



NOT A COFFEE TABLE DISCUSSION

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acterial vaginosis is a disturbance in the bugs/bacteria in the microbiome of the vagina. This common problem affects up to 15% of women at any one time in the sexually active population.

What is recognised is that the vaginal microbiome, if it is healthy, is a predominately certain species of human lactobacilli. Lactobacilli make lactic acid and in Caucasian women they also make hydrogen peroxide. These two powerful substances stop invasion of the vaginal wall with bacteria which are often present in small numbers but multiply rapidly when the acid environment becomes less acidic. These other bacteria simply overgrow they are there anyway but in small numbers in relation to lacto bacilli. Normal pH of the vagina is less than 4 and the normal vaginal smell/odour is that of lactic acid.

What do affected women get by way of symptoms?

Any individual woman knows when they have bacterial vaginosis, sometimes also called vaginal dysbiosis, because they get this offensive smell and discharge into their underwear.

Why is this so important for you to know about it?

Women who suffer from the unpleasant effects of the imbalance in their bacteria in the vagina are at risk of a whole variety of diseases as a consequence of that beyond straight forward bacterial vaginosis, otherwise known as BV. Examples include premature birth; if a BV sufferer gets pregnant the abnormal bacteria ascend through the cervix into the uterus, also called the womb, and affects the surrounding layers of membranes around the newly forming baby and the baby is ejected early. A premature baby is a disaster if this happens in early pregnancy. In addition, there are other disorders which accrue over time and are risk factors for people that have bacterial vaginosis.

What can be done?

At present the therapies that are available are largely ineffective. For example, women go to the genital urinary medicine clinic or their GP and they are given Metronidazole. This is a powerful antibiotic which unfortunately has unpleasant side effects such as making you feel sick and not being able to drink alcohol. It does work in the short term only for the BV's return soon after the course is stopped. Unfortunately, some women get recurrent attacks of BV, others do not, so for example they can have up to six attacks per year, so it is understandable that this is a condition which needs a treatment.

What are women trying to do themselves?

It is alleged that some are introducing yoghurt into their vagina. This is unwise and ineffective. Others are using herbal therapies, also ineffective. And others are using

over the counter preparations such as Balance Active and Canesbalance. Over the counter medications do not have the same standard of proof that they work as prescribed medications. Both of these two preparations work by introducing lactic acid into the vagina, unfortunately what tends to happen is the symptoms still recur.

How are bacteria acquired in the vagina?

Nature is efficient and when babies are born, they pass through their mother's vagina unless they are being born by caesarean section. As they pass through the vagina, the baby acquires the maternal vaginal microbiome. This is swallowed as part of naturally being born and the initial bacteria which pass into the new infant are lactobacilli predominantly. They grow in an initial bacterial bloom in the intestines and thereafter they then pass from the anal margin into the vagina in the new-born baby girl. This is a very efficient system but unfortunately women who have bacterial vaginosis develop an imbalance whereby they don't have their own lactobacilli species, instead they have a mixture of other species such as gardenella, and these result in this offensive discharge and smell.

What can be done?

At present I am working with two other individuals to develop an effective treatment for bacterial vaginosis which we hope to be starting to use and make available to the market after the first women's studies next year. This will rebalance the bacteria in the vaginal microbiome and normalise this for any individual woman. It will work quite differently from those products which are already available.

Why would a paediatrician be involved in such a thing?

In truth my work has always been at the balance between women's health and children's health. However, because I am concerned about the 'plague on the human race called premature birth' I wanted to develop a therapy which would, via treating bacterial vaginosis, allow a reduction in the number of premature babies born relating to this primary disease. It is estimated between 30-40% of premature births are as a result of ascending infection from the vagina. Therefore, if this microbiome can be normalised, we should have an impact on premature birth. At present we are seeking investments to proceed with our venture which will result in a licensed vaginal gel called Rebalance.

This gel has been co-invented by myself and Professor Paul Long a professor of Marine microbiology and drug discovery at KCL.