



Research Paper

Research the value of the type B diuretic peptide (NT-proBNP) In the diagnosis in Kawasaki disease

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ABSTRACT:- Kawasaki disease (KD) is acute vascular system in childhood. It causes vasculitis of large and medium vessels. Coronary arteryvasculitis is the most significant complication of KD.

Objective: To study the value of diuretic type B Peptide (NT-proBNP) in the diagnosis in Kawasaki disease.

Study design: A prospectivecase-control study was carried out.

80 patients were diagnosed with Kawasaki and 80 patient control group (without cardiovascular disease) at the Central Children's Hospital from 1/2015 – 10 /2015. Quantitative serum NT-proBNP concentrationtwo groups and compared between the KDgroup and the control group.

Result: NT-proBNP concentration in Kawasaki disease group (KD) was 625.46 ± 326.52 pg/ml. The concentration level in the control group was $90.13 \pm 82,24$ pg / ml. The difference between the two groups is statistically significant ($p < 0.001$).

The cut off value of 380 pg/ml discriminated KD patients with a sensitivity of 90 percent and a specificity of 86 percent.

Conclusion: NT-proBNP is a valuable indicator in the diagnosis of Kawasaki disease.

Keyword:- Kawasaki, NT-ProBNP, children

I. INTRODUCTION

Making a diagnosis of Kawasaki disease with certainty may be challenging, especially since the recognition of cases with incomplete diagnostic criteria and its consequences. In order to build the diagnostic case in daily practice, clinicians rely on clinical criteria established over four decades ago, aided by non specific laboratory tests, and above all inspired by experience. We have recently studied the diagnostic value of N-terminal pro B-type natriuretic peptide to improve the diagnostic certainty of cases with complete or incomplete clinical criteria.

II. PATIENTSAND METHODS

Patients :

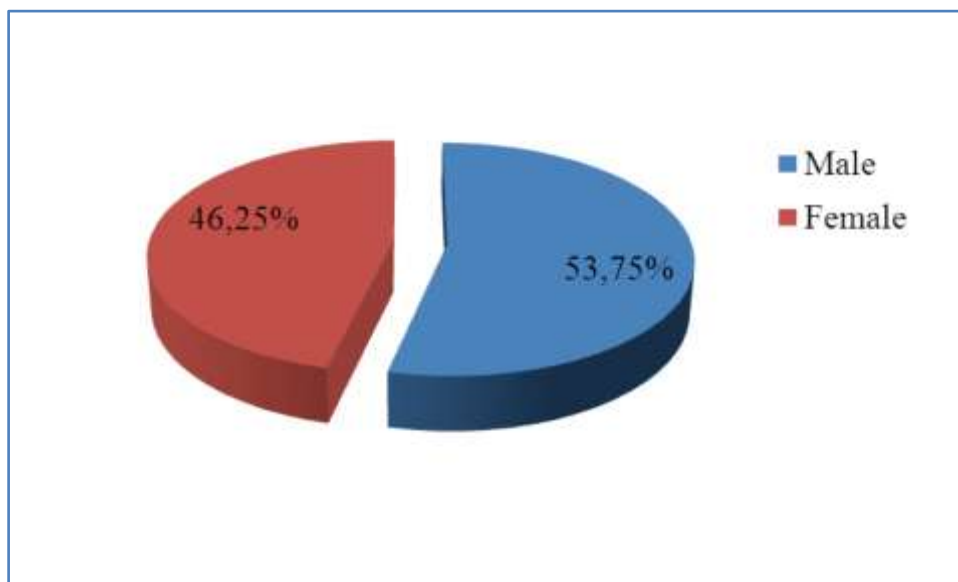
A KD group of 80 pediatric patients with KD and a control group of 80 children without cardiovascular disease of the same age and sex as the sick children at the National Children's Hospital from 1/ 2015 to 10/ 2015. Quantitative serum NT-proBNP concentrations two groups and compared between the KDgroup and the control group.

Study method: A prospective case-control study was carried out.

