

CBC+CRP(C Reactive Protein) testing in
Hospital Central Laboratory environment

Takeda General Hospital, Takeda Health Foundation

We test CBC & CRP for about 30 emergency patients every day. We draw 60 μ L of sample from a finger which is less stressful for children and easier for nursing staffs to perform as well.

System Utilized : Hematology analyzer
Parameters: CBC 3Diff and CRP (C reactive Protein)
Tests per day: 10-15 (having more tests during the flu season)



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Specialty: pediatrics, renal disease
including nephrosis, food allergy

Advantages of CRP (whole blood) test

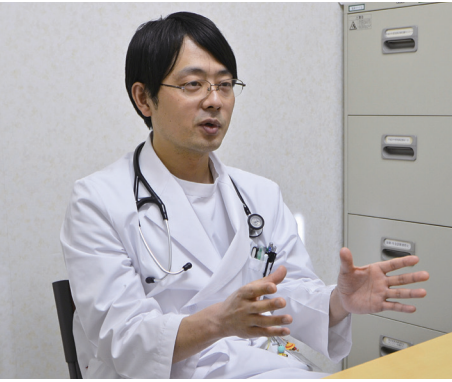
	Serum sample	Whole blood sample
Step 1	sample 2m ℓ	sample 50 to 100 μ ℓ blood
Step 2	solidify for 5 min.	measure
Step 3	centrifuge for 5 min.	
Step 4	measure for 5 min.	
Required time (req'd time)	approx. 30 min.	approx. 10 min.
Sample volume	approx. 2m ℓ	60 μ ℓ
Pretreatment	Yes	No
Steps	4 steps	2 steps
footprint	large	small

*Required time may vary with each case.



scenes in laboratory

- **CBC** (complete blood count) contain red blood cells , white blood cells , and platelets. A CBC also helps diagnose conditions.
- **CRP** (C reactive protein) is an acute-phase reactant increased in the serum of patients with pneumococcal infection.



“ Very helpful for children because it involves less pain and stress and is less of a burden for nursing staff. ”

Q.1 What symptoms are most often seen with the patients who visit ER?

A.1 We have about 10,000 children visit the ER every year (average 30 daily), high fever, cough and vomiting are the top three symptoms seen.

Q.2 How do you examine the children with high fever?

A.2 When fever is over 102.2 ° F (39.0 ° C) a decision must be made. If CBC and CRP test results show negative inflammatory reaction, then a virus infection like ES is suspected, which does not require immediate action. On the other hand, if WBC is over 15,000, bacterial infection is suspected, which requires further testing.

Q.3 How do you sample blood from children?

A.3 We draw blood samples from fingers, which is easier to perform by nurses than venous blood sampling which is more difficult due to the delicate thin veins in children.

Q.4 How much blood do you sample from children?

A.4 The hematology analyzer we are using for emergency patients outside the clinic hours can measure CBC & CRP with only 60 µL of whole blood. Smaller blood samples reduces the stress and pain associated with blood draws from children. This is beneficial to both the patients and the nursing staff.

Q.5 Does test result determine whether antibiotics should be administered?

A.5 Antibiotics are effective for treatment with bacterial infections. CBC & CRP results can distinguish between a bacterial or viral infection, which enables the physician to prescribe antibiotics for treatment. Of course, by not giving antibiotics to patients with viral infections we reduce the incidence of mutating bacteria becoming drug-resistant. In addition, by measuring CBC & CRP, we are able to identify and treat about 30 cases of pyelonephritis patients per year.