

INTESTINAL MICROFLORA IN BREAST-FED AND FORMULA-FED NEONATES. Lee K.J.,* Moon S.J., Jin H.S.¹ Department of Food and Nutrition, Yonsei University, Seoul 120-749, Department of Microbiology, Jeon-ju University¹, Jeon-ju 560-759, Korea.

Fecal bacteria of 17 breast-fed(BF) and 14 formula-fed(FF) infants at about 1 week after birth were classified and counted to see the differences of gastrointestinal microflora between the two lactation groups.

Fresh fecal samples were brought to a laboratory in nappy liners and stored at -60°C after dilution in media for refrigeration. The frozen sample were thawed, diluted and spread on the agar plates of selective media. For anaerobic bacteria the plates were incubated for 3 days at 37°C under anaerobic condition (N₂ 80%, CO₂ 10%, H₂ 10%). The bacteria were identified by their morphological and physiological characteristics. Rapid commercial kits for identification such as API and VITEK were used whenever applicable. The results are as follows.

Defecation frequency of BF group was significantly higher than that of FF group(p<0.01). The fecal pH of the BF group was lower than that of the FF group. *Bifidobacterium*, *Bacteroides*, *C. perfringence*, *Clostridium*, *Eubacterium*, *Pepto-coccaceae* and *Veillonella* were isolated in anaerobic culture media, and *Lactobacillus*, *Streptococcus*, *Staphylococcus*, *E. coli*, *Klebsiella*, and *Enterobacter* were isolated in both aerobic and anaerobic culture media. Total kinds of bacterial genera per BF neonate were significantly lower than those per FF neonate(p<0.05). The count of bifidobacteria and the frequency of staphylococci were significantly higher in the BF group(p<0.05). However, the frequencies of streptococci(p<0.01) and Peptococcaceae(p<0.05) were higher in the FF group. The frequency of bifidobacteria and the counts of lactobacilli, veillonella, and staphylococci were higher, though insignificant, in the BF group, but the frequencies of bacteroides, clostridia, and Enterobacter and the count of clostridia were higher in the FF group. Total counts of anaerobes and aerobes of the BF group were similar to those of the FF group. The dominant genus in the BF group was bifidobacteria, but in the FF group was streptococci.

Thus, it can be seen that the intestinal microflora of neonates are fully established in counts, but not in composition at about 1 week after birth. In addition, the microflora of the two lactation groups are markedly different and the influences of diets on the composition of the microflora are great at this early age. The composition of the microflora of the BF group seems to be better in that the diversity of genera is small and bifidobacteria is the dominant genus.