Thesis Title Studies on the Characteristic of Gardnerella vaginalis in Nonspecific Vaginitis Patients and Healthy Persons

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ABSTRACT

G. vaginalis isolates from women with signs of nonspecific vaginitis (NSV) and from healthy persons were characterized in the following aspects : 1) biotyping according to Piot et al., and Benito et al., based upon the activities on hippurate hydrolysis, beta - galactosidase, lipase and the carbohydrate ferment capacity 2) optimal pH for growth 3) Fine structure of *G. vaginalis* and existence of pili and flagella 4) adherence of *G. vaginalis* to HeLa cells 5) to be phagocytized by human PMN 6) Harbouring plasmid DNA and restriction endonuclease pattern of chromosomal DNA.

All together 71 isolates of *G. vaginalis* were typed as described by Piot et al. Results showed that biotypes 1, 2, 3, 4 , 5 and 7 were found 32, 6, 9, 39, 3 and 11 %, respectively and biotypes 6 and 8 were not found. While using the Benito typing method biotypes Ia, Ib, Id, IIa, IIa_1, IId,IIIa,IIIb, IIIc, IIId, IVa, IVa_1 and IVb were found 22, 11, 2, 5, 2, 2, 24, 7, 5, 2, 9, 7 and 2 %, respectively and biotype Ic, IIb, IIc and IVc were not found. Thereis no correlation between biotype and signs of NSV ($0.50 < p < 0.75$; chi squre test). An average of optimal pH for growth was 6.8 ± 0.5 (mean $\pm$ SD). Again, there was no significant difference for growth and pH pattern for *G.*

vaginalis isolated from women with and without NSV. Flagella were not found among 11 random selective isolates while only 2 isolates showed possible pili structure. An ability of *G. vaginalis* to adhere HeLa cells (% adherence) was not different between isolated from women with signs of NSV and healthy persons ($p > 0.05$; Mann Witny U test). The average adherence rates of 22 isolates from signs positive women at 15 and 60 min were 24.3 ± 26.0 and 51.3 ± 35.3 % (mean ± SD), respectively. And the average adherence rates of 19 isolates from signs negative women at 15 and 60 min were 26.4 ± 27.0 and 49.5 ± 7.2 %, respectively. In phagocytosis by PMN , eighteen isolates of *G. vaginalis* from healthy women and twenty-two isolates from women with signs of NSV were tested. The organisms from both groups were phagocytized by PMN with significantly the same rate. Opsonization by normal human increased the phagocytosis. From scanning electron microscope, in colony, *G. vaginalis* forming a strand(s) running between cells which could also be found among *Haemophilus influenzae* and *Escherichia coli*. Plasmid DNA extraction of 57 isolates from women with and without signs of NSV only 3 isolates showed plasmids size at 2.8, 3.8, 4.7, 5.1, 8.9 and 14.8 kb. Chromosomal DNA was found above 23.1 kb and it is not sensitive to be digested with Hind III and Hae III. However, there were two out of ten isolates their chromosomal DNA were sensitive to EcoR I.

In conclusion these studies showed that *G. vaginalis* isolated from women with signs of NSV and from healthy women possessed the same biotype distribution, the same optimal pH for growth, the same ability to adhere to HeLa cells. Importantly the biotype 4 which is not frequently found in other geographic regions was the most prevalent found in this study.