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PREFACE

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Chapter 1

CHEMOTHERAPY-INDUCED ALTERATIONS IN THE KIDNEY, THYROID, AND HORMONAL STATUS OF ONCOLOGICAL PATIENTS ADMITTED TO THE RECEP TAYYIP ERDOGAN UNIVERSITY MEDICAL ONCOLOGY OUTPATIENT CLINIC

Bayram KIZILKAYA[1]
Teslime AYAZ[2]

INTRODUCTION

In the death statistics related to the disease, heart diseases are in the first place and death from cancer is in the second place (1). Although a partial mortality improvement has been achieved with the increasing efficacy of newly developed therapies, it continues to be the most important health problem all over the world with rapidly increasing costs (2,3). The basic mechanism of carcinogenesis is uncontrolled cell proliferation and suppression of apoptosis (4). The most important reason for the difference in survival in cancer treatment is the difference in the molecular level of cancer cells and the variability in the treatment response of the disease. The aim of treatment approaches is to reduce the risk of recurrence in early stage disease, prolong survival in advanced stage patients and improve quality of life (5).

We aim to retrospectively examine the changes in kidney, thyroid, liver functions, cystatin C and vitamin D levels in patients receiving chemotherapy.

MATERYAL AND METHOD

Patients diagnosed and treated with cancer in the Medical Oncology Clinic of our hospital were retrospectively analyzed. All patients admitted in 2014-2015 were followed up after treatment until their death. Patients who were determined by

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chemotherapy. Although hypothyroidism may frequently develop with tyrosine kinase inhibitors, there are also studies reporting an increase in the frequency of hyperthyroidism (46,47). When examining the impact of cytotoxic chemotherapy on TSH, no significant changes were observed. Additionally, there was no statistically significant correlation with oncologic survival.

Limitations: The study was single-center and retrospective.

CONCLUSION

The prevalence of thyroid dysfunction was higher among cancer patients in our region than reported in the literature. However, chemotherapy did not result in any significant alteration in thyroid hormone levels. Another common finding was the prevalence of vitamin D deficiency, likely attributable to the seasonal characteristics of the region. We believe that monitoring and replacement of vitamin D levels, particularly in colorectal malignancies, will contribute more favourably to oncologic outcome in light of the findings of this study. Even though there may be disease, drug, and patient specific differences in the evaluation of liver and renal function deterioration, these values should be monitored in every chemotherapy patient and treatment modifications should be made as necessary.

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Chapter 2

CARDIAC ENZYMES and CARDIAC PEPTIDES AS BIOMARKERS OF CARDIOVASCULAR RISK ASSOCIATED WITH OBESITY

Mustafa Metin DONMA[1]

INTRODUCTION

Cardiovascular diseases (CVDs) are disorders affecting the heart and blood vessels. They encompasses disorders such as coronary heart disease (CHD), heart failure (HF), cerebrovascular disease, stroke, rheumatic heart disease. They constitute leading causes of death and cost about 20 million lives annually. The early prediction of CVD risk, therefore, gains importance for the prevention of this group of lethal diseases (1,2).

Obesity prevalence is increasing worldwide among children, adolescents and adults (3). Obesity is classified as a chronic disease and is known to contribute to an increased risk of CVDs (4,5). Pediatric obesity is associated with CVDs and CVD risk factors (6-10). Childhood obesity is associated with accelerated vascular aging (11). Deteriorated diastolic function, atrial conduction and heart rate responses were also reported in obese children (12).

So far, many markers were proposed under the headings of "structural markers", "functional markers", "surrogate markers", "novel molecular markers", "novel biomarkers", "circulating biomarkers" or "emerging biomarkers". Each of these markers has been the subject of numerous articles (13-18).

