life. Our study showed that the overall quality of life of patients with epilepsy and comorbid depression significantly reduced.

The study of Johnson et al., (2004) also carried out in patients with focal epilepsy using a regression analysis showed that the contribution of depression to the decline in the quality of life of patients with epilepsy is 35%, and factors associated with epilepsy less than 20%. Moreover, the significant impact of depression on quality of life persisted after achieving seizure control or reducing frequency and severity of seizures, as well as leveling other negative psychosocial factors.

Our data also indicate that affective disorders are frequent concomitant symptoms in epilepsy: in 22 patients, including 13 women and 9 men with epilepsy in the anamnesis pointed to suicide attempts. After a psychiatric evaluation revealed that: 14 patients suffering depressive episode, 3 patients agitated depression, 6 bipolar patients, and 2 patients with anxiety disorder. Causes of suicide attempts, patients identified the following factors: epileptic stigma (patients with depressive episodes) social maladjustment that is, divorces in the family because of the diagnosis, inability to create a family, find a job (patients with anxiety disorders, bipolar disorder).

On the basis of study of archival data, medical history, clinical observations, and data of instrumental studies of the etiological factors of depression in epilepsy multifactorial in nature. Many factors affect the formation of depression can be divided into four categories:

- Iatrogenic factors
- Social stigma of epilepsy
- Genetic factors
- Associated with epileptic disorders neurophysiological and neurochemical processes.

Therefore, a fatal consequence of depression in epilepsy is suicide. In addition to the typical consequences (reduced quality of life, social functioning, suicide) depression in patients with epilepsy, can cause aggravation seizures or reduced seizure control. The worsening course of epilepsy only partially associated with depression induced by incompletely. On the contrary, the correction of depression contributes to seizure control.

Findings

Thus, literature data and our own data allow us to conclude that:

1) Depression is a major factor that hinders the quality of life of epilepsy patients and its pathogenic effect higher than the effect of the severity of the disease (frequency, severity of seizures, response to treatment, and duration of illness).

2) The basis of suicidal behavior in all cases are depression, dysphoria and anxiety.

3) 70-80% of patients with epilepsy suffer from chronic depression, or a depressive episode of varying duration occurring at least once during the disease.

4) Depression in epilepsy have a multifactorial etiology.

5) Experts in the field of epileptology should actively identify in their patients the presence of suicidal thoughts and should be aware of the existence of the risk of suicide in patients with epilepsy.

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The description of new species of the genus pseudonapaeus (gastropoda, pulmonata, geophila) from kugitangtau mountain range

Gaipnazarova Feruza
Gulistan state University 4 microdistrict, Gulistan, 120100 Uzbekistan.

Email address:
Feruz.bio@mail.ru (Gaipnazarova Feruza)

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Abstract: During studying of land mollusks of Kugitangtau mountain range (marine fauna which is learnt partly , comparatively whith other mountain systems of Central Asia) in the bound of one hill, on one side of slope, under one stone in common with Ps.sogdiana a new species is displayed which is similar to it . The further studying of konhological signs and structure of reproductive apparatus let the author reveal a new species of the new type of the genus Pseudonapaeus.

Keywords: Kugitangtau, Konchologiya, changeness, shell, spermathecal reservoir, whip, penial appendix, epiphallaus, caecum.

The genus of Pseudonapaeus (Westerlund, 1887) is on the first place ona number of types in marine fauna of Central Asia which has 34 species belong to 4 subgenus: Pseudonapaeus (Schileyko,1984) sirahorus (Schileyko, 1984) , Aridenus (Schileyko, 1984), Chondrulopsis (Westerlund, 1887). The most numbers (28) of species belong to subspecies Pseudonapaeus, Chondrulopsis (4), by 1 sirahorus and Aridenus.

For the first time detailed description of shell and anatomy of the reproductive structure of Pseudonapaeus was distributed by A.A.Schileyko(1984), he gives the description to 13 species, one of them has in species changeness of Ps.albiplicatus at least distributing large complex of conchological (8) forms, distinguishing sometimes solely at once.

We should mention that last 20-25 years a deal of works were published (Uvalieva 1990, Kuznetsov 1999, Pazilov, Azimov

2003) on malacofauna of Central Asia, in which representatives of the genus Pseudonapaeus is filled up else 10 new species for science.

Impetuous filling of this genus by new genus for science shows that the genus Pseudonapaeus in Central Asia is not studied insufficiency yet.

Besides this, Schileyko (1984) mentions that main ecological niche filled long ago in the Crimea , in the Caucasus and in Central Eurpe,where eac species is separated clearly from close species and we may say, that process of modification is finished.In Central Asia,he process of modification in our days goes more intensive than in the Crimea, in the Caucasus.Fox example on Chatkal mountain range of Gavasay canyon Pseudona paeus secalina,Ps. Subobscura are met together clearly separated without any transitions, these types behave here as good species. But the same taxons on Turkestan mountain range behave in onother way on the limited space of canyon you may pick collection which will contain real Ps. Secalina, Ps subobscura and various types between them.

That is why when the report is about new tax one from Central Asia first the changeless of close species will be studied.

For example one of the same species (Ps.Albiplicatais very changeable) in two bio lands are not for from each other good reflected some factors can be firmly distinguished b other sings.

Evidently, it is connected with typical peculiarity; it is extra-ordinary diversity of colours of microclimatic, soil, metrological, geochemical and natural conditions in micro landscapes of explored region which is very being old on neighbors sections of genus changeless.

The second, absolutely reliabk information about what Concho logical sorts inhabit together in the area of one bio land.

The third it is need spacious additional collections and anatomizing of mass material.

