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**ABSTRACT E-BOOK**

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## **P1**

### **Trends in deep vein thrombosis and oedema prophylaxis in patients after lower limb injuries**

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#### **Key words**

deep vein thrombosis, oedema, anticoagulants, injury, prophylaxis

#### **Abstract**

##### **Introduction**

Patients after lower limb injuries are at increased risk of developing deep vein thrombosis (DVT) caused by their immobilization and oedema. The use of variety of methods of DVT and oedema prophylaxis is inevitable to decrease the risk of thromboembolic events.

##### **Aim**

This investigation evaluates trends in post-traumatic DVT and oedema prophylaxis and reports on adapted methods.

##### **Material and Methods**

The study included 152 patients: 50 with bone fracture, 58 joint sprain and 44 suffered from bone bruising. Data were collected on patients' age, sex, and hypercoagulability tests. The effects of post-injury medication and types of additional treatment methods were recorded.

##### **Results**

Low molecular weight heparin was the most commonly prescribed anticoagulant in primary prevention. Other medications included in the study were acetylsalicylic acid, rivaroxaban, acenocumarol and sulodexide. Oedema prevention comprised mostly positioning (leg elevation) and cold wrapping.

At the follow-up visit more than half of the patients continued antithrombotic treatment and edema prophylaxis for up to 30 days. In this group pharmacological methods included mostly heparin (58.7%) and sulodexide (35.1%).

Along with leg positioning (76.3%) and cold wrapping (68.4%), sulodexide was the most commonly prescribed medication in prolonged oedema prevention (28.3%).

##### **Conclusion**

In patients after lower limb injury, low molecular weight heparin and leg positioning are the most commonly prescribed prophylaxis. Nevertheless, it is well recognized that after major orthopaedic surgeries the risk of DVT persists for up to 3 months. Therefore, there is a need for extending the treatment and introducing the scheme for prolonged DVT prevention in orthopaedic patients.

## **P2**

### **Sonosurgical application technique of locking plate (blocking bar) in the surgical treatment of the asymmetrical pectus carinatum - description of the technique and preliminary results**

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#### **Key words**

congenital chest defomation, pectus carinatum, pigeon chest, blocking bar, sonosurgery, application technique

#### **Abstract**

##### Introduction

The pioneer who introduced the plate for the funnel type chest deformation of was Donald Nuss. On the other hand Horacio Abramson was first in surgical treatment of pectus carinatum deformity with locking plate. Since then, operational techniques have been modified and new models of locking plates have been introduced. Our team has developed and patented a universal plate model. We are also authors of the atraumatic technique of plate placing (application) in ultrasound imaging.

##### Aim

1. Presentation of sonosurgical application technique in surgical treatment of asymmetric pectus carinatum deformation with the use of a locked plate.
2. Preliminary assessment of treatment results.

##### Material and Methods

For over 200 children with chest deformities treated surgically in our centre in 2011-2018, in 6 patients with pectus carinatum, the technique of point compression was applied to the chest using a locking plate, which was assumed in ultrasound imaging. The technique consists in precise modelling of the plate, so that the point pressure on the wall of the chicken-type chest causes its correction. The children were qualified for surgery based on the protocol given by Nuss.

##### Results

The subjective evaluation of correction results in all patients was very good. Based on the performed radiographs, the correct parameters were obtained. On the performed sonograms, the bridge has a parallel path to the plate.

##### Conclusion

1. The presented technique is simple and friendly for an orthopaedist and patient.
2. The initial results achieved: cosmetic (subjective) and objective are very good.

### **P3**

#### **Histological changes of knee meniscus after trauma**

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##### **Key words**

meniscus healing, cell biology, meniscal tear

##### **Abstract**

###### **Introduction**

It's all known that's preservation of meniscus after traumatic tear leads in good results in terms of knee function and osteoarthritis prevention. In most cases only mechanical properties of detached part of the meniscus defines selection of treatment strategy. It may be that for this reason we still have more than 30% cases of re-tears. There is few information in available literature about changes in meniscal tissue after trauma in course of time.

###### **Aim**

The aim of this study was to assess cellularity and tissue quality in different time points after injury.

###### **Material and Methods**

We made a histologic assessment of 62 samples of detached part of the medial meniscus of the knee what was retrieved after arthroscopic resection in patients under 40 with acute and chronic injury. It was estimated a general cellularity and tissue quality in according to Rodeo scale.

###### **Results**

It was observed statistically significant decreasing of cellularity of the of detached part of the medial meniscus after 4 months after injury. A median in according to Rodeo scale before 4 months was 4 [95% CI 4;5] and after 4 months – 3 [95% CI 3;4].

###### **Conclusion**

Understanding of the tissue deterioration with course of time will hopefully leads us to enhancement of clinical results of repair of the meniscus.

**Operative treatment of cavus foot deformity with children with neuroorthopedic disorders**

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**Key words**

cavus, foot

**Abstract**

**Introduction**

Cavus foot deformity is caused mainly by neuroorthopedic disorders. Conservative methods of treatment don't improve cavus foot deformity.

