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بنغازي الحديثة

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مجلة علمية الكترونية محكمة

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شروط كتابة البحث العلمي في مجلة جامعة بنغازي الحديثة للعلوم والدراسات الإنسانية

1- الملخص باللغة العربية وباللغة الانجليزية (150 كلمة).
2- المقدمة، وتشمل التالي:
- ❖ نبذة عن موضوع الدراسة (مدخل).
- ❖ مشكلة الدراسة.
- ❖ أهمية الدراسة.
- ❖ أهداف الدراسة.
- ❖ المنهج العلمي المتبع في الدراسة.

3- الخاتمة. (أهم نتائج البحث - التوصيات).
4- قائمة المصادر والمراجع.
5- عدد صفحات البحث لا تزيد عن (25) صفحة متضمنة الملاحق وقائمة المصادر والمراجع.

القواعد العامة لقبول النشر

1. تقبل المجلة نشر البحوث باللغتين العربية والانجليزية؛ والتي تتوافر فيها الشروط الآتية:

- أن يكون البحث أصيلاً، وتتوافر فيه شروط البحث العلمي المعتمد على الأصول العلمية والمنهجية المتعارف عليها من حيث الإحاطة والاستقصاء والإضافة المعرفية (النتائج) والمنهجية والتوثيق وسلامة اللغة ودقة التعبير.
- ألا يكون البحث قد سبق نشرة أو قُدم للنشر في أي جهة أخرى أو مستل من رسالة أو اطروحة علمية.
- أن يكون البحث مراعياً لقواعد الضبط ودقة الرسوم والأشكال - إن وجدت - ومطبوعاً على ملف وورد، حجم الخط (14) وبخط (Arial 'Body') للغة العربية. وحجم الخط (12) بخط (Times New Roman) للغة الإنجليزية.
- أن تكون الجداول والأشكال مدرجة في أماكنها الصحيحة، وأن تشمل العناوين والبيانات الإيضاحية.
- أن يكون البحث ملتزما بدقة التوثيق حسب دليل جمعية علم النفس الأمريكية (APA) وتثبيت هوامش البحث في نفس الصفحة والمصادر والمراجع في نهاية البحث على النحو الآتي:
- أن تُثبت المراجع بذكر اسم المؤلف، ثم يوضع تاريخ نشرة بين حاصرتين، ويلي ذلك عنوان المصدر، متبوعاً باسم المحقق أو المترجم، ودار النشر، ومكان النشر، ورقم الجزء، ورقم الصفحة.
- عند استخدام الدوريات (المجلات، المؤتمرات العلمية، الندوات) بوصفها مراجع للبحث: يُذكر اسم صاحب المقالة كاملاً، ثم تاريخ النشر بين حاصرتين، ثم عنوان المقالة، ثم ذكر اسم المجلة، ثم رقم المجلد، ثم رقم العدد، ودار النشر، ومكان النشر، ورقم الصفحة.

2. يقدم الباحث ملخص باللغتين العربية والانجليزية في حدود (150 كلمة) بحيث يتضمن مشكلة الدراسة، والهدف الرئيسي للدراسة، ومنهجية الدراسة، ونتائج الدراسة. ووضع الكلمات الرئيسية في نهاية الملخص (خمس كلمات).

3. تحتفظ مجلة جامعة بنغازي الحديثة بحقها في أسلوب إخراج البحث النهائي عند النشر.

إجراءات النشر

ترسل جميع المواد عبر البريد الالكتروني الخاص بالمجلة جامعة بنغازي الحديثة وهو كالتالي:

- ✓ يرسل البحث الكترونياً (Word + Pdf) إلى عنوان المجلة info.jmbush@bmu.edu.ly او نسخة على CD بحيث يظهر في البحث اسم الباحث ولقبة العلمي، ومكان عملة، ومجاله.
- ✓ يرفق مع البحث نموذج تقديم ورقة بحثية للنشر (موجود على موقع المجلة) وكذلك ارفاق موجز للسيرة الذاتية للباحث إلكترونياً.
- ✓ لا يقبل استلام الورقة العلمية الا بشروط وفورمات مجلة جامعة بنغازي الحديثة.
- ✓ في حالة قبول البحث مبدئياً يتم عرضة على مُحكِّمين من ذوي الاختصاص في مجال البحث، ويتم اختيارهم بسرية تامة، ولا يُعرض عليهم اسم الباحث أو بياناته، وذلك لإبداء آرائهم حول مدى أصالة البحث، وقيمته العلمية، ومدى التزام الباحث بالمنهجية المتعارف عليها، ويطلب من المحكم تحديد مدى صلاحية البحث للنشر في المجلة من عدمها.
- ✓ يُخطر الباحث بقرار صلاحية بحثه للنشر من عدمها خلال شهرين من تاريخ الاستلام للبحث، وبموعد النشر، ورقم العدد الذي سينشر فيه البحث.
- ✓ في حالة ورود ملاحظات من المحكِّمين، تُرسل تلك الملاحظات إلى الباحث لإجراء التعديلات اللازمة بموجبها، على أن تعاد للمجلة خلال مدة أقصاها عشرة أيام.
- ✓ الأبحاث التي لم تتم الموافقة على نشرها لا تعاد إلى الباحثين.
- ✓ الأفكار الواردة فيما ينشر من دراسات وبحوث وعروض تعبر عن أراء أصحابها.
- ✓ لا يجوز نشر إي من المواد المنشورة في المجلة مرة أخرى.
- ✓ يدفع الراغب في نشر بحثه مبلغ قدره (400 د.ل) دينار ليبي إذا كان الباحث من داخل ليبيا، و (200 $) دولار أمريكي إذا كان الباحث من خارج ليبيا. علماً بأن حسابنا القابل للتحويل هو: **(بنغازي – ليبيا - مصرف التجارة والتنمية، الفرع الرئيسي - بنغازي، رقم 001-225540-0011. الاسم (صلاح الأمين عبدالله محمد)**.
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Reliability of the OSOM rapid test versus wet mount preparation for detection of *Trichomonas vaginalis* in pregnant women in Misurata-Libya

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Abstract

Trichomoniasis is estimated by the World Health Organization to account for almost half of all curable sexually transmitted infections worldwide. The most common tool for diagnosis of *Trichomonas vaginalis* infection is still microscopic examination of wet mount preparations. This study aims to evaluate the prevalence of *T. vaginalis* among the pregnant women in Misurata-Libya. In addition, to determine the reliability and accuracy of the OSOM rapid test (laboquick *T. vaginalis* AG test) versus wet preparation for detection of *Trichomonas vaginalis*. Out of 125 samples 4 (3.2%) were positive for trichomoniasis as detected by laboquick *T. vaginalis* AG test, whereas only 1 sample (0.8%) was detected by wet mount preparation. laboquick *T. vaginalis* AG test showed a very high sensitivity (100%) compared to (25%) obtained by the wet mount method (p-value=0.000). In conclusion, that the prevalence of *T. vaginalis* in pregnant women in Misurat-Libay is 3.2% depend on laboquick *T. vaginalis* AG test which has a high sensitivity, easy and fast to perform, low coast, and does not need an expert. We recommend to include the investigation for *T vaginalis* as part of any routine examination for vaginitis.

Key words: *Trichomonas vaginalis*, Lab methods, reliability, Misurata.

Introduction:

Trichomonas vaginalis is an flagellated, anaerobic protozoan parasite that causes vaginal infections in women, including vaginitis, urethritis and cervicitis[1], hich called Trichomoniasis[2]. Infection rates between men and women are similar with women being symptomatic, while infections in men are usually asymptomatic. The World Health Organization (WHO) has estimated that 160 million cases of infection are acquired annually worldwide. Usually treatment consists of metronidazole and tinidazole[2].

T. vaginalis infections are not self-limiting and produce non-ulcerative inflammation of the genital epithelium that can progress to necrosis and haemorrhage[3,4].

Diagnosis: The most common tool for diagnosis of *T. vaginalis* infection is still microscopic examination of wet mount preparations[5], which traditionally depended on the microscopic observation of motile protozoa from vaginal or cervical samples, urethral or prostatic secretions and urine. Ideally, specimens should be examined within 10 minutes to observe motile *T. vaginalis*. On occasion, flagella movement can also be noted. Whereas, the wet mount method is an inexpensive diagnostic test; however, sensitivity is estimated at 38% to 82%, and varies based on the individual performing the test and how promptly the slide is interpreted [5,6,7]. Moreover, the inoculum size play a role; because fewer than 10^4 organisms/mL will not be seen. As well, the need for the specimen to remain moist and the experience of the observer are important variables. In addition to that, the size of the trichomanad is approximately the same as that of a lymphocyte (10 µm to 20 µm) or a small neutrophil; when not motile, a trichomanad can be difficult to differentiate from the nucleus of a vaginal epithelial cell. Motility is very dependent on the temperature of the specimen[8]. Corresponding to the wet mount method, The OSOM (formerly Xenostrip) Trichomonas rapid test is an immunochromatographic capillary-flow enzyme immunoassay dipstick test and it is commercially available. It is performed on vaginal secretions with results available within 10 minutes. The test specifications include sensitivity 82–95% and specificity 97–100%[6,9].