The forth besides availability or absence of separate elements of reproductive apparatus (spermathecaldiverticle, whip, penial appendix, caecum) it is ndd to study insicle structure of male part which ives reliable information for purpose of systematic.

During the reproductive seasons of 2013 year one of us (by A.Pazilov) collections of land mollusks on Kugitangtau mountain range are spent, marine fauna comparatively with other mountainssytems of CentralAsia is studied fragmentary and scrappy. In addition, central and western parts until present times are being left unstudied.

In central part of Kugitangtau, in Maydan canyon, in the area of one homogeneous part of slope, under one stone with Ps.sogdiana togother is found out species, which is similar to it.

However, it is turned out that it is a new species for the science during the studying of conchological signs and structure of productive apparatus.

These facts are became the the occasion for the description of new taxone from genus Pseudonapaeus

Pseudonapaeus (Pseudonapaeus) maydanica Gaibnazarova end Pazilov, sp.nov.

Locus typicus Southern slope of Kugitangtau, Mayday canyon among bushes

Material Holotype (№ 1 in systematic collection) and 25 paratypes № 2 are kept in the zoological museum of Gulistan state University.

Etymology - the name is given in conformity to the name of place of find - Maydan canyon.

Description. Shell bullet - lengthen shining moderately solid with conic short upper part and wide curvedapex. Composed of 6 - 6,5 flattened - building whorls. Last whorl to the mouth is weakly raised , its height always visibly higer of half height of shell. Colour of three upper whorls is light brown, others are creamy - white surface is in type of rough radial wrinkling . Mouth oval - lengthen, margins are very weakly turned back, place of fasten of the mouth are connected with good developed corn.

Inside structure. Material 6 copies (Holotype and 5 paratypes) from Maydan canyon.

Albuminous gland with very fluent apic carving , lower part of vagina two times shorter than upper part. Vas deferens confluences in to epiphallus eccentricly but absolutely is not moved low by epiphallus.

Cylindrical epiphallus is differ from considerable length forms one bend. Caecum is developed in different steps, it is approximately in the middle of epifallus , sometimes caecum is badly noticed.Epiphallus confluences into penis not terminally but a little at the side. Penis is cylindrical, inside of penis there are some powerful corrugated wrinkles penial appendix is developed in different steps A1 and A2 are connected in one pinform part the length of which is not upper the length of penis, A3 is very short and smoothly comes through very long A4. A5 is good developed.

Penial branch of penial retractor is hold with lower part of penis, the second branch - with upper part of A1 .

Part of spermathecal is long formed twice loop and exceeds the length of vagina considerably.

Reservoir has very short part the length that is one and half times shorter than reservoir. Spermathecal diverticle good developed, not enters to albumen gland a little.

Remark Conchological new species is differed from close Ps(Ch.) sogdiana (Matens, 1874) bright shell, sharpen a little conic peak, upper three whorls always light brown, in other whorls radial diversity of colours are absent, mouth is squinted more, the place of connection of the mouth is connected with good formed corn, collumeleric edge is sheered.

Anatomically Ps(Ps.) maydanica is differed from Ps (Ch). sogdiana albumen gland with apical carve prostate is 14,5 mm, caecum very weakly formed and always is in the middle of epiphallus , inside penis contains of powerful cornugated wrinkles , A1 and A2 are always connected in one pinform part, spermathecal part formed twice loop.

Ecology , It is met in upper mountain and mountainuous zones, in huge fragmental covers , among overgrowth bushes.

Spreading. Species is famous from typical location on the southern slope (central part) of Kugitangtau mountain range, in Maydan canyon.

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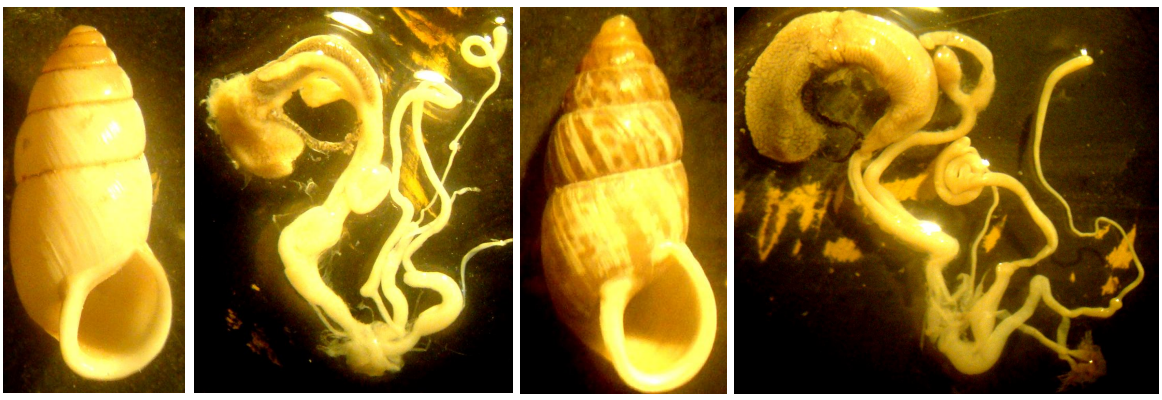
Pseudonapaeus (Pseudonapaeus) maydanica Gaibnazarova end Pazilov, sp.nov.