**Aim**

The aim of the study was cavus foot correction.

**Material and Methods**

25 children (from 3 to 15 years old) with different neuroorthopedic pathology were examined. 17 children were over 10 years old. 61 operations were performed. Before and after surgery every patient passed evaluated the X-ray and dynamic photoplantography examination. Surgery was performed in two stages. At first we performed surgery on soft tissue component, which was combined with osteotomies in 6 cases. At severe deformities plantar release was performed from medial Henry approach. At milder deformities we used plantar Tachdjian approach. In 9 cases we performed achillotomy using semi-open method. Anterior transfer of the tibialis posterior tendon was performed in 2 cases. Corrective cast was applied for 3 month. The second stage of surgery was aimed to improve the ankle joint extension and to eliminate the claw-toe deformity. We performed a transfer of long toe extensors to heads of metatarsals in 10 cases.

**Results**

with 22 patients we've received good results. In 3 severe cases cavus deformity has a tendency to persist due to serious underlying disease. We prefer to use soft tissue procedures and minimum bone osteotomies.

**Conclusion**

operative treatment of cavus foot deformity in children with neuroorthopedic disorders is effective method for deformity correction.

**P5**

## **Examination of torsional profile of lower extremities vs ROM measurement**

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### **Key words**

Torsional profile, ultrasonography, computer tomography

### **Abstract**

#### Introduction

New features of ultrasound torsional profile examination was estimated.

#### Aim

The aim was to estimate ROM data relevance to long bones torsion.

#### Material and Methods

We used ultrasound torsional profile examination method and compare it with ROM (range of motion) data and CT estimation of torsional profile. For torsion measurement patient was in supine position and standing position.

#### Results

Measured ultrasound femur condyles inclination angle and femur condylar axis on computer tomography scan was compared. Measurement mistake of ultrasound condyles inclination angle was estimated by comparison of two examinations with one day period. This mistake was  $2.2 \pm 0.8$  degrees. Difference between ultrasound femur condyles inclination angle and CT femur condylar axis version came to  $7.3 \pm 1.2$  degrees. Mean value of ultrasound femur condyles inclination angle was  $13.1 \pm 5.1$  degrees.

#### Conclusion

Ultrasonography and CT scans measurement difference caused by patient weightbearing position. Measurement of ultrasound femur condyles inclination angle is simple, non ionizing technique for as screening of lower extremity torsional profile abnormality. ROM examination has poor correlation with bones torsion

**P6**

## **Management of delayed union of tibial fracture with intramedullary fixation**

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### **Key words**

intramedullary fixation, tibial fracture, diagnostic accuracy.

### **Abstract**

#### **Introduction**

tibial fractures can be treated successfully in the majority of the cases, yet non-union of the tibia are not uncommon. It may result in significant morbidity, require numerous operative procedures, and leave the patient with functional deficits. Tibial non-union treatment requires establishing its existence and eliminate reasons. In our cases we used intramedullary fixation for treatment. The decision algorithm necessitates consideration of a wide variety of factors: the location of the non-union, absence of infection, angular or rotational deformities.

#### **Aim**

treatment correction for preventing non-union in patients with incomplete healing of tibial fracture at 3 months.

#### **Materials & Methods**

34 patients who underwent intramedullary fixation for tibia fractures with incomplete healing at three months. An analysis of 54 cases patients treated between 2016-2018 with intramedullary fixation for tibia fractures who had incomplete healing at three months. For tactic correction, we performed the three-month radiographs and clinical examination.

#### **Results**

If poor callus was diagnosed in 72% of patient, we performed dynamization of the IM nail. In 28% of patients retarded healing was accompany by construction failure we performed reposition and refixation of fragments. Radiographic features and injury mechanism were the most commonly cited clinical information used to predict fracture non-union. The average positive predictive value was 76%. In 11 patients with diabetes, the diagnostic accuracy was 89%.

**Conclusion:** clinical judgment at three months allows for treatment correction for preventing non-union in patients.

**Single free arthroscopic release of TFCC as a way to treatment chronic distal radio-ulnar instability. Case report**

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**Key words**

TFCC, distal radio-ulnar instability, arthroscopic treatment

**Abstract**

**Introduction**

Chronic radio-ulnar instability is a fairly common pathology among injuries of the arm, the main cause of which is damage to TFCC.

**Aim**

Improving treatment results for patients with distal radio-ulnar instability.

**Material and Methods**

Male patient 35 years old visited the hand surgery department of the Minsk clinical hospital №6 with the injury of the right wrist as a result of sport trauma. The patient had all signs of instability of the distal radio-ulnar joint (pain during ulnar deviation, "clicks" during the internal and external rotation, local pain in the ulnar side of the wrist). The diagnosis was confirmed by MRI.