While the culture method has been considered the gold standard for diagnosis of trichomoniasis with a specificity approaching 100%, but it is not widely used and its sensitivity can be as low as 75–96% [6,7]. In addition to that, this method will need experts and it takes a lot of time. An overview and characteristics of diagnostic Methods to detect *T. vaginalis* can be seen in table 1[10].

Table 1: Overview and characteristics of diagnostic assays for *T. vaginalis* [10].

Diagnostic Test	Technique	Time to Result	Specimen	Sensitivity	Specificity	Comments
Wet mount	Microscopic visualization	Minutes	Vaginal or urethral discharge	51-65%	Up to 100	Inexpensive; technician-dependent
Culture	Culture media	24–120 hours	Vaginal or urethral discharge	75-96%	up to 100%	Considered diagnostic gold standard in the past
	Immunochrom		Vaginal	82-95%	97-100%	CLIA*-waived for

OSOM Trichomonas Rapid Test	atographic capillary- flow enzyme immunoassay dipstick	10 minutes	swabs or saline for wet mount			females; can be used at the point-of-care
Affirm VPIII Microbial Identification Test	Nucleic acid probe test	45 minutes	Vaginal swabs	63%	99.9%	Moderately complex same-day test; FDA**-cleared for use with specimens from females; also detects Gardnerella vaginalis and Candida albicans
APTIMA *Trichomonas vaginalis* Assay	Transcription Mediated Amplification (TMA)	Hours	Urine specimens, endocervical and vaginal swabs, and specimens collected in PreservCyt Solution	95-100%	95–100%	NAATs*** are the most sensitive tests; FDA-cleared for use with specimens from symptomatic or asymptomatic females
BD ProbeTec Trichomonas vaginalis Qx Amplified DNA Assay	Strand Displacement Amplification (SDA)	Hours	Not an FDA-cleared product			Variety of female specimens have been tested
PCR	Polymerase Chain Reaction	Hours	No FDA-cleared kit			Variety of male and female specimens have been tested

* CLIA: Clinical Laboratory Improvement Amendments. **FDA: Food and Drug Administration.

*** NAATs: Nucleic acid amplification tests

Wet mount examination is clearly the most cost-effective diagnostic test, but the lack of sensitivity will lead to misdiagnosis of the disease. In addition, this method is depend on the individual experience to perform the test, as well the time and how the slide is prepared. Therefore, this study aims to evaluate the prevalence of *T. vaginalis* in the pregnant women in Misurata-Libya. In addition, to determine the reliability and accuracy of the OSOM rapid test (laboquick *T. vaginalis* AG test) versus wet preparation for detection of *Trichomonas vaginalis*.

Materials and methods:

This study was conducted in antenatal clinics in three public health facilities within Misurata-Libya in the period between December 2015 to April 2016. High vaginal swabs were collected from 125 pregnant women suffering from some symptoms that similar to the symptoms made by *T. vaginalis*.

Sterile cotton wool swabs were aseptically used in collecting the samples after obtaining informed consent from the patients; two swabs for each case. Two lab methods were performed for each individual; i) a wet smear (wet mount) was made immediately after collection, in a drop of physiological saline on a clean glass slide covered with a cover slip and examined microscopically (40x) for the quick jerky motion of the protozoa and ii) a laboquick *Trichomonas vaginalis* AG test (made by

Bomove-Izmir- Turkey). This immunological test based on a membrane coated with *T. vaginalis* goat antibodies, beside it is a qualitative test.

Data analysis:

The reliability (Sensitivity and Specificity) was calculated according to Maxwell formulas [11] whereas, the accuracy was calculated according to Carmins&Zeller formulas[12]. As to calculate positive and negative predictive values, the electronic calculator medCalc has been used directly on its web site (https://www.medcalc.org/calc/dianostic test.php).