Navel is as split. Sizes(мм):

Height of shell	Width of shell	Height of mouth	Width of shell	Number of whoris
Holotype				
18.1	7.8	7	5.3	6.5
Paratype				
17	7	6	5	6
16.1	7	6.1	5	6
16.3	7	6.9	5.1	6
16.8	7	7	5	6.5
17.1	7	6.9	5	6.5



A **B** **C** **D**

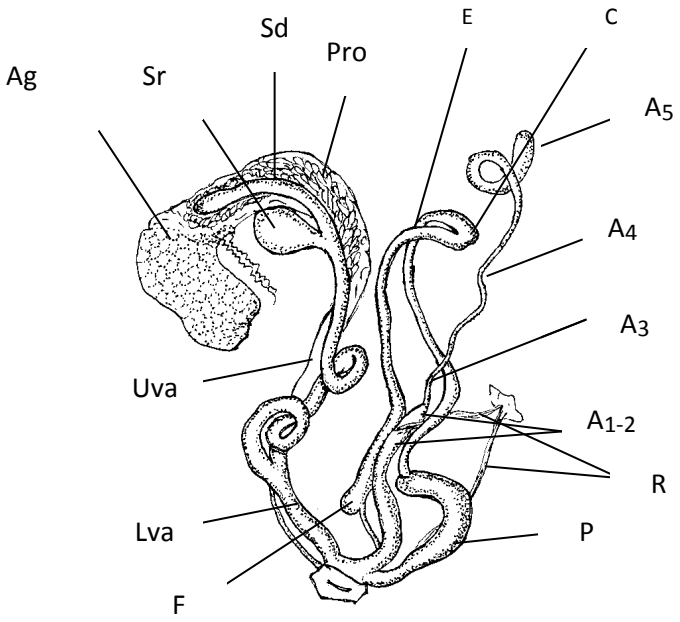


Fig. А,Б,В- Pseudonapaeus (Ps.) maydanica sp.nov.holotype
Д,Е- Ps. (Ch.) sogdiana
A-shell; B,C -reproductive apparatus.

Ag- albumen glang; Pro- prostate; A1-A5 - divisions of penial appendix; C- caecum; E- epifallus; F-flagtllum; P-penis; R- reproductive retractor; Sr- spermathecal reservoir; Sd-spermathecal diverticle; Uva- upper- division of vagina; Lva- lower division of vagina.

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Contribution for prophylaxis of child plane-stopping

Ilkhamova Malokhat Utkurovna, Tursunova Dilrabo Kudratillaevna
Tashkent Institute of textile and Light Industry, Republik of Uzbekistan.

Email address:
malokhat_69_86@mail.ru (Ilkhamova Malokhat Utkurovna, Tursunova Dilrabo Kudratillaevna)

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Abstract: this article is devoted to the development of a new insole design for the prevention of children's flat feet. Detachable insole insoles containing upper, intermediate and lower layers, as well as an additional detail laying, with glued silica gel beads and covered with textile material or leather. The aim of the study is to improve the hygienic properties of shoes, approaching the inner shape of the shoe track to the natural surface of the soil, the possibility of molding the insole to the relief of the foot, and the convenience for removing it from the shoes.

Keywords: child foot wear, child leather shoes.

Вкладная стелька для профилактики детского плоскостопия

Аннотация: Данная статья посвящена разработке новой конструкции вкладной стельки для профилактики детского плоскостопия. Съёмная вкладная стелька содержащая верхний, промежуточные и нижний слои, а также дополнительную деталь выкладку, с наклеенными гранулами силикагеля и обтянутую текстильным материалом или кожей . Задачей исследования является улучшение гигиенических свойств обуви, приближение внутренней формы следа обуви к естественной поверхности грунта, возможность приформовывания стельки к рельефу стопы, а также удобства для снятия ее из обуви.

В Республике Узбекистан особенное внимание уделяется здоровью подрастающего поколения. В рамках реализации Национальной модели охраны здоровья матери и ребёнка осуществляется широкомастштабная работа, направленная на дальнейшее укрепление репродуктивного здоровья населения, внедрение современных методов диагностики, лечения и профилактики заболеваний женщин, детей и подростков [1].

Решить проблему сохранения и укрепления здоровья невозможно только с помощью медицины, важны внешняя среда и образ жизни. При этом необходимо понимать, что образ жизни - это не только наличие или отсутствие вредных привычек. Образ жизни является социальной категорией и включает в себя уровень благосостояния, культуры, образования, медицины, а также качество потребляемой продукции. Так, к продукции, способной влиять на здоровье детей, относится обувь.

Значительная распространенность деформаций стоп детей, таких как плоскостопие, делает актуальным проблему массового производства обуви с профилактическими свойствами[2].

Детская обувь должна преследовать три основ-ные задачи: 1) вызвать целенаправленное давление на скелет стопы, обусловить его формирование в нужном направлении; 2) предупредить прогрессирование оседания свода при наличии ранних форм плоскостопия; 3) создать условия для нормальной кинематики стопы. Совершенствование конструкции детской обуви должно быть связано с изменением упруго-геометрических и диссипативных параметров опорной системы низа, что подтверждается появлением в последнее десятилетие потока изобретений, публикаций и промышленных разработок, осуществляемых ведущими обувными фирмами.

Анализ тенденций развития средств повышения комфортности обуви показал, что многообразие технических решений задачи повышения опорной комфортности свидетельствует о том, что вопрос этот находится в состоянии поиска оптимального варианта.

В работе проводились комплексные исследования по изысканию полимерных материалов, обладающих стабильной и заранее заданной эластичностью. При разработке и изыскании полимерных материалов для супинаторов необходимо учитывать анатомо-физиологические особенности стопы и прежде всего ее пружинящие свойства.

Наиболее полно удовлетворяют медицинским требованиям супинаторы из ПУ и сополимера этилена с винилацетатом (ЭВА). ПУ имеет стабильную эластичность, так как пластификатором является высокомолекулярный продукт. Материал не токсичен, технология изготовления ортопедических изделий из него проста и доступна протезно-ортопедическим предприятиям. Изделия можно получить методом литья под давлением.

