Faecal Microbiology Summary Report

Laboratory Receipt Date: 27/09/2013

The following is a summary and comments of the faecal microbial flora from the sample received on this particular date.

Faecal Aerobes

**Enterococcus sp.: Overgrowth**

**Klebsiella sp.: Overgrowth**

**E.Coli: Undergrowth**

Comments

**E. coli**

- The reason for the low E.coli percentage distribution/ total count in the sample is unclear. However, recent exposure to antipyretics and/or analgesia (eg. paracetamol) may cause a marked change in the faecal ecology resulting in a significant alteration of the E.coli viable count (Bioscreen data, 2001). Recent supplementation with fructo-oligosaccharide (FOS) may also have suppressed growth of this organism.

- E.coli is an important intestinal micro-organism responsible for the synthesis of essential amino acids (eg. tryptophan, phenylalanine, tyrosine), vitamins (folic acid, vit K2), and coenzymes (CoQ10) important for cellular metabolism and reproduction. Determination into the levels of these essential amino acids in patients with persistent and chronic low levels of E.coli may be beneficial. Acute depletion of tyrosine and phenylalanine has shown to have selective effect on decision-making in depressive patients. Tyrosine depletion has also shown to have recognition and working memory impairment.

- Consider supplementing oral sugars (eg galactose, fucose) to increase the densities of current intestinal coliforms (eg E.coli) as opposed to adding a different strain with probiotics. Health professionals can contact Bioscreen for further information.

- Consider checking the folate, vitamin K2, CoQ10 levels and supplement if indicated.

- Consider checking the levels of the following essential amino acids: tryptophan, tyrosine, phenylalanine, and supplement if indicated.

**Klebsiella sp.**

- Klebsiella spp is a Gram negative member of the Enterobacteriaceae family and generally regarded as part of the normal gastrointestinal microbial flora. The clinical significance of an increased Klebsiella count in faecal samples is unclear. However, repeated episodes of excess colonization of this organism in the gut may predispose the patient to Klebsiella-reactive arthritis, the precursor stage occurring in the early and active phases of ankylosing spondylitis.

- Elevated specific immunoreactive anti-Klebsiella antibodies are found in patients with ankylosing spondylitis, Crohn’s disease, and ulcerative colitis.
Metabolites from Klebsiella spp have shown to inhibit active sugar transport. 

A ‘low starch diet’ involving a reduced intake of bread, potatoes, cakes and pasta has shown to be beneficial in the control of Klebsiella-overgrowth in the bowel.

The intake of Lactobacillus probiotics has shown to significantly decrease the viable count of Klebsiella spp in the gut.

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**Streptococcus/Enterococcus**

- Enterococcus spp. are Gram positive, facultative anaerobic organisms and are classified as homofermentative, producing only lactic acid from glucose catabolism and generally regarded as potent D- and L-lactic acid producers (Bioscreen data).

- Increased distribution of lactic acid bacteria (Streptococcus, Enterococcus sp.) may lower the colonic pH and has been reported to: (1) modify faecal microbial metabolism particularly the Bacteroides and Bifidobacterium spp, resulting in a decreased production of volatile fatty acids, and (2) alter intestinal epithelial barrier function increasing passive intestinal permeability to small and large molecules. However, this consideration requires further study.

- High colonization of faecal lactic acid bacteria (Streptococcus, Enterococcus sp.) significantly and positively correlate with cognitive dysfunctions (nervousness, memory loss, forgetfulness, confusion, mind going blank), and sleep patterns (Bioscreen data).

- Increased proportion of lactic acid may result in a change in the distribution of the anaerobic microbial flora. This change of the fecal flora may affect the production of primary bile acids and influencing the bile acid composition in both the bile and the intestine. The possibility of fat malabsorption may occur. However, this consideration requires further study.

- If indicated, ampicillin/amoxycillin may assist in the suppression of the faecal Enterococcus spp. Zinc bacitracin may be a suitable alternative if patient is reported to have adverse reactions to the penicillins. Bacitracin is a non-absorbable antibiotic; however, potential nephrotoxicity and allergic reactions may occur in patients with intestinal permeability.

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**Faecal Anaerobes**

**Bifidobacterium sp.: Overgrowth**

**Lactobacillus sp.: Undergrowth**

**Comments**

**Bifidobacterium/Lactobacillus sp.**

- Members of the genus Bifidobacterium are Gram positive branching bacilli and lactic acid producing bacteria. A few members can grow in a microaerophilic environment; but most are obligate anaerobes.

- High levels of Bifidobacterium spp. in the anaerobic microbial flora. Increased level of Bifidobacterium may stimulate amine production. Similarly, increased levels of this organism may also lower the colonic pH, modifying faecal microbial metabolism particularly the Bacteroides spp, resulting in a decreased production of volatile fatty acids, and altering intestinal epithelial barrier function increasing passive intestinal permeability to small and large molecules.

- Cease all oral supplementation of lactic acid probiotics if indicated. If required, consider an antimicrobial agent (eg. ampicillin) to assist in the suppression of the organisms Bifidobacterium spp.
Members of the genus Lactobacillus are Gram positive bacilli and lactic acid producing bacteria. A few members can grow in a microaerophilic environment; but most are obligate anaerobes.

Low levels of Lactobacillus spp. detected. Oral Supplementation of Lactobacillus probiotics may be beneficial. Consider the intake of vitamin B6 and biotin to promote lactobacilli growth24,25.

Faecal Yeasts

Comments

- Undetectable levels of yeasts in the sample.

We trust these comments assist you in the interpretation of Bioscreen reports. If you require further assistance please do not hesitate to contact Bioscreen anytime.

References


