# تقييم بعض المؤشرات الكيموحيوية و المناعية في النساء الحوامل

رسالة تقدم بها إلى

مجلس كلية التربية للعلوم الصرفة /جامعة ديالى

وهي جزء من متطلبات نيل شهادة الماجستير في علوم الحياة/ مناعة

الطالب

## محمد حسين علوان

بكالوريوس كلية العلوم / قسم علوم الحياة

جامعة بغداد 2002

بأشراف

أ . د. عباس عبود فرحان          أ. م. د. محمد عبد الدايم صالح

1436 هـ                    2015 م

# Chapter one

## 1.1 Introduction:

Pregnancy is the state of a female after conception until the birth of the baby **(Gacek , 2009).** The length of pregnancy is considered to be 280 days, or 40 weeks after the onset of the last normal menstrual cycle or, more accurately, 266 days or 38 weeks after fertilization **(Sadler , 2012)**. In many societies pregnancy is somewhat arbitrarily divided into three trimester periods, as a means to simplify reference to the different stages of prenatal development **(Ifeanyi *et al.* , 2014).** The first trimester ends at the beginning of the 13th week, which is the three completed months of pregnancy. The second trimester usually ends at the end of the 27th week. The third trimester can end anywhere between the 38th and 42nd week **(Akinloye *et al.* , 2013)**. The first trimester period, carries the highest risk of miscarriage. In the second trimester, the development of the foetus can begin to be monitored and assessed. The third trimester of pregnancy, marks the beginning of viability **(Patricia *et al.* , 2013),** and during this trimester the foetal organs complete maturation **(Oke *et al.* , 2011).** Normal pregnancy is characterized by profound changes in almost every organ and system to accommodate the demands of fetoplacental unit **(Ifukor *et al.* , 2013).** Pregnancy is one of the most important periods in human life with hormonal, immunological, vascular, metabolic and psychological changes **(Akkoca *et al.* , 2014).** Pregnancy induces several physiological adaptations to meet the needs of the developing fetus and the health requirements of the mother **(Jiang *et al.* , 2012).** With 50% of its genetic material derived from its father, Successful pregnancy has been considered a biologic example of semiallogeneic graft acceptance, in which the semiallogeneic fetus is protected from immune attack from the mother

(**Chen** *et al.* **, 2012),** therefore pregnancy represent a unique immunological period for the mother (**Oliveira** *et al.* **, 2012). ** The immunological paradox of pregnancy relies on a careful balance of both immune tolerance and immune suppression (**Sykes** *et al.* **, 2012). ** The maternal immune system undergoes profound transformations already at the very beginning of pregnancy. These prominent changes are directed to protect the fetus from a detrimental immune response (**Zenclussen , 2013). ** The hormonal and immunological changes that occur during pregnancy affect susceptibly to and the outcome of autoimmune and infectious disease (**Robinson and Klein , 2012). ** An increase in infectious disease severity and complications during pregnancy has been reported (**Struble** *et al.* **, 2012),** as well as hospitalization and treatment, may be lower for pregnant women than for other patients (**Kourtis** *et al.* **, 2014). ** The understanding of these adaptations to pregnancy remains a major goal of obstetrics, and without such knowledge, it is almost impossible to understand the disease processes that can threaten women during pregnancy (**Gohel** *et al.* **, 2013). **

## 1.2 Aims of the Study

The aims of the present study are to estimate changes in some immunological, hematological and biochemical indicators in apparently healthy pregnant women compared with apparently healthy non-pregnant women (control) by studying:

- ❖ Estimate the serum level of interleukin 2 (IL-2).
- ❖ Estimate the levels of serum immunoglobulins (IgA, IgG and IgM).
- ❖ Estimate the serum complement components (C3 and C4).
- ❖ Estimate the values of some major hematological indicators (WBC count, neutrophils, lymphocyte and monocytes percentage", RBC count, Hb, PCV and platelets count).

❖ Estimate the values of some biochemical indicators (ALT, AST, ALP, total bilirubin, BUN, creatinine and glucose).

❖ The correlation between some of these parameters in order to reach a better understanding of this complex physiological state.