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OVERWIEV OF THE PULMONARY SARCOIDOSIS IN BOSNIA-HERZEGOWINA DURING FIVE YEARS

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Abstract

The aim of this study was to present relevant manifestations and clinical characteristics of the pulmonary sarcoidosis in Bosnia-Herzegowina during five year period.

The study was evaluated 446 patients with all forms of pulmonary sarcoidosis. The diagnostic work-up and treatment were carried out according the current standards. The analysis comprised: population statistics (F 63%, average age was 48); symptoms and signs of disease (female patients were often asymptomatic); biochemical findings and markers of activity (active alveolitis was found at 85%); bronchoscopy (abnormal in 88%) radiological (CT had an advantage to chest X-ray); BALF and pathohistological examination (76% positive findings); pulmonary functional tests; appraisal of extrathoracic sarcoidosis and season predilection (sarcoidosis frequently occurred between January-March).

Sarcoidosis in Bosnia&Herzegovina shows typical characteristics without significant differences compared to majority European countries.

Key words: *sarcoidosis – clinical charaseristics – five year period.*

Introduction

The aim of study was to monitor clinical characteristics of the pulmonary sarcoidosis in Bosnia&Herzegovina including patient's history of disease, gender, frequency of disease appearance by months, chest X-ray, CT scan, bronchoscope finding, broncho-alveolar lavage fluid examination (BALF), activity of sarcoidosis, and other complementary diagnostic investigations (1).

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Methods

The sample comprised 446 patients with all forms of sarcoidosis from all parts of Bosnia-Herzegovina with rather equal diagnostic methods during the five year period.

The diagnosis was established by complementary diagnostic methods according to usual diagnostic standards (2,3).

The analysis comprised:

- Population statistic: age, gender, season algorithm of disease appearance;
- Symptoms of disease: fever, joint aches, cough, chest pains, breathlessness, haemoptysis, or with no symptoms;
- Clinical signs: erythema nodosum, clubbing fingers, peripheral lymphadenopathy, and subcutaneous nodes;
- Biochemical findings and markers of sarcoidosis activity;
- Radiological examination: chest X-ray, CT scan with "window" for mediastinum and lung parenchyma, CT scan with contrast use;
- Bronchoscope finding: regular or irregular capillary net, wide carina, nodes and/or mucosal infiltration;
- BALF examination: cytology and immunology;
- Pathohistological examination: orderly non-caseous epitheloid granuloma of lung parenchyma, hystiocyte and lymphocyte mucosal infiltration;
- Results of pulmonary function tests;
- Parameters of sarcoid activity at relaps;
- Extrathoracic site of sarcoidosis;

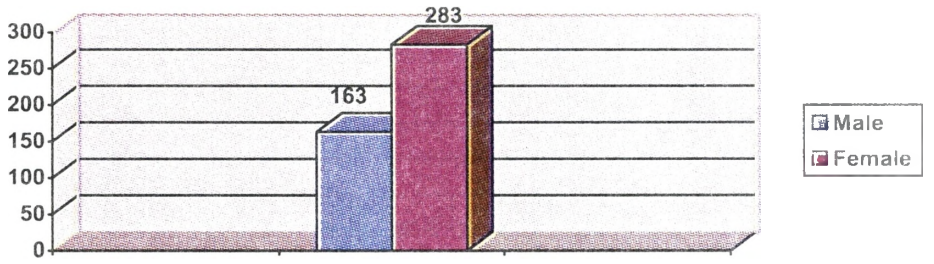
Results

Analysis comprises 446 subjects during the five-years period, 283 female and 163 male with average age of 48 years.

The results were presented on the next tables and figures:

Table 1: *Patients according to gender and age*

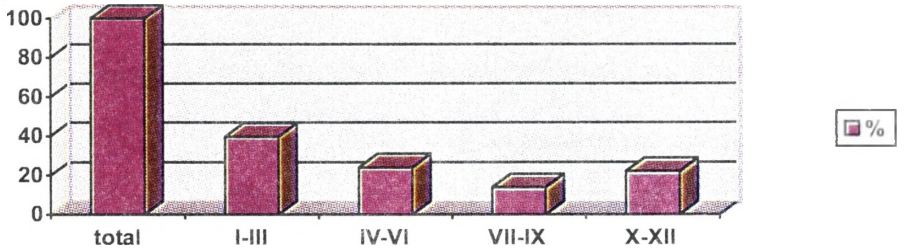
Gender	Total No of pts		Age of pts		Value of signiphicancy
	No	%	male	female	
Male	163	36.5	48.98		T = 1.04
Female	283	63.5		47.75	($p < 0.05$)
Total	446	100.0	48.20		NS
χ^2 test	$\chi^2 = 322.29$ ($p < 0.01$) HS				



The majority of patients were female (63.5%), with average age 47.75 year.