Другой новый термопластический материал - ЭВА. Этот материал также не токсичен и имеет стабильную эластичность. Материал сравнительно легко перерабатывается методом литья под давлением при 100°С-110°С. По своей природе оба эти материала отличаются высокой химической стойкостью, водостойкостью. Материалы можно окрашивать в телесный цвет и другие тона. Готовые изделия не оказывают вредного действия на организм.

Разработанные профилактические стельки предназначены для профилактики и устранения статических деформаций стоп I-III степени (упло-щение свода, плосковальгусная, вальгусная деформации) у детей и подростков.

Размеры ортопедических стелек объективно обоснованы и базируются на массовых исследованиях стоп детей и подростков в возрасте 1-18 лет и 165 детей 3-15 лет со статическими деформациями стоп. Проведены антропометрия, и плантография. Размеры мягкого свода стопы определены с использованием предложенной нами новой методики измерения его размеров, формы и расположения, с применением гипсовых слепков в сочетании с плантографией [6,7]. Полученные цифровые данные обработаны математически применительно к разной длине стоп (160-270 мм) с интервалом в 10 мм.

Эти исследования позволили объективно определить размеры, положение мягкого свода и его контуры в горизонтальной, сагиттальной и фронтальной плоскостях. При разных степенях уплощения свода отмечается уменьшение его объемных размеров.

Анализ исследований показывает, что при длине стоп в пределах 110-260 мм определяются некоторые закономерности размеров мягкого свода стопы и геленочной части стельки.

1. Длина выкладки по внутреннему краю занимает в среднем 0,5, т. е. 50% длины стельки (стопы).

2. Задняя граница выкладки в среднем располагается на расстоянии 0,2 длины стельки от наиболее, выступающего кзади ее контура.

3. Передняя граница выкладки располагается на расстоянии 0,7 длины стельки от наиболее выступающего кзади ееконтура.

4. Наружная граница выкладки, определяемая на уровне её наибольшей высоты, находится на расстоянии 0,4 длины стельки от ее заднего контура. Она равна 0,6 ширины стельки на этом уровне при измерении от внутренней касательной линии к наружному контуру стельки.

5. Наружная граница наибольшей ширины выкладки располагается в среднем на расстоянии 0,6 длины стельки от ее заднего контура и достигает 0,6 ширины ее на этом уровне при измерении от внутренней касательной к наружному контуру стельки.

6. Наибольшая высота выкладки находится на уровне 0,4 длины стельки от заднего ее контура.

7. Наибольшая высота бортика располагается на уровне 0,4 длины стельки от ее заднего контура и

доходит до нижнего края бугристости ладьевидной кости.

8. Контур выкладки в горизонтальной плоскости представляет несколько асимметричную дугообразную кривую, соединяющую последовательно точки задней границы выкладки, наружных границ ее ширины и передней границы.

9. Контур выкладки в продольной плоскости представляет почти симметричную дугообразную кривую с наибольшей высотой, расположенной на расстоянии 0,4 длины стельки отее заднего контура.

10. Контур выкладки в поперечной плоскости представляет нисходящую кривую с вершиной на уровне основания бортика стельки.

Для улучшение профилактических свойств обуви, приближения внутренней формы следа обуви к естественной поверхности грунта оказания рефлекторно-терапевтического действия на стопу, создание условий для удобства снятия её с обуви, разработана новая конструкция съемной профилактической стельки.

Поставленная задача решается за счет того, вкладная стелька имеет промежуточную деталь из полимерного материала (полиуретан или ЭВА) представляющий собой выкладку, поверхность которой покрывается гранулами силикагеля и обтягивается текстильным материалом или подкладочной кожей. Для удобства снятия вкладной стельки с обуви, в пяточной части стельки ниточным швом крепится дополнительная деталь в виде петли из текстильной тесьмы.

Сущность разработки состоит в том, что при сочетании уплощения свода стопы с вальгусным отклонением пяточного отдела, вкладная стелька - дополнительно снабжена выкладкой из полимерного материала (полиуретан или ЭВА) -, высота и размер которой будет зависеть от ширины и угла пронации стопы. Длина выкладки составляет 1/5 длины стопы, ширина его - 1/2 ширины пятки, а наибольшая высота его определяется по формуле:

$$x=A \cdot tg\alpha$$

где x - высота выкладки, А -1/2 ширины пятки, α - угол пронации пятки. Наиболее благоприятное воздействие выкладка оказывает, когда его верхняя поверхность имеет небольшое углубление, соответствующее рельефу подошвенной поверхности. Стелька имеет промежуточный слой, представляющий собой гибкую текстильную основу, на которую наклеены гранулы силикагеля в пучковой и в центре пяточной части. Этот слой расположен над эластичным по всей поверхности стельки слоем-простилкой и нижним слоем из стелечного картона. Для удобства снятия вкладной стельки из обуви предусмотрена дополнительная деталь в виде петли.

Конструкция вкладной стельки поясняется рисунком 1. На фиг.1 изображен общий вид вкдадной стельки, на фиг.2 разрез стельки по А-А., на фиг.3 разрез по В-В.