Surgery: Arthroscopy of the right carpal joint revealed injury to the triangular disc (its base was turned up in the side of the articular surface of the ulnar bone head. There was injury to the triangular-ulnar ligament (it was loosened and had weak tension). Arthroscopic ligament was released and the triangular disc became free.

In the postoperative period, the arm was immobilized with an elongated cast with fixation of the forearm in a neutral position for 6 weeks, after that fixation with a shortened cast for 2 weeks.

**Results**

Six months follow-up: recovery of the amplitude of movements at wrist, no pain and absence of signs of distal radio-ulnar instability were noted. At MRI was noted correct form of the articular disc, normal tension and homogeneous structure of the wrist ligaments.

**Conclusion**

The effectiveness of free arthroscopic release of TFCC at case of chronic DRUI was detected.



**Application of multi-walled carbon nanotubes for articular cartilage growth**

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**Key words**

carbon nanotubes, scaffold, cartilage tissue engineering, chondrocyte

**Abstract**

**Introduction**

Degenerative joint disease, resulting from an articular cartilage defects, is the most common disorder of the musculoskeletal system. Currently, the research has focused on introducing novel surgical techniques and the application of more advanced biomaterials which might be used in repairing of the articular cartilage defects.

**Aim**

Our project was designed to develop an innovative scaffold, based on a multi-walled carbon nanotubes (MWCNTs), which can be used for an articular cartilage repair.

**Material and Methods**

An original carbon scaffold, composed of nanotubes of three different densities used for chondrocyte growth, was designed. The physicochemical and mechanical features of the biomaterial were determined by scanning electron microscopy (SEM) and energy dispersive X-ray spectroscopy (EDX). Next, chondrocyte growth and expansion on a different MWCNTs scaffolds was investigated.

**Results**

The results showed that chondrocyte proliferation was most effective on the surface of highest density of nanotubes. The cells adhered well to the MWCNTs surface and were evenly distributed. The cell extensions (filopodia) were adjusted to the geometry of nanotubes, resulting in the formation of a 3D structure. The interaction between the filopodia and carbon nanotubes led to the alteration of cell morphology and the direction of their growth. Moreover, no toxic effects of MWCNTs towards chondrocytes was observed.

**Conclusion**

Most of the previous studies indicated that carbon fibers are appropriate cell carriers. Our study demonstrated that the MWCNT-based scaffolds stimulate and support the growth of chondrocytes and therefore are more suitable for restoring the multi-layer structure of the cartilage.

**Differential diagnosis of Blount's disease and rickets-like diseases**

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**Key words**

Blount's disease, rickets-like diseases

**Abstract**

**Introduction**

Considering the similarity of the clinical and radiological picture of Blount's disease and vitamin D-dependent rickets, paediatric orthopaedists and paediatricians make many mistakes in correct and timely diagnosis of these pathologies.

**Aim**

To prevent incorrect, sometimes over-aggressive treatment tactics.

**Material and Methods**

Material for the study of the case reports and radiographs of 58 patients: 29 patients with Blount's disease (1st and 2nd stage according to Langenskiold and I-II degree deformation), and 29 patients with a diagnosis of Vitamin D-dependent rickets (type 1 and 2). The age of the patients ranged from 6 months to 8 years old.

The patients underwent radiological and laboratory studies. The material was processed statistically.

**Results**

The main criterion for laboratory differential diagnosis of vitamin D-dependent rickets and Blount's disease is a genetic disturbance of the ratio between the amount of calcidiol and calcitriol in the blood serum, combined with a significant increase in bone metabolism (an increase in osteocalcin levels) that does not occur in early Blount's disease.

**Conclusion**

Considering the similarity of the radiographic data of Blount's disease in the early stages and vitamin D-dependent rickets, all patients, with a clinic of varus deformity of the lower limbs after 2 years old need to undergo screening biochemical examination of bone tissue metabolism.

**P10**

## **Some varieties of cellular therapy in patients with degenerative lesions of joints**

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### **Key words**

PRP, HPL, degenerative lesion

### **Abstract**

#### **Introduction**

The longevity of a joint working by applying conservative methods of treatment at degenerative lesion has now become an urgent problem

#### **Aim**

To demonstrate the efficiency of modern conservative (injectational) methods of initial stages of knee and hip osteoarthritis treatment in outpatients.

#### **Material and Methods**

54 patients were examined and treated. We used clinical examination and functional methods of examination such as X-ray, ultrasound, multispiral computed tomography, MRI methods. Statistic processing of the data of treatment results was provided in 6 stages: before the treatment started, in 14 days, in 21 days, in 3 months, in 6 months and in 9 months. All the patients underwent conservative treatment, using only injections. The following methods were applied: 34 patients received PRP (plasma rich in platelets) therapy; 10 patients received PRP therapy plus low molecular weight hyaluronic acid; 3 patients received the treatment of HPL (Human Platelet Lysate); and 7 patients received HPL therapy together with low molecular weight hyaluronic acid.