Table 2: *Season algorithm*

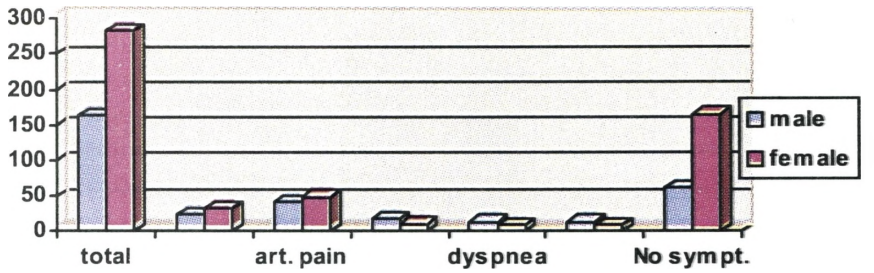
	Total pts	Period			
		Jan-March (I-III)	Apr.-Jun (IV-VI)	Jul-Sept. (VII-IX)	Oct.-Dec. (X-XII)
No	446	177	108	62	99
%	100.0	39.7	24.2	13.9	22.2
(I-III): (IV-VI)	$\chi^2 = 16.71$ ($p < 0.01$) HS				
(I-III): (VII-IX)	$\chi^2 = 53.33$ ($p < 0.01$) HS				
(I-III): (X-XII)	$\chi^2 = 22.04$ ($p < 0.01$) HS				
(IV-VI): (VII-IX)	$\chi^2 = 12.45$ ($p < 0.01$) HS				
(IV-VI): (X-XII)	$\chi^2 = 0.39$ ($p < 0.05$) HS				
(VII-IX : (X-XII)	$\chi^2 = 8.50$ ($p < 0.01$) HS				



Sarcoidosis was the most frequent in the period January-March.

Table 3: *Symptoms of disease*

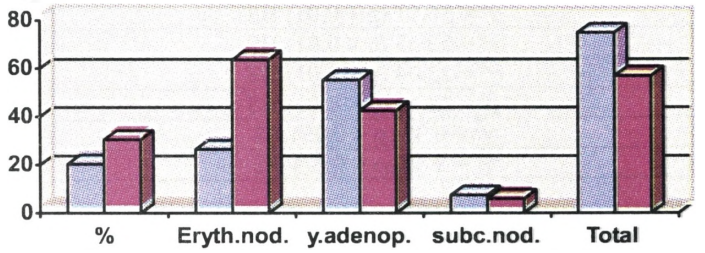
Gender	No %	symptoms					Without symptoms
		cough	Articular pains	Chest pains	dyspnea	weakness	
Male	163 14.1%	23 14.1%	41 25.1%	17 10.4%	13 8.0%	9 5.5%	60 36.8%
Female	283 63.5%	32 11.3%	48 17.0%	10 3.5%	9 3.2%	18 6.4%	165 58.3%



The most of patients had no symptoms, especially females. Artcular pain was the most frequent symptom.

Table 4: *Signs of disease*

Gender	No -%	Erythema nodosum	Peripheral lymphadeopathy	Subcutaneous nodes	Total
Male	163–26.5%	90–55.2%	12–7.4%	20–12.3%	122–74.8%
Fem.	283–63.5%	120–42.4%	17–6.0%	24–8.5%	161–56.9%



Erythema nodosum was the most frequent sign of disease.

Table 5: *Biochemical parameters (No = 446)*

ERS	252 (56%) increased
Serum proteins:	normal
Albumins and globulins	normal
Alpha1 globulin	normal
Alpha 2 globulin	Certain decreased values
Beta globulins: IgG, IgM, IgA, IgD, IgM	normal
Fibrinogen	95 (21%) decreased values
Serum Ly	285 (64%) decreased values
Calcium in urine	normal

ERS was increased in 56% of patients.

Table 6: *Advantage of CT scan comparing to chest X-ray (%)*

BHL	17.3
Symmetric hilar adenopathy	30.7
Total mediastinal adenopathy	51.9
Bilateral mediastinal adenopathy	75.0
Nodular lung opacifacations	26.9
Fibrosis	25.0

Chest CT had an advantage to chest X-ray, especially in evaluation of lymphadenopathy.