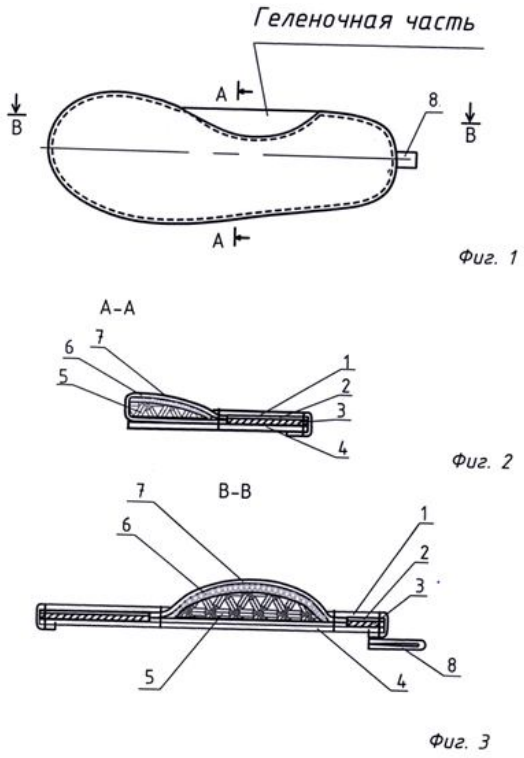

Рис.1 Конструкция вкладной профилактической стельки для детской обуви

Вкладная стелька представляет многослойную структуру, состоящую из верхнего слоя 1, промежуточного слоя -2 из текстильного материала, на поверхность, которого в пучковой и пяточной частях наклеены гранулы силикагеля. Этот слой расположен над другим промежуточным эластичным слоем - простилкой 3 и нижним слоем из стелечного картона 4. В геленочной части с внутренней стороны пришивается дополнительная деталь в виде выкладки 5 на верхнюю поверхность, которой наклеены гранулы силикагеля 6. Выкладка обтягивается текстильным материалом или подкладочной кожей 7 и наклеена на нижний слой из стелечного картона 4. Все слои скреплены по периметру на расстоянии 2-5 мм от края двухниточным швом внутреннего переплетения. В пяточной части для удобства снятия пришивается петля 8 из текстильной тесьмы.

Верхний слой может быть выполнен из текстильного материала или подкладочной кожи. В случае использования подкладочной кожи на неё наносится перфорация.

Материал эластичного слоя - простилки - пенополиэтилен, кажущая плотность, которого связана с толщиной обратно пропорциональной зависимостью и выбирается из интервала 90-45 кг/м3 [9].

Таким образом разработанная конструкция вкладной стельки для профилактики детского плоскостоппия содержащая верхний слой из текстильного материала или подкладочной кожи, промежуточный слой из текстильного материала с наклеенными на участках гранулами силикагеля, дополнительный промежуточный слой - простилку и нижний слой из полимерного материала (полиуретан или ЭВА), обтянутый текстильным материалом или подкладочной кожей. Стелька улучшает опорную комфортность и максимально приближает внутриобувное пространство к естественной среде, способствует предотвращению развития детского плоскостопия у детей дошкольного возраста.

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Use of botulotoxin type a in the treatment of primary headache

Anna Prokhorova, Nigora Kadyrkhodjayeva
Deparment of Neurology, 1st City Clinical Hospital, Republik of Uzbekistan.

Email address:
anna-prohorova@yandex.com, kadyrkhodjayeva@hotmail.com (Anna Prokhorova, Nigora Kadyrkhodjayeva)

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Abstract: For the treatment of chronic daily headache (CDH) a Botulotoxin type A was used. After treatment, 34% of patients had no extravasal effect, and 66% had moderate. Normalization of venous outflow was noted in 58% of patients, of whom only 10% had changes in their severity after the procedure. The obtained results testify to an improvement in the cerebral blood flow indicators of patients with CDH against the background of injections of botulinum toxin type A. The purpose of the study was to determine the efficacy of botulotoxin type A influence on chronic daily headache (CDH) flow. The objectives were to assess the dynamics of the clinical signs of CDH, the chances of the effect of BTA on the activity of antinociceptive systems and cerebral blood flow.

INTRODUCTION

According to the International Classification of Headache (ICHA), headaches (HA) are divided into primary, secondary and mixed [1]. Primary HA includes a group of diseases not associated with structural damage or systemic disease of the nervous system. Primary HA are a serious medical and social problem, since the prognosis and outcome are usually unpredictable (ICHA of 3rd version, 2014). A particular problem is the chronic forms of primary headaches, among which the most common is chronic migraine, chronic tension type headache (CTTH) and their frequent combination - chronic daily headache (CDH). Conditions are distinguished by severe course, frequent and prolonged disability. The large economic losses associated with this disease, and the significant costs of medicines stimulate a constant search for new treatments [2, 3].

At present, it is known that in the pathogenesis of CDH, peripheral and

central mechanisms involving central sensing are of great importance, the essence of which is the reduction of thresholds of central sensory neurons to peripheral stimulation.This mechanism is not fully understood [4].

In CDH, which develops from CTTH, the peripheral mechanism is associated with a constant tension of pericranial muscles. When CDH develops from a transformed migraine, this factor is associated with extracranial arterial vasodilation, which activates the secondary mechanism - stretching of the nerve fibers involved in the process of pain transmission surrounding the blood vessels, which leads to neurogenic inflammation [5].

Stretching leads to the depolarization of nerve fibers. On the other hand, generates an active potential that goes to the central nervous system, besides that this leads to the release of inflammatory mediators such as substance P, calcitonin gene-related peptide, neurokinin A. Inflammatory mediators contribute to further expansion of arteries and reduce the threshold of pain sensitivity locally in peripheral tissues. Thus, a vicious circle appears in which vasodilation leads to inflammation, which in turn intensifies vasodilation and makes it extremely painful. Constantly developing HA leads, probably, to the involuntary progression of the tension of the craniocervical muscles, which contributes to the chronization of the process. Regular migraine attacks lead to a progressive tension of the craniocerebral muscles, the frequency of attacks increases, and tension headaches join the migraine attacks. The increase in seizures, according to Egilius L.H. Spierings (2003), is a consequence of the fact that triggers for migraine attacks are formed in stressed muscles [6]. The muscle tension mechanically creates interference for its own circulation, stimulating the expansion of the feeding arteries. One of these is the frontal branch of the superficial temporal artery, which lies in the thickness of a powerful temporal muscle. In the end, migraine and tension headache merge into a daily or almost daily headache.