#### **Results**

Application of PRP-therapy and PRP plus hyaluronic acid therapy has produced long term clinical effect in the form of absence of pain syndrome during 64 weeks but the functional methods of research demonstrated an insignificant deterioration of osteoarthritis by joint space narrowing and an insignificant osteophyte increasing. Application of HPL therapy did not allow to get a satisfactory clinical effect, but using HPL therapy with hyaluronic acid allowed to have a persistent clinical effect even at the 3-d stage of the process for 47 weeks

#### **Conclusion**

Modern methods of regenerative medicine allow to prolong the life of joints and avoid operational methods of treatment or delay them

**P11**

**Our experience of applying human platelet lysate at treating chronic knee synovitis caused by a constant stress**

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**Key words**

Human platelet lysate, knee joint, synovitis

**Abstract**

**Introduction**

The issue of chronic synovitis, as a result of constant strain that causes degenerative dystrophic changes in a joint is urgent today

**Aim**

To show efficiency of human platelet lysate in treating chronic inflammation processes in joints of patients whose life is connected with a stable every day stress of the lower limbs

**Material and Methods**

20 patients were examined and treated. Statistic processing of the treatment data was provided in 5 stages: before the treatment started, in 14 days after it, in one month, in 3 months, in 6 months and in 12 months. 10 patients received intra-articular human platelet lysate in a course of 6 injections within 3 weeks. 10 patients received per-orally non-steroidal anti-inflammatory drugs within 10 days together with physiotherapeutic methods. In the first case patients got their usual stress on the joint. In the second case the stress was maximally limited during the 10 days of treatment

**Results**

Human platelet lysate application showed a long-lasting clinical effect in the form of absence of inflammation and pain syndrome for 10 months, though the patients received their usual stress during treatment and within all the time after the last injection. Application of non-steroidal anti-inflammatory medicines together with physiotherapeutic methods allowed to get satisfactory results of clinic effect only for a month under condition that the stress of the joint is limited. With the usual stress received again, inflammation and pain re-appeared which needed a new treatment

**Conclusion**

Human platelet lysate therapy can be an alternative method of chronic knee synovitis treatment of patients whose life is connected with a regular day-to-day stress of lower limbs.

**Surgical Treatment of Multiplanar Deformations of Lower Extremities with D-resistant Rickets**

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**Key words**

vitamin-D-resistant rickets, multiplanar deformations, rickets-like disease

**Abstract**

**Introduction**

Patients with vitamin-D-resistant rickets (VDRR, phosphate-diabetes) have multiplanar deformations (91.94%) with impaired function and support of the lower extremities.

**Aim**

Improve treatment outcomes.

**Material and Methods**

12 patients with FD aged 11 to 18 years with multiplanar deformations of the lower extremities were treated on the basis of Clinic of Traumatology and Orthopaedics of Childhood of SI "Institute of Traumatology and Orthopaedics of the NAMS of Ukraine" from 2009 to 2018, which largely violated the function of stroke and biomechanics of the lower extremities.

**Results**

In order to correct deformations of the lower extremities in all patients, we eliminated the multiplanar deformation of each of the four segments of the lower extremities. In total, thirty-six operations with fixation with intramedullary blocking shaft were made, which allowed to stably fix the limb after surgical intervention. This type of fixation, at multi-level correction osteotomy, was applied exclusively to patients with closed areas of growth.

Beginning from 2013, we started to use our advanced intramedullary telescopic shaft, which "grows", to fix the fragments after multi-level surgical corrections of multiplanar deformations of bones of the lower extremities in younger children, where the long bone growth zones remained preserved (12 surgeries). And for children with uniplanar frontal deformation and preserved potential of the growth zone with VDRR – temporary hemiepiphyodesis (18 surgeries).

**Conclusion**

The proposed methods for surgical treatment are the methods of choice for patients with multiplanar deformations at rickets-like diseases, because in a timely diagnosis, this group of patients may not achieve such significant deformations of the lower extremities.

**Functional outcome of distal radius fracture in patients with mean age of 75years at a mean of 5.4 years**

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**Key words**

Hand and Wrist Trauma, Surgical Treatment, Functional Outcome, K-Wire, Plate, Fracture

**Abstract**

**Introduction**

Distal radius fracture is common and presents with varied levels of severity. Management is varied, with long term functional outcome largely unknown.

**Aim**

The aim of the current paper is to evaluate the late functional outcome.

**Material and Methods**

Fifty patients (44 female and 6 male) treated for distal radial fracture. The mean age of the patients was 75 years. Frykman classification was used to assess the severity of the injury. Management options were conservative and surgical using either K wires or plate fixation.

At a mean 5.4 years follow up, a validated questionnaire about functional ability was completed using telephone questionnaire.

**Results**

The functional outcome was dependent on the degree of reduction and stability of fixation; however, this was not always predictable. Factors such as fear, weakness of grip, pain, and other co-morbidities altered the predicted functional outcome score. Regarding having good functional outcome following good reduction of the fracture, the positive outcome was most predictable in the K wire group, and worse in the plate group.

