DIAGNOSTIC SERVICES / CLINICAL BIOCHEMISTRY

Cholinesterase Total Activity & Phenotyping Referral to In-Common Laboratories

Date issued: September 12, 2019
Effective date: September 16, 2019

Test Indications: Cholinesterase phenotyping is used to identify patients who are homozygous for an atypical gene controlling cholinesterase and at risk for prolonged paralysis following the administration of succinylcholine.
Serum cholinesterase, also known as pseudocholinesterase, is a circulating enzyme that hydrolyzes the muscle relaxant succinylcholine. Alterations in cholinesterase activity influence succinylcholine's physiologic effect. In normal individuals the drug dibucaine will almost completely inhibit cholinesterase activity. Individuals homozygous for an atypical gene controlling cholinesterase have a low level of cholinesterase which is not inhibited by dibucaine. They are unable to hydrolyze succinylcholine rapidly enough and are at risk for prolonged apnea when succinylcholine is administered.

This test is not used for occupational monitoring of organophosphate exposure.

Alternate Names: Cholinesterase Dibucaine Inhibition Test, Pseudocholinesterase Dibucaine Inhibition

Clinical Testing Change:

- Specimens for cholinesterase testing will be referred to In-Common Laboratories (ICL) Ontario commencing September 16, 2019.
- Both total cholinesterase activity and cholinesterase phenotype analysis are included.
- The method will change from a locally developed spectrophotometric procedure to a standardized kinetic enzyme method using dibucaine to determine enzyme inhibition.
- We will now be using the same test that is used by Ontario laboratories.
- Cholinesterase reference values are assay specific and will change to 620 – 1370 U/L for all ages.
- Specimen requirement is 2 mL of serum to be sent to the Clinical Biochemistry lab at Health Sciences Centre for referral to ICL.
- Specimens are sent out twice per week. Results are available within 2 weeks of arrival at ICL.
- If patient has had recent surgery wait 24 hours post-surgery before blood collection.

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