Treatment consists of arresting seizures for medicines, which are usually used to prevention of seizures. For preventive treatment, medicinal and non-drug therapy is used, most often biological feedback, back massage, acupuncture, hirudotherapy.

Of the drugs used ?-blockers, calcium channel blockers, antidepressants, NSAIDs and antiepileptic drugs. The need to control the doses of drugs, the presence of side effects or lack of effectiveness limit the full use of these groups of drugs. For example, in recent studies of topiramate, 20% of patients refused to participate in the study because of the development of side effects [7, 8].

A new perspective direction in the treatment of chronic forms of headache is the use of BTA. Botulotoxin type A has been used in clinical practice since 1991 for the treatment of torticollis, hemifacial spasm, blepharospasm, equinoviral deformation of the foot in cerebral palsy and spasticity after stroke.

Recently there has been a steady trend towards the expansion of both official and potential indications to therapy of BTA [9].

The aim of the study was to determine the effectiveness of BTA's influence on CDH flow. The objectives of the study were to determine the dynamics of the clinical picture of CDH, the possibilities of the effect of BTA on the activity of antinociceptive systems and cerebral blood flow.

MATERIAL AND METHODS

The study included 54 patients at the Department of Neurology, city Clinical hospital (Tashkent), of them 31 women and 23 men, with an average age of 42 years and a disease duration of 3 years.

The criteria for inclusion in the study was the presence of CDH with a frequency of attacks at least 4 hours a day, at least 12 days per month within 6 months. The primary headaches in the anamnesis corresponded to chronic migraine and chronic tension type headache in accordance with the ICHA of the 3rd version (2014).

The criteria for excluding patients from the study were the presence of skin inflammation at the injection site, an allergy to the injected drug or its components, patients with hemophilia.

Excluded patients with complicated forms of migraine (hemiplegic, ophthalmic or basilar migraine) and a high level of depression, receiving botulinum therapy less than 3 months before the study, patients abusing alcohol. The study did not include pregnant, breastfeeding and women planning pregnancy in the next 3 months. The use of antibiotics, aminoglycosides and muscle relaxants was excluded.

The study was conducted prior to treatment and 10 days and 4 weeks after the administration of 155 ED of the Neuronax to the standard points and 45 ED to the muscles of the head and neck by the method of "following the pain." [3]. The number of points for injecting a particular muscle was determined by the localization of the pain, the patient's condition, the patient's constitution and the severity of the pain. The drug was administered in m. corrugator, m. procerus, m. frontalis, m.temporalis and m. occipitalis.

An additional intake of analgesics was allowed with an insufficient analgesic effect of the drug, which was recorded in the diary of a headache.

Methods of the study include clinical-neurological examination, filling in the diaries of HA (recording frequency, duration, intensity on visual analog scale (VAS), the number of analgesic drugs taken), determining threshold of pain sensitivity and threshold of reflex (RIII); to study emotional sphere was carried out on the scale of self-assessment of anxiety and depression - HADS. The degree of muscle strain was assessed by skin EMG-monitoring of face and neck muscles (temporal muscles, frontal, cervical and trapezius), palpate oral determination of the state of muscles by verbal scale from 0 to 3 points. The state of cerebral blood flow was studied with the help of ultrasound dopplerography of extra- and

intracranial vessels (velocity parameters of vertebral blood flow (V3 and V4 segments) and the main arteries, the presence of signs of extravasal influence on the blood flow vertebral arteries, as well as the state of venous outflow on vertebral plexuses).

Statistical processing of data was carried out using the computer program Statistica for Windows. Parametric and nonparametric methods of statistical analysis (Student, Wilcoxon, and Mann-Whitney) were used. When comparing the variational series, significant differences were taken into account ($p<0.05$).

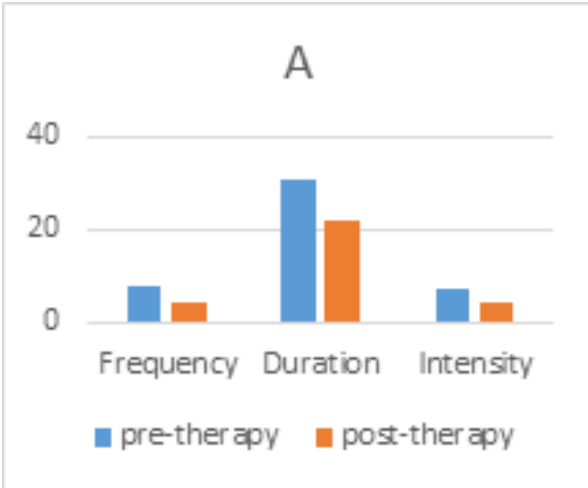
RESULTS AND DISCUSSION

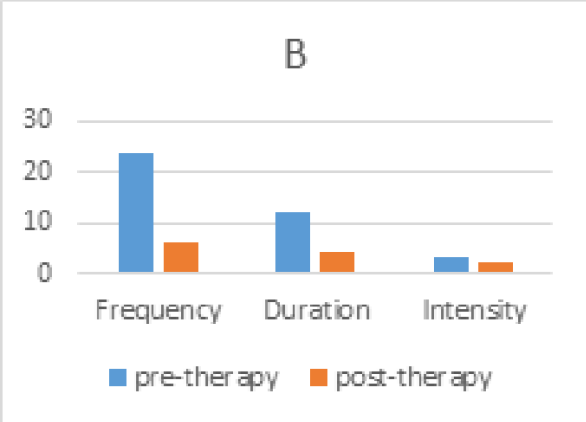
All patients had a history of episodes of migraine or tension headache. Transition HA from episodic to chronic daily occurred imperceptibly, and only in rare cases patients could name the exact date of the transformation.

