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INTRODUCTION

Primary mediastinal germ cell tumors (PMGCTs) are rare extragonadal malignancies that predominantly affect young adults and account for 1-3% of mediastinal tumors. PMGCTs classified as nonseminomatous, seminoma and teratoma.¹

PMGCTs are biologically more aggressive and associated with a poorer prognosis compared with testicular germ cell tumors.^{2,3}

Evidence describing their clinical characteristics and management in Southeast Asia remains scarce.

Aim: We aimed to describe the clinicopathological and treatment of PMGCTs at a national respiratory center in Indonesia.

METHODS

Design
Retrospective study extracted from medical records

Setting and period
Persahabatan National Respiratory Center Hospital, Jakarta, Indonesia, between January 2021 and December 2025

Population
Patients diagnosed with Primary mediastinal germ cell tumors (PMGCT)

Variables
Demographic characteristics, tumor markers, radiologic features, histopathological subtypes, treatment modalities, and clinical outcomes

Analysis
Descriptive data, differentiate tumor marker, radiological characteristics were performed to evaluate disease patterns

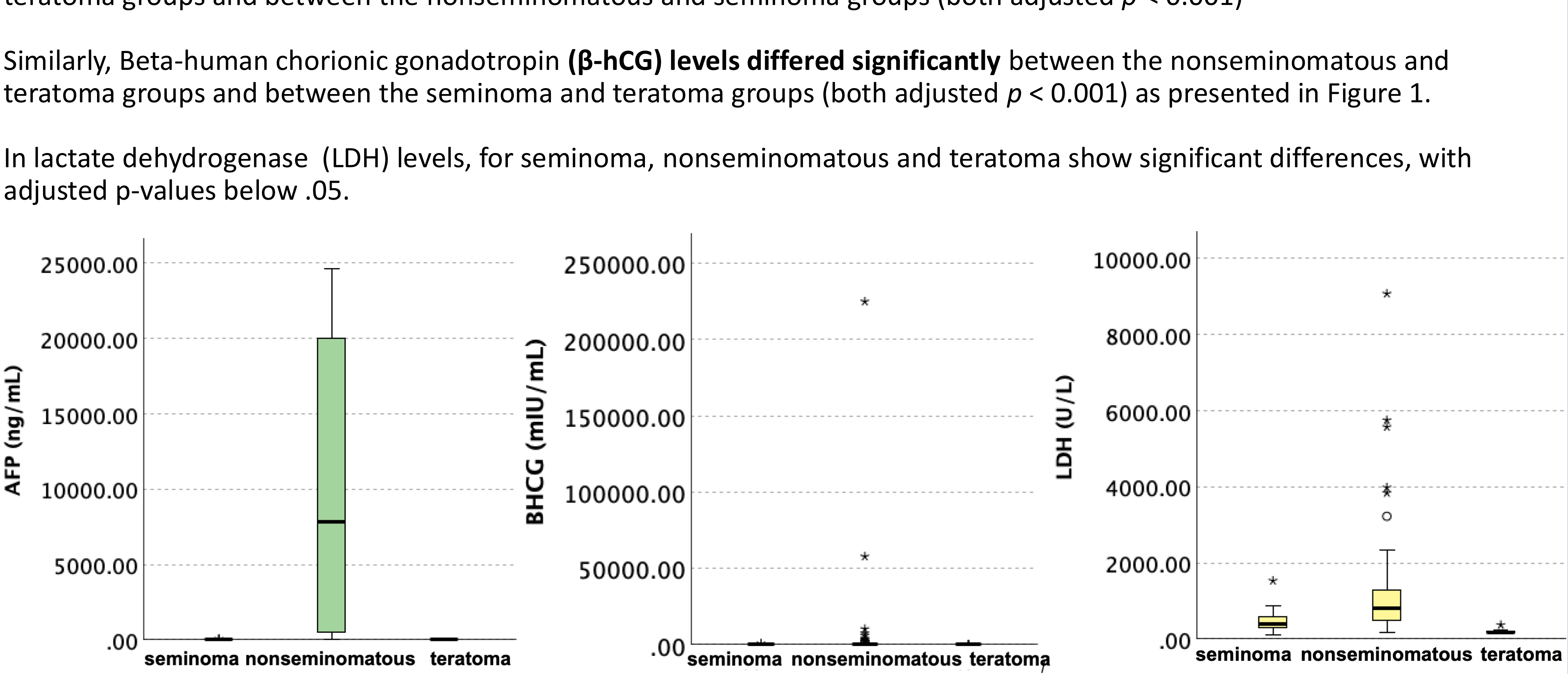
RESULTS

Demographic characteristics
During the 5-year study period, **114 patients** with primary mediastinal germ cell tumors were identified as presented in Table 1.

Table 1. Patients Characteristics

	Seminoma N=16 (%)	Nonseminomatous N=78 (%)	Teratoma N= 20(%)	Total N= 114
Gender				
Male	15 (13.2)	78 (68.4)	8 (7)	101 (88.6)
Female	1 (0.9)	0 (0)	12 (10.5)	13 (11.4)
Age (years)	26.3 ± 7.37	23.75 ± 5.55	32.37 ± 7.06	26.3 ± 7.37
Respiratory Symptoms				
Chronic Cough	16 (14)	73 (64)	15 (13.2)	104 (91.2)
Dyspnea	15 (13.2)	73 (64)	14 (12.3)	102 (89.5)
Chest pain	14 (12.3)	68 (59.6)	15 (13.2)	97 (85)
Hemoptysis	0 (0)	26 (22.8)	12 (10.5)	38 (33.3)
Major Complication				
SVCs	9 (7.9)	46 (40.4)	2 (1.8)	57 (50)
Massive Pleural Effusion	1 (0.9)	21 (18.4)	2 (1.8)	24 (21.1)