III. RESULT

General characteristics of the study group

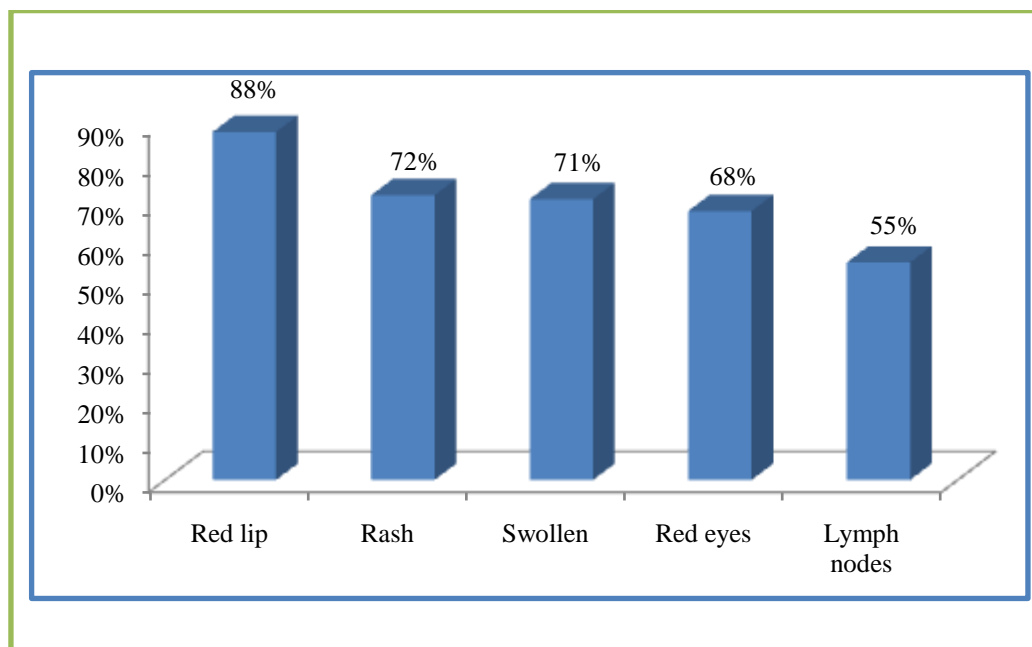
Sex:



Graph 1. Distribution of patients by sex

Age: Youngest is 5 monh, oldest is 3 years old. Average age: 22.32 ± 20.37 months

The clinical symptoms of KD



Graph 2. The clinical symptoms of KD

Table 1. Investigation

	KD	Control	p
Hemoglobin	10.85 ± 9,43	11.23 ± 10,78	>0,05
White Blood cell	16,50 ± 13,61	9.56 ± 8,32	<0,05
Platelet	295.123 ± 257.34	276.71 ± 213.21	>0,05
CRP	134.56 ± 125.54	18.28 ± 15.21	<0,001

CRP (C-Reactive Protein)

Comment: The white blood cell and CRP difference between 2 groups, $p < 0,05$ and $p < 0,001$

Table 2. NT-proBNP concentrations

NT-ProBNP	KD (n=80)	Control(n = 80)	P
X±SD (pg/ml)	625.46 ± 326.52	90.13 ± 82.24	<0,001

Comment: NT-ProBNP concentrations in KD group higher control group, p<0,001

The correlation between NT-proBNP concentrations and CRP

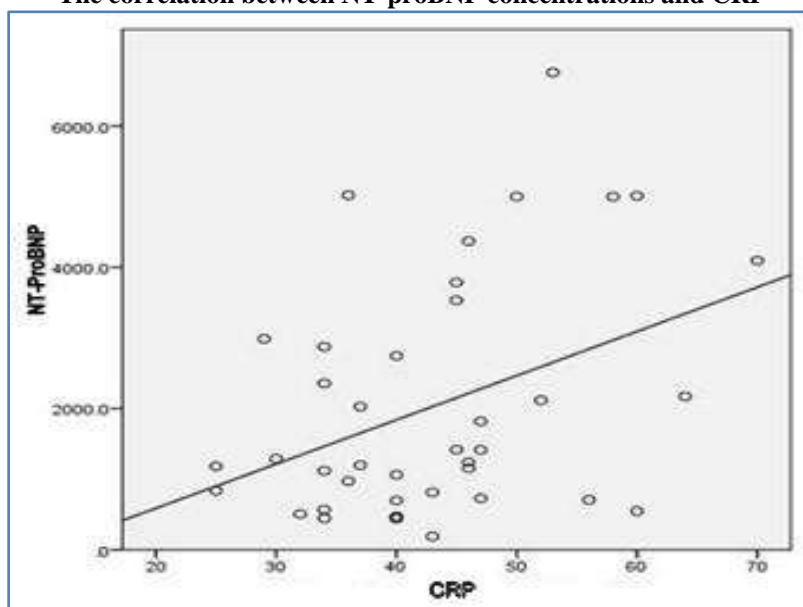


Figure 1. A positive correlation between the concentration of NT-proBNP and CRP in patients with KD