All patients complained of a daily or almost daily headache, which was represented by background and paroxysmal pain. Background pain was long, bilateral, worn, sometimes pulsating, with fuzzy lateralization. They were noted on average during (25ë4) days per month, the attack lasted on average (12.9ë1.1) h. According to VAS, intensity was on average (3.1ë0.2) points. Concomitant symptoms in the picture, nausea was noted in 20% of cases. Factors that provoke background pain could not be identified, as it pursued patients almost daily, regardless of the general condition, psycho-emotional overload and other factors. The paroxysmal pain was more intense, pulsating, sometimes pressing, with pronounced lateralization, the accent on the right and left was expressed in 12% of cases. Attacks of paroxysmal pain were noted on average (7.7ë 1.6) times a month for (35ë4) h, intensity according to VAS reached (7.8ë0.5) points (Fig. 1).

Concomitant symptoms more often were nausea, phonophobia and photophobia (39%) and vomiting (24%). Among the provoking factors, stress was noted more often than others, in 75% of cases, in 25% the cause of worsening was a change in the weather, in 22% of patients, the attack was provoked by turns of the head or uncomfortable posture. 51% of patients with CDH had a drug abuse - systematic intake of analgesic drugs. Patients with abuse took simple and combined analgesic drugs for the last 3 years (average for the group); average number of analgesic medications taken was 92 tablets per month.

Figure 1. Characteristics of the pain syndrome before and after treatment: A - paroxysmal headache; B - background headache; * - p <0.05



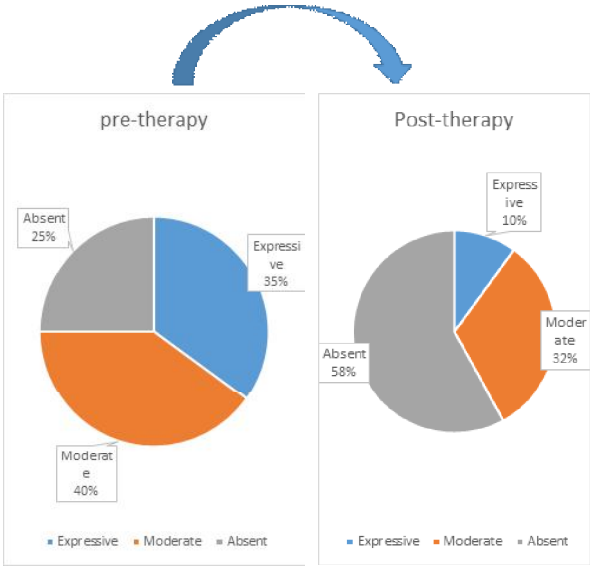


When investigating functional activity of nociceptive and antinociceptive systems utilizing nociceptive flexor reflex, significantly ($p < 0.05$) decrease in the subjective pain threshold was revealed 5.4±1.2. Threshold of nociceptive flexor reflex was 6.4±1.4 and the ratio of the indices of the subjective pain threshold to the threshold of the nociceptive flexor reflex was 0.85±0.2 in all patients with CDH.

With neurologic examination during the Interictal period and during the attacks, there was a lack of focal symptomatology. Paraclinical research and neurological examination (examination of the fundus, magnetic resonance and computed tomography, electroencephalography) showed no signs of organic brain damage.

As a result of the treatment, a significant ($p<0.05$) decrease in the duration and intensity of paroxysmal pain to (11,0 ± 0,2) h and (6,5 ± 2,2) points in VAS, as well as frequencies up to (12,0 ± 1,2) of an attack and duration up to (6,0 ± 1,4) h of background pain. Significantly ($p<0.05$), the tension of pericranial and cervical muscles decreased according to EMG and palpation study by verbal scale. Significantly, important changes in pain thresholds, both subjective and objective, were not obtained. When analyzing data of ultrasound imaging and TCD, the following results were revealed: Before treatment, all patients (100%) had an extravasal effect on the blood flow through the vertebral arteries: 75% expressed and 25% moderate. After treatment, 36% of patients had no extravasal effect, and 64% had moderate ($p<0.05$). Venous discirculation before treatment was noted in 73% of patients (in 44% severe violations of venous outflow, in 56% moderate disorders), after treatment, normalization of venous outflow was noted in 58% of patients ($p<0.05$), of which only 10% change retained their severity (Figure 2).

Fig. 2. Condition of venous outflow on vertebral plexuses before and after treatment Extravagant influence



CONCLUSION

As a result of the therapy, a significant decrease in the duration and intensity

of paroxysmal pain, as well as the frequency and duration of background pain, was obtained, which indicates the effectiveness of botulinum therapy in patients with HBH. There was no significant effect of BTA on antinociceptive systems in the study. Analysis of data of ultrasound imaging and TCD indicates an improvement in cerebral blood flow in patients with chronic forms of primary HA with BTA injections. It is assumed that hemodynamic disorders of cerebral blood flow in the vertebral arteries and veins are more associated not with direct vertebral impact, but with the effect on the vessels of the pathologically enlarged posterior muscles of the neck due to muscular-tonic syndrome. Thus, the results of a pilot study indicate the effect of BTA injections on cerebral blood flow by optimizing both the arterial influx and venous outflow from the cranial cavity. The obtained data, possibly, will allow expanding the indications for the appointment of BTA and indicating the need for more extensive research.