With regards to age, the outcome of managing younger patients was relatively better predicted than older patients. However, the number of cases was not substantial enough to come to a reliable conclusion.

**Conclusion**

The outcome of radial fracture treatment in elderly is generally associated with good outcome. However, confounding factors can contribute to unpredictable results despite surgery. The outcome was most satisfactory in patients undergoing K wire fixation.

**P14**

## **The use of antifibrinolytics in total knee arthroplasty**

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### **Key words**

knee arthroplasty, blood loss, aminocaproic acid, tranexamic acid, blood transfusion, economic costs

### **Abstract**

#### **Introduction**

The inhibitors of fibrinolysis are successfully used in orthopaedic practice, however, the choice of the corresponding drug and the optimal method of administration is still widely discussed.

#### **Aim**

Evaluate the efficiency, safety and costs of combined use (intravenous and intra-articular) of tranexamic (TXA) and aminocaproic acid (ACA) in reducing perioperative blood loss during TKA.

#### **Material and Methods**

A prospective, randomized clinical trial was conducted involving 180 patients with knee osteoarthritis who had undergone primary unilateral TKA. Patients in the first group (60) received ACA (50 mg/ml solution) in an administered dose of 100 mg/kg (intravenous) before the surgery and 1 g (intra-articular) administration at the end of surgery. Patients in the second group (60) received TXA in doses of 15 mg/kg (intravenous) before the surgery and 1 g dissolved in 20 ml saline solution (intra-articular) at the end of the surgery. Patients in the control group (n=60) didn't receive inhibitors of fibrinolysis. The blood loss, difference in the reduction of haemoglobin concentration, blood transfusions rates and costs were estimated.

#### **Results**

There was no significant difference in the reduction of haemoglobin concentration and blood loss between ACA and TXA group, while in the control group these values were larger. 7 patients in the control group received allogenic blood transfusion. The patients in the ACA and TXA groups didn't require blood transfusion.

#### **Conclusion**

Combined application of inhibitors of fibrinolysis is an effective and safe method of reducing perioperative blood loss. However, the use of ACA is accompanied by lower economic costs.

## **Curettage versus wide resection for treatment of tumour induced osteomalacia: A systematic review**

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### **Key words**

FGF23, Wide Resection, Curettage, Mesenchymal Tumours, Tumour Induced Osteomalacia

### **Abstract**

#### Introduction

Tumour-induced osteomalacia (TIO) is a rare paraneoplastic syndrome which presents clinically with muscle weakness, pain and fractures. Surgical options include curettage or wide resection (WR).

#### Aim

Our aim is to compare the recurrence rate between WR and curettage in surgical treatment of TIO.

#### Material and Methods

PubMed and Web of Science databases were systematically searched and assessed. All reported cases in English of appendicular, skeletal, unifocal and benign TIO with at least 6 months of follow-up were considered. A systematic review was performed examining local recurrence as the primary outcome of interest.

#### Results

One cohort study, 11 case series and 24 case reports were considered. 87 patients were included; 65 treated with WR and 22 treated with curettage. Local recurrence rates were 7.7% (5 patients) and 54.5% (12 patients) in the WR and curettage groups respectively. Patients treated with WR as index operation had a lower relative risk ([RR] 0.49; 95% [CI] 0.31-0.78) of recurrence.

Of the 12 patients who underwent curettage with recurrence, 8 patients consented for second surgery. 25% (2 patients) underwent further re-curettage with cure rate of 0%. 75% (6 patients) underwent further WR with a cure rate of 83% (5 patients). Overall cure rate for patients who underwent curettage as index operation and patients who underwent the former followed by WR for recurrence was 93.8%.

#### Conclusion

Our review suggests wide resection has a lower recurrence rate than curettage at index operation. Curettage at index operation followed by wide resection for recurrence has a cure rate comparable to wide resection at index operation.



## **P16**

**The role of the MESS and NISSSA score in the decision of amputation or limb salvage. Do they always have the biggest impact on the final decision? Case study**

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### **Key words**

MESS score, NISSSA score, amputation, limb salvage

### **Abstract**

#### **Introduction**

The MESS and NISSSA scales help doctors assessing patients with massive limb injuries and taking decision about an amputation or limb salvage. When using both scales better outcomes could be achieved. However, in some situations when the calculation indicates amputation in contrast with individual approach to the patient it is worth to take the decision of limb salvage.

#### **Aim**

The aim of this study is to present a single case of the patient who was hit by two trams. He sustained amputation of his right arm, right crus and large open fracture of the left crus with bone and soft tissues deficiency (Gustillo Anderson IIIB).