Within the scope of structural markers, carotid intima-media thickness, left ventricular hypertrophy, electron-beam computed tomography, retinal photography, collagen markers were introduced (13). Endothelial dysfunction, blood pressure, arterial compliance, elasticity or stiffness, microalbuminuria and proteinuria, ankle-brachial systolic pressure index, B-type natriuretic peptide were considered as "functional markers". However, due to the unavailability of a single marker with high sensitivity and specific recognition of progressive

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In recent years, some cardiac enzymes and peptide molecules have gained importance. For the moment the most popular cardiac profile already have received acceptance is the combination of cardiac troponins, CK-MB and NPs.

Cardiac biomarkers in pediatrics are described as an undervalued resource. Applications are well-established in adults, however, clinical uses and interpretations of them in pediatrics is not clear (133).

In this chapter, cardiac enzymes as well as cardiac peptides have given attention. The traditional and new generation molecules were examined. Recent information on each one of these items were introduced. Also peptide therapy for clinical problems related to the heart to fight against CVDs was mentioned.

It has been concluded that increasing the number of tests, which will be included in the cardiac battery test for the prediction of potential CV risk and the consideration of the developments in peptide therapy will be plausible for lessening the deaths caused by CVDs. It is also needed to establish physiological reference values, clinical decison limits, evidence-based cut-offs to ensure standardization in the interpretation of cardiac biomarkers in the field of pediatrics.

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Chapter 3

BRUCELLA AND MUSCULOSKELETAL INVOLVEMENT

Ali EKİN[1]

INTRODUCTION

Brucellosis is a zoonotic bacterial infection caused by Brucella species, primarily Brucella melitensis, Brucella abortus, Brucella suis, and Brucella canis (1). Humans acquire brucellosis through direct contact with infected animals, consumption of unpasteurized dairy products, or inhalation of infected aerosols (2). The disease presents with a broad spectrum of clinical manifestations, affecting multiple organ systems. Among its complications, musculoskeletal involvement is one of the most prevalent, occurring in 40-85% of cases (3).

ETIOPATHOGENESIS

Brucella species are facultative intracellular bacteria capable of surviving and replicating within macrophages. The infection primarily spreads through hematogenous dissemination, allowing the bacteria to localize in organs rich in the reticuloendothelial system, including the musculoskeletal system (4). The chronic nature of brucellosis results from the bacterium's ability to evade host immune defenses by inhibiting phagosome-lysosome fusion (5). This leads to prolonged inflammation, granulomatous reactions, and tissue destruction (6).

MUSCULOSKELETAL MANIFESTATIONS

Osteoarticular Brucellosis

Osteoarticular involvement is the most frequent focal manifestation of brucellosis, presenting as spondylitis, peripheral arthritis, sacroiliitis, and osteomyelitis (7).

a. Spondylitis

Brucellar spondylitis is the most severe and common form of osteoarticular brucellosis, primarily affecting the lumbar spine (L3-L5), followed by the

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Treatment

Osteoarticular brucellosis requires prolonged antibiotic therapy. The standard regimen includes:

- **Doxycycline (100 mg twice daily) for 6-8 weeks** PLUS
- **Rifampin (600-900 mg daily) for 6-8 weeks** OR
- **Streptomycin (1 g daily IM for 2-3 weeks) or Gentamicin (5 mg/kg daily IV for 7-10 days) in severe cases** (20).

For complicated cases such as spondylitis or osteomyelitis, therapy may extend to 12 weeks or longer. Surgical intervention is indicated for cases with spinal instability, abscess formation, or neurological complications (21).

Prognosis and Complications

With early and appropriate treatment, most patients achieve full recovery. However, delayed diagnosis or inadequate therapy can result in chronic arthritis, vertebral collapse, and neurological deficits. Relapse rates range from 5-15%, necessitating regular follow-up and monitoring (22).

CONCLUSION

Brucellosis is a significant cause of musculoskeletal morbidity worldwide. Early diagnosis and prolonged antibiotic therapy are crucial for preventing chronic complications. Advances in molecular diagnostics and imaging techniques have improved early detection and management. A multidisciplinary approach involving rheumatologists, infectious disease specialists, and orthopedic surgeons is essential for optimizing patient outcomes.