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Psychological features of personality in cancer patients

Khusnigul Mukhtarjanova, Dilfuza Mamarasulova, Sokhiba Yakubbekova
Department of Oncology, Andijan State Medical Institute, Andijan, Uzbekistan.

Bekhzod Abdullaev
Department of Oncology, Tashkent Medical Academy, Tashkent, Uzbekistan.

Email address:
author.uzb@mail.ru (corresponding author), bekhzod7abdullayev@gmail.com (Bekhzod Abdullaev), ayntraxt@gmail.com

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Abstract: The role of psychological factor in the development of the disease, as well as the cure, is not supported, or even denied, by doctors who are working with oncological patients. Meanwhile, some researchers consider that personal characteristics of patients with cancer, their internal picture of disease, indicate a special role of the psychological factor in the development and course of cancer. In this article, we discuss the psychological characteristics of the personality of oncological patients, all breast cancer, cervical cancer, uterine cancer, and ovarian cancer. We conducted a questionnaire on the scale C.D. Spielberg, Yu.L. Khanin for self-assessment of the level of anxiety, Lusher's test for self-diagnosis and correction of psychological state on the scale of T. Holmes. To sum up, patients with malignant neoplasms are less excitable, demonstrative and exalted, more anxious and emotive compared to the control group of healthy subjects.

Keywords: cancer, psychological factor, anxiety, test Lusher, malignant neoplasm.

BACKGROUND

One of the tasks facing science is to solve the cancer problem, to find its causes and to be able to cure sick people from it. Naturally, scientific methods, revealing certain factors contributing to the development of cancer, remain in front of the closed door in the main questions: "Why do some people fall ill while others living in the same physical conditions do not?" The role of the psychological factor in the development of the disease, as well as the cure is not supported, or even is denied by doctors who work with oncological patients. Meanwhile, some researchers (Nikolaeva

V.V., and S. Simonton, G. Porter and P. Noriss), considering personal features of the patient with human cancer, his internal picture of the disease, indicate a special role of the psychological factor in the development and course of cancer. There are confirmed on a large sample of the idea of the psychological predisposition to some somatic diseases, the "infantile" personality, the regressive mechanisms of the emergence of various diseases, including cancer. In particular, the presence of stress preceding the disease is noted.

The purpose of the study is to investigate direction of psychological characteristics of people subjected to malignant tumor.

MATERIAL AND METHODS

Overall, 131 patients were examined who were in the oncological hospital, whose age was 57.1 ë 13.9. We divided into 2 groups: 1 group of patients of which consisted of 76 patients with malignant neoplasms, and 55 healthy patients were examined. We collected a history of the patient's life and psychodiagnostic study using the following techniques: Scale C.D. Spielberg, Y.L. Khanina - scale of self-esteem level of anxiety. Lusher's test is for self-diagnosis and correction of his psychological state. Severe stressful events - more than 40 points on the scale of T. Holmes.

RESULTS

We conducted questionnaire to identify the personality traits contributing to the disease, according to J. Beckmann, "victim syndrome" patients with cancer had: a negative attitude towards themselves and others, stubbornness and inflexibility of character, frustration and suspicion, rancor and inability to forgive, guilt and self-flagellation, vulnerability and sensitivity, concern and insecurity, weakened control over their feelings, instability and aggressiveness, excitability and nervousness habit to inefficient food.

Table 1. Frequency of occurrence of depressive disorders in different age groups of cancer patients and healthy

Age group	Frequency of depressive disorders, abs /%	
	Cancer patients	Healthy
0-19 age	3 / 1,57 ns	0 / 0 ns
20-39 age	9 / 5,6 ns	0 / 0 ns
40-59 age	56 / 31***	52/ 4,1***
60-79 age	8 / 18,6 ns	3 / 15,4 ns

As can be seen from the table in both groups, the incidence of depressive disorders was in the ages of 40 to 59 years.

As can be seen from the diagram, in patients with malignant tumor, moderate anxiety was detected in the questionnaire in 40%, while in the 2 group among healthy subjects moderate anxiety was revealed in 67% of cases, but high anxiety was revealed only in patients with malignant patients, at that time as in the group in the control group there were no patients with high anxiety.

As can be seen from the diagram, patients with malignant neoplasms are less excitable, demonstrative and exalted, more anxious and emotive compared to the control group of healthy subjects.

Mental peculiarities characteristic for patients with separate forms of malignant neoplasms: in patients with breast cancer, there was a high incidence of depressive disorders, high emotion, a high incidence of severe stress events in the anamnesis. Patients with cervical cancer had a high incidence of generalized anxiety disorder, high emotion, a high incidence of severe stressful events in the anamnesis.

Because of studying the family history among cancer patients, we found out that these patients in the family had their neighbor's death, divorce, childlessness if they wanted to have a child, lack of family, widowhood.

CONCLUSIONS

Among patients with malignant neoplasms, more often than in the general population, mental disorders are identified due to the high incidence of depressive, anxious, cognitive disorders, asthenic disorder and anxiety disorder of the individual.

Patients with malignant neoplasms are less excitable, demonstrative and exalted, more anxious and emotive compared to the control group of healthy subjects. Patients with separate nosological forms of malignant tumors have characteristic psychopathological and sociopsychological features that distinguish them from patients with other forms of malignant neoplasms: breast cancer patients are characterized by a high incidence of anxiety reactions, high emotion and a high incidence of severe stressful events in the anamnesis.

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Israel, Yashresh