Myastenia Gravis	5 (4.4)	8 (7)	4 (3.5)	17 (14.9)
Staging				
I	2 (1.8)	12 (10.5)	9 (7.9)	23 (20.2)
II	1 (0.9)	0 (0)	0 (0)	1 (0.9)
IIIA	12 (10.5)	49 (43)	11 (9.6)	72 (63.2)
IIIB	1 (0.9)	17 (14.9)	0 (0)	18 (15.8)

Tumor Markers
The Kruskal–Wallis test showed that alpha-fetoprotein (AFP) levels differed significantly between the nonseminomatous and teratoma groups and between the nonseminomatous and seminoma groups (both adjusted $p < 0.001$)



Radiologic Features
The majority of tumors arose in the anterior mediastinum, presented as **large mediastinal masses** (16.5 ± 5.61 cm). Radiological features in nonseminomatous frequently showed mixed solid–cystic (83.75%)

Treatment
Most patients received **bleomisin-etoposide-cisplatin chemotherapy** (86%), while **teratoma mostly underwent surgical resection** (91%)

DISCUSSION AND CONCLUSION

Key findings

- ✓ The median age at diagnosis was 26.3 ± 7.37 , with male predominance (88.6%), and mostly in advance stage (78,94%)
- ✓ Nonseminomatous represented the majority of the cases (68.42%)
- ✓ The most frequent emergency was superior vena cava syndrome (50% of cases) predominantly in nonseminomatous. Therefore, early recognition of oncologic emergencies is crucial and should be managed promptly.
- ✓ Delayed presentation and large tumor burden at diagnosis were common findings in our research.

Limitations
Retrospective design and a single-center study. Hence, this findings may not be generalizable to Indonesia’s diverse population and ethnic groups.

Conclusion
Primary mediastinal germ cell tumors in our institution predominantly affected young men and frequently presented with advanced stage. Despite the rarity of this entity, tumor markers and radiologic features play a crucial role in supporting the diagnosis.

Future direction
Our study provides the largest single-center experiences of PMGCTs in Indonesia and highlights the need for further multicenter studies to better characterize this rare disease.

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