#### **Material and Methods**

In both scales MESS (he got 9/12 points) and NISSSA (he got 11/19 points), the patient would be eligible for an amputation. However, due to the fact that he had lost his two limbs, regardless of indications for amputation, the decision of rescuing the left leg was made. Debridement, Negative Pressure Vacuum Therapy(NPVT), external stabilization, bone grafts (fibular pro tibia), plate fixation, muscular flaps and skin grafts were used during treatment.

#### **Results**

Currently, soft tissues and grafted bone were healed. Despite the fact that some complications appeared and the patient require further treatment, he has his own left leg. The patient had been hospitalized since January 2nd to May 22nd. Now he is under orthopaedic control.

#### **Conclusion**

Despite the severity of injury which qualify patients for limb amputation, long lasting treatment and high risk of complications, in some individual cases we can try to rescue a limb.

**P17**

## **Risk factors of developmental hip dysplasia**

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### **Key words**

hip dysplasia, risk factor, ultrasound, ddh

### **Abstract**

#### Introduction

Late diagnosed hip dysplasia is still a problem for the population. For many years, these risk factors have been considered as factors causing hip dysplasia: female sex, birthright, breech position, oligohydramnios, gestational diabetes, etc. Many countries, based on those risk factors, build a screening system when directing the child to sonographic hip examination.

#### Aim

The aim of the study was to reevaluate risk factors of developmental hip dysplasia

#### Material and Methods

Our group reviewed the material from the hip dysplasia screening clinic. Risk factors obtained from the interview were analysed using statistical methods.

#### Results

In the years 2011-2016, 2804 children (5608 hip joints) were examined. The average age on the day of the study was 7-8 weeks (3-67 weeks, SD 4.5 week). Type IIa was diagnosed in 9% of patients, type IIb and worse in 0.5% (28 hips). These dysplastic hips were treated with Pavlik's harness. Risk factors were reported in 4% of children. Half of this group had a positive family history (statistically significant). The trend was observed in female children and in breech position children. In the entire study group, only 3% of children were in a breech position. Among those children, type IIa hip was more often diagnosed.

#### Conclusion

1. Graf's type IIa occurred in 9% of patients, type IIb and worse in 0.5% of patients.
2. A positive family history is a significant risk factor of DDH.
3. Female sex and breech position may promote the occurrence of hip dysplasia, manifested most often by the rounding of the acetabular margin.

**P18**

## **Results of casting in recurrence of clubfoot deformity**

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### **Key words**

Club foot, recurrence, casting, non-surgical

### **Abstract**

#### Introduction

Clubfoot is a second most common congenital locomotor system malformation. Unfortunately, the compliance in bracing vary from family to family. In the literature the risk of recurrence of deformity was reported much higher when the brace was not used.

#### Aim

The aim of the study was to review the results of primary casting in recurrence of clubfoot deformity.

#### Material and Methods

We reviewed all in and outpatient charts in the hospital database from 2005 with use of the diagnosis code ICD10 Q66. The inclusion criteria were initial recasting in the relapse of clubfoot deformity. The minimal follow-up was 2 years.

#### Results

We identified 95 patients who met inclusion criteria. They were subdivided into two groups; in first 54 patients and 41 in the second. In the second group all patients were treated by a surgeon who routinely used casting procedure in relapse. In the first group, we observed 40% of relapse and surgery was advised. In the second group, we noticed 20% of relapse and the cast was applied. In the non-re-casting group, 18 children received surgery, only 2 in second. Three patients were described as waiting for surgery. Other cases in the second group resolved with 2-3 casts.

#### Conclusion

Early casting in observed relapse of clubfoot deformity improves foot shape and clinical parameters, decrease risk of surgery or minimalize its extent. More than half patients from second group, which primary was schedule for intervention, did not need surgery after recasting in 10 years follow-up.

**P19**

## **The benefit from ultrasound monitoring during clubfoot treatment**

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### **Key words**

Club foot, ultrasound, treatment

### **Abstract**

#### Introduction

Clubfoot is a second most common congenital locomotor system malformation. Introduction by Ponseti, a method of treatment based on serial casting and derotation brace made a revolution in the treatment.

#### Aim

Based on experience with use of ultrasound in hip dysplasia screening, we decided to evaluate the benefit from use of ultrasound in the monitoring of clubfoot treatment.

#### Material and Methods

We reviewed all in and outpatient charts in the hospital from 2005 database with use of the diagnosis code ICD10 Q66. We analyzed: demography, age at diagnosis, unilateral or both side clubfoot, first classification score, foot appearance at 2 years of age and at the last follow-up visit. The follow-up was minimum 2 years.

#### Results

We identified 95 patients who met inclusion criteria, 41 has been treated by the team used ultrasound as an additional tool in treatment follow-up. Seven were rejected because of primary treatment in other institution. Ultrasound examination allowed visualization of foot bone, navicular reduction, visualization of calcaneal-cuboid alignment. The talus movement was possible to visualize. When clubfoot reoccurred, the ultrasound report leaded to treatment adjustment and earlier cast implantation.

