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Expanded use of "Skin Window" generating pure leucocyte aggregates for wide variety of studies in a spectrum of conditions collectively classified as immune defective

White blood cells (WBC) are the major cells that defend the body against aggression from the environment. Their function is to recognize and differentiate self from foreign tissues and agents. Most cases with immune deficiency are due to defective leucocyte function. This may be either intrinsic to the cells such as a very low production of WBC surface receptors to chemo-attractants, or extrinsic to these cells such as abnormal production of chemo-attractants by the injured tissues. These and similar defects may be inborn or acquired. In addition, poor performance of WBC may be secondary to paralysis, or early destruction, of these cells by foreign material (inert or live) that may invade and hinder their proper function and/or shorten their life span. In circulation, WBC exists in low numbers. From the marginating pool, all types of WBC leave the blood and lymphatic vessels to infiltrate organs policing their cells. The most important exception to this surveillance is the brain which has its own defense cell type (microglia). To obtain WBC pure and in high numbers we collect them on slides using "Skin Window" (SW), which yields both groups, granulocytes and agranulocytes, each on a separate slide. On the slides these cells can be subjected to a large variety of manipulations.

Objective: This study reports a review of patients records for over thirty years. They were referred to our laboratory for confirmation and determination of the cause of suspected immune deficiency. We carried out advanced studies testing their immune cells morphology and function. Skin Window was the test most frequently used. It is practical, inexpensive and easy to apply. Very often SW revealed the diagnosis and the patients once treated were normal again. In this presentation we recommend its use especially that not only it is simple to perform, but also at a low cost and can be applied in field studies distant from any laboratory.

Methods: Skin Window consists of collecting each of the granulocytes and agranulocytes on sterile slides or cover slips that overlay an abraded small area within the epidermis. The leucocytes migrate to the injured surface where they adhere to the slide/cover slip. Harvested, live and in action, the leukocytes are tested for the suspected defect in the patient. Using any of several histologic techniques, including immunochemical, and fluorescent dies, each of the different cell types are studied. Since live, the cells can be set up in cultures, especially when suspected to carry live organisms.

Results: In the majority of these patients, SW revealed the problem and the patient when accordingly treated, recovered totally. In a very small minority of patients the problem could only be resolved using molecular studies. The remaining (0.3%) were not diagnosed in our laboratory.

Conclusion: SW is a very simple technique to collect live pure leucocytes in high enough numbers to facilitate studying and testing their morphology and function. SW testing in most of our patients lead to specific diagnosis which when treated resulted in the patients regaining normal functioning of the immune system.

Biography

Nuha Nuwayri Salti worked as a professor at the Department of Human Morphology at the American University of Beirut, Beirut, Lebanon. Currently she serves as research associate at the Chronic Care Centre, Hazmiyeh, Lebanon.