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Chapter 4

FASCIOLA HEPATICA AND IMAGING FINDINGS

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INTRODUCTION

Fasciola hepatica (FH) is a flat, leaf-shaped hermaphroditic parasite (Figure 1) (1). It is a trematode that infects the liver and primarily uses herbivorous animals such as sheep, goats, cattle, horses, and rabbits as its definitive hosts. Freshwater snails serve as intermediate hosts (1,2). The infection is transmitted through ingestion of metacercaria cysts attached to water plants like watercress (1,3-5).

In developing countries, the infection is widespread. Since the medical history and symptoms are non-specific, diagnosis is challenging (1).

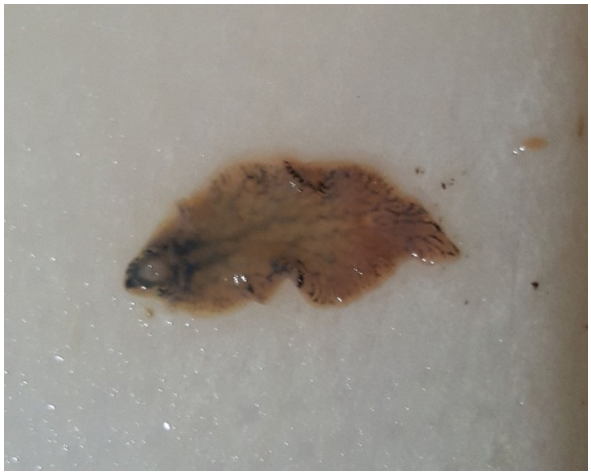

Figure 1: Flat, leaf-shaped adult parasite of Fasciola hepatica.

1. PATHOPHYSIOLOGY

Metacercaria cysts ingested with aquatic plants excyst in the duodenum. The metacercariae penetrate the intestinal wall and migrate to the peritoneum,

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7. TREATMENT

Surgeries such as cholecystectomy and hepatic segmentectomy may be performed due to incorrect and late diagnosis of fasciola hepatica (1). Medical treatment may be beneficial in the hepatic stage of the disease (4). Triclabendazole and bithionol were effective agents in the treatment of fascioliasis (5,18,20).

Advanced fascioliasis is more difficult to treat and may require invasive procedures such as ERCP or percutaneous abscess drainage (1). Percutaneous iodine irrigation with a catheter inserted into the biliary tract is a highly effective treatment method (6).

Damage to the liver after treatment can be monitored for years with imaging techniques (10).

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Chapter 5

BREAST MİLK AND CİRCADİAN RHYTHM: REVİEW

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INTRODUCTION

Breast milk is directly related to a mother's nutrition, health, and psychological condition. It contains all the essential nutrients required for an infant's growth and development, along with various components such as hormones and immune factors, which are transferred from the mother to the baby. It is easily digestible, has high bioavailability, and is the most suitable natural food for infant nutrition (1).

The term "circadian rhythm" is derived from the Latin words "circa" (around) and "diem" (day) and refers to the body's natural cycles. In its simplest sense, circadian rhythm represents the body's biological clock. Through this rhythm, the human body ensures the coordinated functioning of metabolic processes such as hormone secretion, digestion, and sleep.

The effects of breast milk on the circadian rhythm, which is closely related to infants' feeding patterns, are as remarkable as its nutritional properties and present an intriguing area of research. The variation in breast milk composition throughout the day can be explained by the influence of the body's biological clock. Depending on the circadian rhythms of both the mother and the infant, the specific components of breast milk may vary over time, leading to observable circadian changes in its composition.

