

abortion cases<sup>(21)</sup>. IL-10 plays a positive role in the prevention of spontaneous pregnancy failure in a mouse model; the injection of IL-10 into abortion-prone mice resulted in the prevention of fetal wastage<sup>(22)</sup>. Results of previous studies<sup>(23-25)</sup> showed that, IL-10 was produced at higher concentrations by PBMC of women with normal pregnancy than those with a history of unexplained RSA. Thus, IL-10 has emerged as an important Th2-type cytokine in the maintenance of normal pregnancy<sup>(26)</sup>. Since it is directly involved in down-regulating Th1-type activity by inhibiting IFN- $\gamma$  production, IL-10 has been proposed to play an important immunoregulatory role in pregnancy by maintaining a bias away from the detrimental Th1-type of reactivity<sup>(22, 27)</sup>. Other study found a lack of cytokine shift in aborted women (RSA or non-RSA) as compared with normal pregnant women at the same time of gestational age<sup>(28)</sup>.

There are many confounding studies held the notion on the balance of Th1 and Th2 cells at the circulation and implantation site, expressing them as a ratio of Th1/Th2 cytokines, so that, another dimension was added to the results of this study when it examined the ratio of IFN- $\gamma$ /IL-10 expression in women with RSA which was significantly higher ( $p < 0.001$ ) than that of successful pregnancy (group C). This significantly high IFN- $\gamma$ /IL-10 ratio lends further support to the findings in this study as it was in consistence with the previous studies<sup>(23, 21, 29, 30)</sup>.

Hanna and colleagues (2000)<sup>(31)</sup> examined the expression of IL-10 and its receptor in placental explants or freshly isolated cytotrophoblasts from different gestational ages and compared it with the expression profiles of other cytokines. First and second trimester placental tissues from

normal pregnancies predominantly expressed IL-10, whereas the levels of IL-2, IL-4, and IFN- $\gamma$  were mostly below detection throughout pregnancy.

In the current study, results showed a highly significant difference in expression of IFN- $\gamma$  (systemic) ( $p < 0.001$ ) between first; second trimester abortion compared with control groups (successful pregnancy). In addition, no significant difference in expression of IFN- $\gamma$  ( $p > 0.05$ ) between first trimester abortion and second trimester abortion. This result might be explained that IFN- $\gamma$  associated with pregnancy loss. Other studies showed that the expression of IFN- $\gamma$  will increase with progress of pregnancy till late first trimester<sup>(32)</sup>. Furthermore, this study, showed that the expression of IFN- $\gamma$  proteins in circulation of women with RSA was significantly higher ( $p < 0.001$ ) than that of successful pregnancy (group C) and higher than that in women with non-RSA (group B). This results was in agreement with other study that mentioned the elevated maternal serum levels of interleukin-2 soluble receptor (IL-2 sR), tumour necrosis factor- $\alpha$  (TNF- $\alpha$ ) and interferon- $\gamma$  (IFN- $\gamma$ ) have been associated with pregnancy loss<sup>(33)</sup>.

Results showed no significant difference in expression of IL-8 (systemic) ( $p > 0.05$ ) between first; second trimester abortion and control groups (successful pregnancy). In addition, no significant difference in expression of IL-8 (systemic) ( $p > 0.05$ ) between first trimester abortion and second trimester abortion. This finding supports the proposal that IL-8 may play a maturational role during pregnancy and/or facilitates the process of labor<sup>(34,35)</sup> or it might be due to the role of Interleukin-8 (IL-8), that has inflammatory and growth-regulating properties during pregnancy<sup>(15,16)</sup>. Much of the work on