Optimisation of laboratory procedures for isolating human peripheral blood derived neutrophils.

ABSTRACT

Functional analysis of neutrophils requires isolation of these cells in the laboratory. Current isolation procedures are time consuming and can potentially activate the resting neutrophils. Thus, in this present study, we have optimised an existing laboratory protocol for human neutrophil isolation from peripheral blood. Twenty ml of blood samples were subjected to optimised density gradient separation and dextran sedimentation to obtain a pure population of neutrophils. The efficacy of the optimised manual post isolation of neutrophils was compared with pre isolation count performed by an automated haematology analyzer. The recovery of neutrophils via our optimised methods was 65.5% in comparison with neutrophils counts at pre-isolation. The morphological analysis of isolated neutrophils indicated the purity level more than 95% using Leishman staining. Our optimised laboratory procedures for neutrophils isolation successfully harvested neutrophils with good viability, purity and post recovery yield. This procedure provides an ideal platform to separate neutrophils for in vitro studies.

Keyword: Cell viability; Density gradient centrifugation; Dextran sedimentation; Laboratory protocol; Neutrophils.