BREAST MILK

Breast milk serves as the natural source of nutrition for the infant, meeting its physical, anatomical, hormonal, and cognitive development needs. It also fosters bonding between the mother and the baby, while protecting the immune system, digestive system, brain, and nervous system from various diseases. The microorganisms in breast milk, along with its prebiotic and probiotic effects,

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and rest not only preserve the mother's overall health but also strengthen the bond with the infant.

It should be noted that breast milk, beyond being merely a source of nutrition, has significant effects on the psychological and physical relationships of infants.

In this context, further research on circadian rhythms and feeding habits is of great importance for ensuring the health and well-being of both infants and mothers.

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Chapter 6

ENERGY METABOLISM DURING MENOPAUSE

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INTRODUCTION

Women's menopausal status is classified into premenopausal, menopausal transition, and postmenopausal stages. In the premenopausal period, there is no change in the frequency of menstrual cycles. During the menopausal transition, irregular cycles are reported—characterized by cycles that last more than 7 days longer than normal, the skipping of 2 cycles, or amenorrhea lasting more than 60 days. The postmenopausal period is confirmed by 12 months of amenorrhea and follicle stimulating hormone (FSH) levels of 30 IU/L (1). While the average age of menopause worldwide is 52, in Turkey this age may drop to between 46 and 48, and a large majority of our women spend most of their lives in the postmenopausal phase. Vasomotor symptoms, sleep disturbances, and both mental and physical changes observed during the menopausal transition and afterwards affect women (2).

Even though serum estrogen levels remain within normal limits during the early menopausal transition, a significant increase in serum FSH levels is observed. The subsequent hormonal changes that occur with the decline in estrogen levels are associated with alterations in bone structure, body composition, and energy metabolism (3). During this life stage, there is a sharp increase in visceral fat accumulation and body weight, along with a decrease in food intake. This change is attributed to an imbalance in energy homeostasis and reduced physical activity (4).

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CONCLUSION

The literature provides evidence that the loss of estrogen leads to adverse changes in body composition (increased central fat mass, decreased FFM) and reductions in TEE, REE, and physical activity. The sources and amounts of dietary nutrients affect fat distribution, energy intake, and energy expenditure in various ways. Calorie restriction aimed at weight and fat mass loss may be associated with a reduction in REE by decreasing physical activity energy expenditure or causing muscle loss. Increased protein consumption, particularly when combined with physical activity, contributes to an increase in resting energy expenditure while also playing a role in enhancing muscle function. As carbohydrate oxidation increases during the menopausal period, the relationship between carbohydrate intake and fat distribution indices becomes negative, and unrefined carbohydrates can moderately increase REE by promoting greater energy excretion in feces. Furthermore, during the menopausal transition, reduced fat oxidation is associated with increased fat intake, weight gain, and a higher body fat percentage. Resistance training can alter body composition by enhancing fat mass loss and, by promoting muscle gain, may help support an increase in REE. Although hormone replacement therapies may be used to alleviate symptoms associated with hypoestrogenism during the menopausal transition, their risks and benefits must be evaluated on an individual basis.

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Chapter 7

ICD DEFINITION, DIFFERENCES BETWEEN ICD VERSIONS, ICD USE IN HEALTHCARE INSTITUTIONS AND HEALTHCARE INSTITUTION MANAGERS' USE OF ICD

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1. INTRODUCTION

ICD codes are a system that names medical diagnoses in a standard way that is accepted all over the world. ICD stands for "International Statistical Classification of Diseases and Related Health Problems". Along with the currently used and generally valid ICD-10 version, the new version ICD-11 came into force in January 2022. The versions can be used for up to 5 more years during the transition period. When the new version ICD-11 comes into use in Germany, the use of the ICD-10 version will end at that time.

