Chapter I

INTRODUCTION
&
AIM OF THE WORK

STUDY OF SOME HEMATOLOGICAL CHANGES IN MILD VIRAL INFECTION

I. Introduction and Aim of The Work

Hematologic equilibrium is the result of a balanced dynamic process of bone marrow production of the cellular elements of the blood and the removal of senescent cells by the monocyte-macrophage system. In health this balance is accomplished with surprising precision so that hematologic values are fairly constant. The hematologic equilibrium can be profoundly altered by either acute or chronic insult, so quantitative or qualitative abnormalities of the cellular elements of the peripheral blood almost invariably accompany systemic disorders (O'Brien, 1984).

Studies of the anemia of inflammatory disease have dealt primarily with severe disorders that require hospitalization. The effect of the common mild infections, such as upper respiratory infections,otitis, and gastro-enteritis, has not been considered of much consequence (Reeves et al ,1984). In infancy such mild

disorders are probably more common than any other time and account for the majority of physician visits. Many of these disorders are mild viral infections warranting only supportive measures(Olivares et al ,1989).

Even though chronic inflammatory disease or severe bacterial infections are well recognized causes of anemia (cartwright and Lee,1971 and Erslev, 1990), it is not clear whether mild transitory viral infections , which may not warrant immediate medical consultation, can also induce anemia.

The aim of this study is to clarify whether such mild viral infections are associated with anemia and to study some of the hematological changes that may accompany it in an attempt to distinguish it from other causes of anemia. Vaccination with live attenuated measles virus was used as a model of mild predictable viral illness.

Viral diseases have long been known to predispose frequently to bacterial infections, specially in children. This is due to the depressive effect of viruses on some cells involved in the immune response e.g. polymorphonuclear neutrophils and monocytes (Tolone et al., 1989). Several studies have demonstrated that the main polymorphonuclear functions are defective in children with measles (Kenneth et al., 1975, Anderson et al., 1976, and Thatte et al., 1991), but does this happen with the live attenuated measles vaccine ?

Another aim of this study is to assess whether there is a change in phagocytic activity of the polymorphonuclear leukocytes after administration of measles vaccine.