

ABSTRACT

Gestational Diabetes Mellitus (GDM) is emerging as a global health concern for pregnant women, posing risks for adverse maternal and foetal outcomes. Moreover, GDM serves as a precursor of Type 2 Diabetes Mellitus, one of the major non-communicable diseases in India. Despite available national and international guidelines, there is no consensus on the best practices for managing GDM. This study was taken up with the objective to identify the lacunae in the current practices and protocols in GDM management, develop a sustainable standard operating protocol for Medical Nutrition Therapy (MNT) in GDM women and evaluate its impact of implement on maternal and foetal outcomes, recognising the pivotal role of MNT in GDM management. A sample of 200 healthcare professionals (HCPs) comprising doctors, dietitians and other allied healthcare professionals and 160 pregnant women (106 GDM women and 54 Non-GDM) women) were purposively selected based on specific inclusion and exclusion criteria. HCPs provided details such as background information, perception of GDM, views on protocols, preventive measures, as well as current medical treatment and MNT practices for GDM management. Meanwhile, pregnant women contributed details on their background, medical treatment received, MNT service received. The results revealed notable variations among HCPs in their perception of GDM revealing the existence of potential differences in the management of GDM among the HCPs themselves.. Furthermore, differences were observed in the current medical treatment and MNT practices for GDM in hospitals compared to the national guidelines. In Phase 2, the development, optimisation and validation of a SSOP was done by implementing on a sample of ten pregnant women. In Phase 3, a mobile application was developed to facilitate the implementation of the SSOP based MNT among HCPs thereby simplifying its integration. In Phase 4, the SSOP implementation was done with 364 pregnant women purposively recruited based on a predefined inclusion and exclusion criteria. At first antenatal visit the participants underwent GDM risk screening and were identified as GDM high risk, average risk and low risk women. Women who expressed willingness to participate throughout their gestational period constituted the experimental group, while the remaining participants formed the control group. The SSOP based MNT implementation was carried out until delivery for all participants in the experimental group while the control group adhered to the existing MNT practices until delivery. The findings

of Phase 4 demonstrated the positive impact of the SSOP based MNT in many key areas. There was significant reduction in the occurrence of GDM, with rates dropping to 33.7 percent in experimental group compared to 50.7 percent in control group. Also, 43.8 percent in experimental group achieved adequate gestational weight gain compared to 32.2 in control group and the mean post prandial blood glucose levels were more effectively controlled with 106.77 ± 15.10 mg/dl in experimental group compared to 114.96 ± 20.60 mg/dl in control group. Lastly, adverse maternal and foetal outcomes were greatly reduced in experimental group with rates of 10.2 percent and 30.3 percent respectively in contrast to 18.9 percent and 50 percent in the control group. Perineal tear was observed in 15.1 percent in control group compared to 8.4 percent in the experimental group. Neonatal hyperbilirubinemia and hypernatraemia were significantly higher with 17.2 percent and 10.2 percent in the new borns of pregnant women in control group compared to 10.1 percent and 2.8 percent in new borns of pregnant women in the experimental group respectively. The SSOP based MNT when implemented early from the first trimester based on GDM risk screening can be a very robust tool not only for better MNT practice but also for prevention of GDM.