Maternal determinants of low birth weight

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The present hospital based study conducted on 602 mothers from middle (N=302) and low income group (300) examined the maternal socio-economic and nutritional factors as antecedents of poor birth outcome. Women in the 9th month of pregnancy were enrolled for the study excluding the cases of gestational diabetes, twins and preterm deliveries. Maternal obstetric history and anthropometric measurements (weight and height) were recorded. Data on supplements and dietary intake data were collected using 24 hour recall method and case papers. Weight, length, head circumference, chest circumference, abdomen circumference, MUAC, triceps and supra iliac skin fold thickness of the neonates were measured within 48 hours of delivery using standard methods. Poor maternal weight gain was observed with almost 71% women weighing less than 60 kg at term and about 64% of the mothers had hemoglobin levels <11g/dl.

The incidence of low birth weight was higher in low income group (57%) than the middle income group (18%). The high incidence of low birth weight (LBW) in the neonates resulted from low maternal age, weight, height and hemoglobin status during the gestational period. The incidence of chronic severe malnutrition in the form of low head circumference for age Z-score was highest in these neonates followed by wasting indicating higher growth restriction rate in late pregnancy. the NBW neonates had significantly higher muscle and fat mass as compared to LBW neonates. The ratio of central fat to total fat was low indicating absence of abdominal obesity and the 'thin fat phenotype' was not found in the present study.

Inhibition of biofilm formation by Salmonella serovar Typhimurium on food contact surfaces using malic acid and ozone

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Combined effect of malic acid and ozone was optimized to inhibit the biofilm formation by two fresh produce isolates of Salmonella typhimurium on different food contact surfaces used in food industry during pre and post harvest processing including PVC pipes, polyethylene bags, plastic surfaces and fresh produce itself; using different visualization methods followed by scanning electron microscopy. 2% of malic acid significantly (p<0.05) inhibited biofilm formation by both pathogens was not effective among all the samples analyzed However, combination of 2% malic acid with 2ppm ozone significantly (p<0.05) reduced the biofilm formation on plastic bags as well as PVC pipes suggesting an effective disinfectant for food contact surfaces. Five and six fold reduction in biofilm formation was observed in both the isolates in microtitre plates after 20 hours and 40 hours. Scanning electron micrographs of turnip and carrot showed the widespread of biofilms and presence of peritrichous flagella. Malic acid was effective for the complete inhibition of biofilm in carrot, besides this combination of malic acid and ozone was effective in both the fresh produce tested.