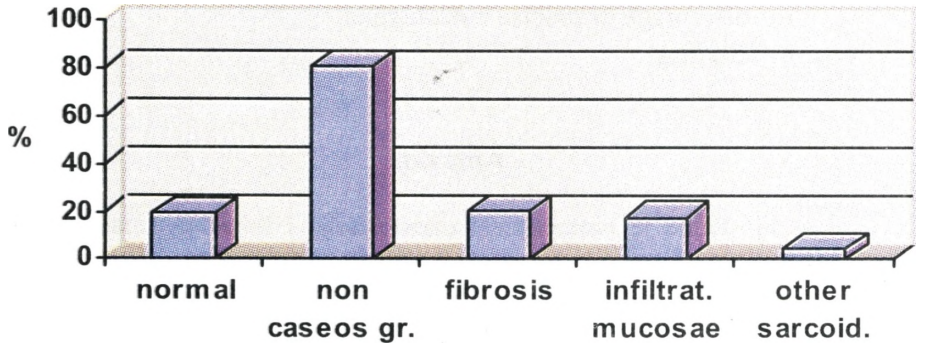
Table 7: *Lymphocyte subpopulations in BALF*

Alveolar Ly (%)	No of pts	Arithmetic mean and standard deviation		
		CD4	CD8	CD4/CD8
> 28%	186	59.97±17.26	26.83±21.21	4.87±5.34
15-28%	110	49.16±18.88	23.96±18.55	3.04±1.95
0-14%	50	45.95±18.95	30.96±20.55	1.95±1.04

Active alveolitis was found at 85% sarcoid patients.

Table 8: *PH finding of bioptic materials*

Total No %	Normal	Positive							Sarcoidosis of other organs
		total	Non caseous granuloma				Fibrosis and hyaline granuloma	Hystiocyte and Lymucosal infiltration	
			total	TBB	BB	NB			
418	81	337	179	142	22	15	84	74	19
100.0	19.4	80.6	42.8	34.0	5.2	3.6	20.1	17.7	4.5



The majority of patients had non-caseos granulomas at patho-histological examination.

Table 9: *Comparison of bronchoscope and PH findings*

Procedure	Total number of subjects		Finding		χ^2 test
			normal	positive	
Bronchoscopy	No	420	48	372	$\chi^2 = 9.56$ ($p < 0.01$) HS
	%	100.0	11.4	88.6	
Pathohistology	No	418	81	337	
	%	100.0	19.4	80.6	

Discussion

The results of this study shows similar results in frequency, gender distrubution, seasonal characteristics, clinical and diagnostic results like majority of Europiuan countries (1, 2,3).

Conclusions

- Sarcoidosis in Bosnia&Herzegovina appears at females in 63.4%; average age is 48 years
- The most frequent period is January-March (39.7).
- Asimptomatic form was seen at females in 58.3%, and in 36.8% at males.
- Biochemical parameters varied minimally in relation to normal finding.
- Pathohistology was positive in 80.6%.
- Active alveolitis was found at 85.5% subjects with high significance of CD4 in the group
- with alveolitis > 28% Ly ($t=8.3$, $p < 0.01$) and index of CD4/CD8 ($t=5.58$, $p < 0.01$).
- CT scan comparing with chest X-ray had significant advantage in precise radiological
- finding;

Aptrakt

Cilj studije je prezentiranje manifestacija i kliničkih karakteristika sarkoidoze pluća u Bosni i Hercegovini u periodu od pet godina.

Evaluirano je 446 bolesnika sa svim oblicima sarkoidoze pluća. Dijagnostički postupak i tretman su izvedeni po važećim standardima. Analiza je obuhvatila populacionu statistiku (Ž 63%, prosječna dob 48 godina); simptome i znakove bolesti (žene su bile češće asimptomatične); biohemijaske analize i markere aktivnosti (aktivni alveolitis u 85%); bronhoskopiju (abnormalna u 88%), radiološki nalaz (CT je precizniji u odnosu na klasičnu radiografiju); BAL i patohistološki pregled tkiva (76% pozitivnih nalaza);

funkcionalno ispitivanje pluća; postojanje ekstratorakalne sarkoidoze i sezonski karakter bolesti (sarkoidoza je bila češća u periodu januar-mart).

Sarkoidoza u Bosni i Hercegovini pokazuje tipične karakteristike bez značajnijih odstupanja u poređenju sa većinom evropskih zemalja.

Ključne riječi: *sarkoidoza – kliničke karakteristike – petogodišnji period*

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