Similar diseases and conditions brought together in ICD are classified according to their importance. Each disease has its own code. Through this classification, ICD facilitates the use of both epidemiological studies and health services. In addition to the use of the administration such as keeping and accessing patient records and archive information, monitoring patients, managing resources, etc., the international validity of ICD also provides benefits in terms of comparing different countries. It also provides the opportunity to conduct statistical examinations on diseases. Based on this, it can be said that an important function of ICD is to provide a common international language for diseases. ICD is a classification that is felt and needed by the examinations, patient records and archive information, administrative management (7).

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service field, ensuring the use of updated international technologies, monitoring the outcomes of care quality, disease records kept to be provided when necessary, monitoring payment systems (e.g. case-mix, DRG), creating information to guide healthcare activities and determining priority issues to be done, planning, interpreting and implementing healthcare application programs, etc.

The rules for combining categories in ICD-11, which came after ICD-10 to reflect advances in understanding diseases since it was written, allow for much better case definitions than were previously possible and for management arrangements to remain up-to-date. Changing information systems since the publication of ICD-10 have necessitated the development and publication of ICD-11 (4).

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Chapter 8

GALLBLADDER AND BILIARY TRACT DISORDERS

Ayfer BAYINDIR ÇEVİK[1]

1. INTRODUCTION

The gallbladder and biliary tract disorders include a wide range of diseases such as cholecystitis, cholelithiasis, functional gallbladder disorder, gallbladder polyps, gallbladder hydrops, and porcelain gallbladder and gallbladder cancers. These diseases are often evaluated within each other(1).

The risk of gallbladder disease increases with age. Gallstones and related inflammation are the most common gallbladder diseases. The development of gallstones is multifactorial(1,2). Especially carbohydrate and fat-rich diet and lack of physical activity, fluid electrolyte imbalance, imbalances in blood flow to the gallbladder, genetic predispositions, and microorganisms such as Escherichia coli play a role in the formation of gallbladder and biliary tract diseases. In addition, modifiable risk factors like cardiac diseases, diabetes, dyslipidemia, high-calorie, and low-fiber diet, obesity, smoking, and type 2 diabetes; unmodifiable risk factors like familial predisposition, being over 40 years of age, genetic predisposition play a role in the development of the disease(3).

The diagnosis is based on the evaluation of medical history, physical examination, results of biochemical tests, abdominal ultrasound, and infection parameters(4,5). The presence of edema in the gallbladder wall is evaluated by ultrasound, the most commonly used diagnostic method. Other diagnostic methods include cholescintigraphy and endoscopic retrograde cholangiopancreatography (ERCP) (6,7). Tokyo Guideline and NICE Guideline are an important diagnostic tool used in recent years(7, 8).

The disease may be symptomatic or asymptomatic. In symptomatic cases, pain, fever, or leukocytosis in the colic-like right upper quadrant of the abdomen lasting more than six hours, and positive Murphy sign findings are observed. In some cases, nausea, vomiting, and indigestion occur due to fatty and spicy

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3.10. Complications

Patients with complicated cholecystitis have high mortality rates ranging from 20-50%. Symptoms of jaundice, such as high fever, yellowish sclera, clay-colored stools, dark tea-colored urine, severe pain and vomiting, and elevated liver enzymes, may indicate complications. In severe cases of acute cholecystitis, intense inflammation is a cause of morbidity. Complications of acute cholecystitis, secondary bacterial infection, or known subtypes of complicated cholecystitis are hemorrhagic, gangrenous, and emphysematous cholecystitis and gallbladder perforation. In delayed cases, gallbladder perforation or gangrene may occur. Acute acalculous cholecystitis is a form of cholecystitis that occurs as a severe disease complication in the absence or absence of gallstone-related inflammation(20).

SONUÇ

In this chapter, the definition, prevalence, etiology-pathophysiology, risk factors, clinical signs and symptoms, diagnosis and treatment approaches of the most common gallbladder and biliary tract diseases are discussed. Additionally, it also highlights the importance of following the Tokyo and NICE Guidelines to standardize diagnostic and therapeutic approaches and to facilitate patient follow-up.

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