Statistical analysis: The obtained results have been statistically analyzed by using Minitab 16 and carried out by using Chi-square test, Fisher's test and two proportion test. A probability p-value of ≤ 0.05 was considered as significant whenever appropriate by determining the confidence interval =95% and error interval =5%.

Results and Discussion:

Trichomoniasis is estimated by the World Health Organization to account for almost half of all curable sexually transmitted infections worldwide [13]. Although trichomoniasis is diffused worldwide, its prevalence greatly varies among different populations. Trichomoniasis is not a reportable infection, despite its high impact on public health, so data regarding diffusion of *T. vaginalis* are scarce and incomplete in most countries[14].

To our knowledge, until now, no epidemiological investigations describing the prevalence of trichomonad infection in Misurata-Libya have been reported in literature. However, out of 125 samples collected from the selected pregnant women and screened, 4 samples (3.2%) were positive for trichomoniasis as detected by laboquick *T. vaginalis* AG test, whereas the direct microscopic examination of wet mount preparation detected only 1 (0.8%) positive case. The statistical difference between the number of positive samples obtained from the both methods was significant p-value= 0.046. The prevalence of *T. vaginalis* in this study is (3.2%) as shown in table 2 which presents the prevalence of trichomoniasis on the basis of the diagnostic method among the pregnant women in Misurata-Libya.

Table 2: Prevalence of trichomoniasis on the basis of age and method of diagnosis.

Diagnostic Method	Total No. samples	No. positive samples (%)	No. negative samples (%)	Prevalence %
Wet mount	125	1 (0.8%)	124 (99.2%)	0.8%
Laboquick	125	4 (3.2%)	121 (96.8%)	3.2%
p-value		0.046		

In Benghazi-Libya Kassem & Majoud[15] reported a prevalence of 1.2% for *T. vaginalis* infection. Studies conducted in Brazil have shown that the prevalence of *T. vaginalis* infection ranges from 2.6% to 20% in women evaluated in primary care centers of different regions of the country[16], and ranged from 1.2% to 28.5% in India[17]. As shown in table 2, this study presented a prevalence of 0.8% by using the wet mount diagnosis. Similar results were obtained by Lan et al. and Goto et al.[18,19], who showed that the prevalence of *T. vaginalis* infection in a groups of married and pregnant women in Vietnam was 1% depending on the wet mount diagnostic method.

In the current study, the obtained results from laboquick *T. vaginalis* AG test showed a very high sensitivity (100%) compared to (25%) obtained by the wet mount method (p-value=0.000), as shown in table 3. As for the specificity, both methods showed 100% as its related to the number of negative samples. However, the low sensitivity of wet mount method means that 75% of the true positive cases being missed by this method. Jatau et al.[20] had reported 35.69% sensitivity of the wet mount preparation compared with the culture method. Microscopic examination is inexpensive and rapid, but it is characterized by low sensitivity, and strongly depends on operator's experience and on protozoa viability [21], delay in transport and evaporation of moisture from the specimen reduces motility and, consequently, diagnostic sensitivity.

Table 3: Comparison of the reliability and accuracy of wet mount against laboquick *T. vaginalis* AG test in the diagnosis of trichomoniasis.

	Diagnostic Method		
	Wet mount	Laboquick	**p-value**
Total No. samples	125	125	---
No. positive samples(%)	1 (0.8%)	4 (3.2%)	0.046
No. negative samples(%)	124 (99.2%)	121 (96.8%)	NS*
No. true positive	1	4	0.046
No. false positive	0	0	NS
No. true negative	124	121	NS
No. false negative	3	0	0.004
Sensitivity %	25%	100%	0.000
Specificity %	100%	100%	NS
Positive predictive value %	100%	100%	NS
Negative predictive value %	97.6%	100%	NS
Accuracy %	97.6%	100%	NS

NS= Not significant.

Serological diagnosis represents an alternative to direct detection of the protozoon, as demonstrated by Mason et al.[22]. This immunological rapid test detects the *T. vaginalis* antigen, does not require live organism, allow the diagnosis at the point of care in one visit, reducing labor and follow-up time, and increasing patient satisfaction.

Conclusion:

The prevalence of *T. vaginalis* in pregnant women in Misurat-Libay is 3.2% depend on laboquick *T. vaginalis* AG test which has a high sensitivity, easy and fast to perform, low cost, and does not need an expert. We recommend to include the investigation for *T vaginalis* as part of any routine examination for vaginitis.

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