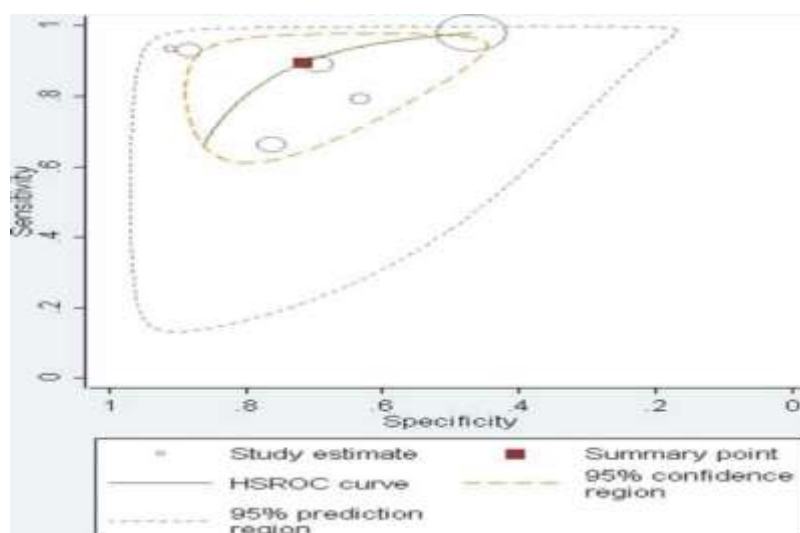


Figure 2 Hierarchical summary receiver-operator curves (HSROC) for NT-proBNP.

The cut off value of 380 pg/mL discriminated KD patients with a sensitivity of 90 percent and a specificity of 86 percent.

IV. DISCUSSION

NT-proBNP values in the diagnosis in Kawasaki:

1. Compared Nt-Pro BNP between the KD group and the control group.

NT-proBNP concentration in Kawasaki group higher control group (p <0.001) (Table 2).

KD diagnosis is mainly based on clinical symptoms including red lips and tongue, red eyes, rash, lymphadenopathy, hands and and leg swollen [3]. However in many case the symptoms are not fully for correct diagnosis, so caused dangerous especially complications coronary artery vasculitis. In our study, complications

coronary artery vasculitis is 20 percent. So NT-ProBNP quantitative with clinical symptoms to diagnose more accurately and ontime treatment.

2. The correlation between NT-proBNP concentrations and CRP

A positive correlation between the concentration of NT-proBNP and CRP in patients with KD (Figure 1). It is caused by a transient dysregulation of the immune system, likely triggered by a common infection in genetically susceptible patients. So diagnosis KD based on NT-ProBNP quantitative with CRP is high sensitivity and specificity[1].

V. CONCLUSION

NT-proBNP serum quantitative are valuable in the diagnosis of Kawasaki.

REFERENCES

- [1]. Cho SY1, Kim Y et al (2011). "Adjuvant laboratory marker of Kawasaki disease: NT-pro-BNP or hs-CRP?" *Ann Clin Lab Sci*. Fall; 41(4):360-3.
- [2]. McNeal-Davidson A1, Fournier A et al (2012). "Value of amino-terminal pro B-natriuretic peptide in diagnosing Kawasaki disease". *Pediatr Int*. Oct;54(5):627-33. Epub 2012 May 30.
- [3]. Kuan-Ho Lin, Shy-Shin Chang et al (2015) "Usefulness of natriuretic peptide for the diagnosis of Kawasaki disease: a systematic review and meta-analysis". *BMJ Open* 2015.
- [4]. Kazunari Kaneko, Ken Yoshimura et al (2014). 'Brain Natriuretic Peptide as a Novel Diagnostic Biomarker in Kawasaki Disease'. *Journal of Comprehensive Pediatrics*. 5(4).
- [5]. McNeal-Davidson A, Fournier A et al (2012). "Value of amino-terminal pro B-natriuretic peptide in diagnosing Kawasaki disease". *Pediatr Int*. 54(5):627-33.