#### Conclusion

Ultrasound is an useful tool to monitor and follow-up clubfoot treatment in early age. It allows to visualize the amount and quality of reduction. Also, early recurrence or malalignment can be observed. This technic requires an experienced team, there is long learning curve. In early stage it is more useful then radiographs to visualize nonossified foot bones.

**Comparing local infiltration analgesia with femoral nerve block in total knee arthroplasty**

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**Key words**

local analgesia, nerve block, postoperative pain, total knee arthroplasty

**Abstract**

**Introduction**

Total knee replacement (TKA) is accompanied by severe pain syndrome in the early postoperative period. Pain prevents the mobility of the patient, which may increase the frequency of various complications and worsen the functional result.

**Aim**

Evaluate the efficiency and safety of local infiltration analgesia in comparison to a single shot femoral nerve block.

**Material and Methods**

Our prospective, comparative, randomized clinical trial was carried out on 120 patients undergoing TKA. For patients of the first group (40) we used local infiltration analgesia (LIA) of Ropivacaine 0,2% (100 ml in total). Patients of the second group (40) underwent ultrasound-guided single shot femoral nerve block (FNB) utilizing Ropivacaine 0.75% 20 ml at the end of the surgery. For patients of the third group (40) we didn't use LIA or FNB. Pain intensity at rest and upon movement at 4, 8 and 24 hours after the operation, the need to use opioid analgesics and the ability to straight leg raising were assessed.

**Results**

Using LIA and FNB, it was possible to significantly reduce the severity of pain and administration of opioid analgesics in patients of these groups, in comparison with the control group. However, patients of the FNB group experienced difficulties in performing active straight leg raising due to the affecting of FNB on motor function and weakening of the quadriceps muscle.

**Conclusion**

Both techniques provide good analgesia after TKA. But, in our opinion, LIA is better because it is cheaper and easier to perform.

**Long-term evaluation of shoulder arthroplasty patients- a prospective study**

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**Key words**

shoulder replacement, arthroplasty, upper limb, Physiotherapy, implant

**Abstract**

**Introduction**

Shoulder arthroplasty is procedure which intended to insert the implant in place of the pathologically changed head of the humerus and/or glenoid. The main problems of patients are: pain and reduction of ROM. Despite the medicine improvement, patients after operation are still a challenge for surgeons and physical therapists.

**Aim**

The aim of this study was a long-term evaluation of patients condition after shoulder arthroplasty.

**Material and Methods**

Group consist of 40 persons, the patients were classified for shoulder arthroplasty surgery. Eight of those patients was examined before the operations and after in 2018 for the purpose of those studies. The average age of the group was 65 y.o.

For patients evaluation measurements of ROM, upper limbs muscles force, the global grip strength and joint position sense was used. Additionally, the test was carried out based on own authorship questionnaire, DASH questionnaire, VAS and Constant scale.

**Results**

Main reasons to perform shoulder arthroplasty was: injuries – 19 of cases and degenerative changes – 18. In 6 cases treatment bring improvement. In 2 cases there was the need to perform reoperation. The ROM after treatment progress. Patients assess pain after surgery to 4,4 cm in VAS and they emphasize its reduction. The average level of satisfaction in patients group after treatment in scale where 1 is “bad”, and 5 is “really good”, was 3,6.

**Conclusion**

Comprehensive therapy may improve the functional condition in upper limb after shoulder arthroplasty. Presented study is preliminary study, but it revels certain need of long-lasting evaluation of patients after operation.

**P22**

**Analysis of the long-term results of conservative treatment of partial damages of the rotator-bicipital complex**

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**Key words**

Long Head Biceps, Hyaluronic Acid, Rotator-Bicipital Complex

**Abstract**

**Introduction**

The problem of instability of biceps tendon and damages rotator cuff is wrongly paid little attention. Patients with this disorder are often treated unreasonably long and unsuccessfully with the diagnosis of periarthritis of the shoulder joint.

**Aim**

The aim of this study was to evaluate the results of treatment of patients with instability of the long head of the biceps tendon and damages rotator cuff with a differentiated treatment policy.

**Material and Methods**

To perform the tasks of the study prospective and retrospective analyses of diagnostic methods and treatment of 142 patients were carried out in the period 2004 - 2017.

Radiography was performed in 87.9% of MRI - 84.8%, US - 100.0%.

In the treatment of patients with instability of biceps tendon and damages rotator cuff, we prescribed the course of conservative therapy including cryotherapy and hyaluronic acid preparations along the bicipital groove under ultrasonography control . Our experience has shown the effectiveness of administration of hyaluronic acid preparations along the bicipital groove under ultrasonography control in all 142 cases.

**Results**

Results in the Oxford shoulder questionnaire and distributed as follows: satisfactory - 18 (12.7%) , well - 17 (12.0%), excellent - 71 (50.0%). Unsatisfactory results - 36 (25.4%) subsequently underwent surgical treatment.

**Conclusion**

Treatment of patients with proposed approach allows achieving a statistically significant improvement of subjective well-being of patients and the objective restoration of function of the shoulder joint.

