

number of previous births, estimated gestational age, Pre-Eclampsia, number of previous

pregnancies, Placenta Preavia, Abruption Placenta, total number of neonates delivered, birth weight and Maternal Severity Index (MSI) were identified as factors associated with IOL. Neonatal status after seven days of life can also be predicted using the developed FES. FES is predictive of IOL and birth outcome, where if the FES score is between 0.8570 and 0.8854, the patient will belong to the induced group and the baby would be alive after seven days of birth.

This study concludes that, MLR and FES models can be used to predict IOL outcomes. These findings can be informative to healthcare providers when counselling women for labour induction and develop evidence-based protocols on IOL.

Keywords: Induction of labour, Multinomial logistic regression, Fuzzy expert system

INTRODUCTION

Induction of labour (IOL) is a common procedure in obstetrics (Laws, Li, & Sullivan, 2010), ("National Institute for Health and Clinical Excellence: Guidance," 2008), and is defined as the initiation of labour by artificial means prior to its spontaneous onset at a viable gestational age, with the aim of achieving vaginal delivery in a pregnant woman with intact membranes. The procedure is not always successful and sometimes fails to achieve a safe vaginal delivery. It is estimated that in medium to large healthcare facilities in Sri Lanka, approximately 35.5% of all deliveries involve IOL (World Health Organization, 2011).

The maternal mortality ratio in Sri Lanka declined to 30 deaths per 100,000 live births in 2015 from 75 deaths per 100,000 live births in 1990; this is an average annual reduction of

3.6% over the 25-year period (WHO UNICEF UNFPA World Bank Group and United and United Nations Population Division, 2015). IOL is thought to be a factor in reducing maternal mortality by preventing maternal complications and improving pregnancy outcome (Hiluf & Assefa, 2015). Little is known about factors that lead to