Our experience has shown the effectiveness of the administration of hyaluronic acid preparations along the bicipital groove under ultrasonographic control in all cases.

**P23**

**Percutaneous cerclage wiring for comminuted patellar fractures in elderly patients with multiple comorbidities**

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**Key words**

Percutaneous cerclage wiring comminuted patellar fractures

**Abstract**

**Introduction**

ORIF of comminuted patellar fractures in elderly patients is associated with higher probability of infection, longer hospital stay, and postoperative adhesions. We describe an alternative successful treatment method utilizing a percutaneous technique as an alternative to open tension band wiring technique.

**Aim**

To evaluate outcome of percutaneous cerclage wiring for comminuted fractures of the patella in the elderly patients with significant comorbidities.

**Material and Methods**

A group of 4 men and 7 women aged 60 to 85 years underwent percutaneous cerclage wiring for comminuted fractures of the patella with a displacement of >3 mm and an articular step > 2 mm utilizing a monofilament stainless steel nonabsorbable suture. Outcome was evaluated by examining operating time, mobility, pain, functional score and complications.

**Results**

A group of 11 patients underwent a successful percutaneous cerclage wiring using a number 6 monofilament stainless steel suture (19B&S). We avoided overtensioning the wire (especially at the inferior pole) to prevent wire failure, and compromising blood supply. Furthermore, we employed bilateral loop tightening of the wire in order to limit asymmetric compression, malreduction and further comminution of the fracture pattern.

All our patients were allowed full weight bearing in an extension brace for the first six weeks after surgery. The mean follow-up period was 9 months. All patients had regained full extension and radiological union at their latest follow up visit.

**Conclusion**

The advantages of the described method are minimal dissection of the soft tissues resulting in good cosmesis, shorter hospital stay, early mobilization and full weight bearing.



**Arthroscopic primary ACL suture in physically active patients**

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**Key words**

anterior cruciate ligament, ACL, suturing, instability of the knee

**Abstract**

**Introduction**

Injury of anterior cruciate ligament in most cases leads to instability of the knee which excludes from previous physical activity. For majority of patients it is related with substantial deterioration of the quality of life. Previous treatment consisted of extensive surgery - ACL reconstruction using mostly autogenous transplants which is associated with tissue damage at a donor site.

**Aim**

The purpose of this study was to determine to what extent the primary suture of injured ACL allows to restore knee joint stability which correlated with patient satisfaction.

**Material and Methods**

This prospective study was conducted on 41 patients. Inclusion criteria were acute knee injury with ACL instability based on clinical examination and MRI. Finally we confirmed type 1 according to Sherman classification during the surgery. . We analysed patients only with suturing technique. Outcomes were measured according to MRI scan performed at 6 and 12 months post-surgery and clinical assessment at the same time using KOOS scale.

**Results**

The time of an early patients follow up was from 1 to 3 years. In 4 patients there was secondary instability of the operated knee (9,7%). Those patients returned to regular activity after 3-4 months and

had another twisting injury of the knee. In 3 patients (7,3%) there were instability of the operated knee after 12 months without any injury. 34 patients (83%) have good knee stability and they returned to professionally and physically activity.

#### Conclusion

In acute proximal ACL tear primary suture repair should be consider in professionally and physically active patients.

**The operative treatment of equinus deformity in children with Cerebral Palsy**

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**Key words**

Equinus, Cerebral Palsy, surgical treatment, children

**Abstract**

**Introduction**

Equinus deformity of the foot is the most common pathology of the musculoskeletal system in children with cerebral palsy. The most of known methods of surgical correction, for all their multiplicity, do not provide long-term correction and, in some cases, especially when the Achilles tendon lengthens, lead to unsatisfactory results.

**Aim**

The aim of the study was to evaluate the results of various methods of surgical treatment of spastic equinus deformity and to determine the most effective ones depending on the child's age, the severity of deformity and the type of cerebral palsy.

**Material and Methods**

77 patients with spastic equinus deformity were treated surgically in 2014-2018. The average age of the child was 7.8 years. The oldest was 18, the youngest was 3. According to GMFCS: I-4 patients, II-34, III-9, IV-25, V-5. 63 patients had equinus deformity alone, 9 patients had varus deformity of the foot additionally, 5 – valgus deformity. 153 surgical procedures were performed.

**Results**

Maximal follow-up was 4 years. The results were evaluated by Gait Observation Scale. In group GMFCS I-II the average improvement was 6.5 points. In group GMFCS II-IV – 9.6 points. Parents of all patients GMFCS V observed improvement in care after surgery.

**Conclusion**

Achilles tendon ventralisation is biomechanically justified method that can lead to good results in ambulatory children without soleus contracture.

Results of split anterior Achilles transfer are good in early follow-up, but this technique requires long-term follow-up. Myofascial gastrocnemius lengthening is used in most cases as a component of SEMLS.