

Treponema Pallidum, Mycoplasma Hominis, and Ureaplasma Urealyticum in fertility patients in United Arab Emirates

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In fertility clinic attendees, history of exposure to *T. Pallidum* or *U. Urealyticum* was relatively low (<7%) whilst it was relatively high (49.0%) for *M. Hominis*.

BACKGROUND

- Several genital pathogens causing infections to the reproductive system reported to affect fertility.
- In the United Arab Emirates (UAE), the burden of infertility continues to increase. Recent reports indicate that more than 100,000 men and women face infertility issues in the UAE.
- Information on the frequency of genital infections in individuals seeking infertility treatment is lacking in the UAE.
- **Objective:** to estimate the seroprevalence of *Treponema Pallidum*, *Ureaplasma Urealyticum*, and *Mycoplasma Hominis*, and identified factors associated with exposure to at least one of these three pathogens in patients seeking fertility treatments in Abu Dhabi Emirate, United Arab Emirates (UAE).

METHODS

- **Study design and timeframe:** Cross-sectional carried out between April and May 2021.
- **Sampling strategy:** Consecutive.
- **Study population and setting:** Patients aged 18 years or older and actively seeking infertility treatment at a prominent clinic in the Emirate of Abu Dhabi, UAE.
- **Measurements and data source:** Self-administered questionnaire collected data on various sociodemographic and lifestyle factors medical history.
- **Medical records:** Data pertaining to patient height and weight, along with fertility-related factors, such as history of ectopic pregnancy or pregnancy loss, type and duration of infertility, results of semen analysis, and documented causes of infertility.
- **Serum samples:** 10 mL of whole blood was collected from each consented participant. Sera screened via ELIZA for the presence of different immunoglobulin types associated with exposure to *U. urealyticum* (IgG, IgM, and IgA), *M. hominis* (IgG, IgM, and IgA), and *T. pallidum* (IgG and IgM).

RESULTS

- 308 patients seeking fertility treatment (mean age: 36.1 ± 6.8 years) were surveyed (Table 1).
- Most patients were female (88.0%), 24.9% had at least one chronic comorbidity, 19.3% had a previous genital infection, and 68.1% had been diagnosed with infertility for ≥6 months (Table 1).
- Ig seroprevalence of *T. pallidum*, *U. urealyticum*, and *M. hominis* are presented in Figure 1.
- Overall, 53.0% of the patients were seropositive for at least one of the screened immunoglobulins Figure 1.
- Measured characteristics associated with seropositivity to at least one of the three screened pathogens presented in Table 1.

CONCLUSIONS

- Exposure to *T. pallidum* or *U. urealyticum* was relatively low, whereas that to *M. hominis* was common in the surveyed patients.
- The screened genital pathogens have a profound impact on reproductive health; undiagnosed or untreated infection can lead to serious complications, including infertility.
- Enhanced awareness and screening programmes for genital pathogens are crucial to prevent and control the transmission of infections and reduce the growing burden of infertility.

Table 1: Study population and adjusted characteristics associated with seropositivity to at least one of the three screened pathogens *T. pallidum*, *U. urealyticum*, and *M. hominis*.

Characteristic	All N= 308 n (%)	Positive to at least one of the screened pathogens	
		Adjusted OR	P-value
Age	36.1±6.8	1.00 (0.96 – 1.04)	0.969
19–30	68 (22.1)	1.00	
31–40	146 (47.6)	1.1 (0.6 – 2.2)	0.698
41–54	93 (30.3)	1.2 (0.6 – 2.5)	0.639
Gender			
Female	38 (12.3)	1.00	
Male	270 (87.7)	1.5 (0.6 – 3.5)	0.392
Education			
College level and higher	78 (26.4)	1.00	–
Secondary or below	218 (73.6)	2.0 (1.04 – 3.8)	0.037
BMI kg/m²	28.1±5.6	0.93 (0.88 – 0.98)	0.004
Marriage duration			
<1 year	20 (6.6)	1.00	–
≥1 years	284 (93.4)	2.1 (0.7 – 6.0)	0.159
Smoking			
Non-smoker	262 (85.3)	1.00	
Current smoker	25 (8.1)	2.3 (0.9 – 6.0)	0.076
Ex-smoker	20 (6.5)	0.9 (0.3 – 2.7)	0.867
Chronic co-morbidity			
No	208 (75.1)	1.00	–
At least one	69 (24.9)	0.7 (0.4 – 1.2)	0.169
Ever had genital infection			
No	246 (80.7)		
Yes	59 (19.3)	1.1 (0.6 – 2.2)	0.746
History of pregnancy loss			
No	192 (64.4)	1.00	–
Yes	106 (35.6)	1.1 (0.6 – 1.8)	0.847
Type of infertility			
Primary	111 (36.8)		
Secondary	191 (63.2)	1.0 (0.6 – 1.7)	0.935
Infertility duration			
< 3 months	51 (17.1)	1.00	
3–6 months	44 (14.8)	0.6 (0.2 – 1.5)	0.269
6–12 months	34 (11.4)	0.9 (0.3 – 2.4)	0.762
> 12 months	169 (56.7)	0.5 (0.3 – 1.1)	0.105
≥ 6 months	203 (68.1)	0.6 (0.3 – 1.2)	0.148
Semen analysis			
Normal	14 (32.6)	1.00	
Abnormal	29 (67.4)	0.7 (0.1 – 4.9)	0.739

OR: adjusted odds ratio for education, employment, BMI continuous, and chronic co-morbidities

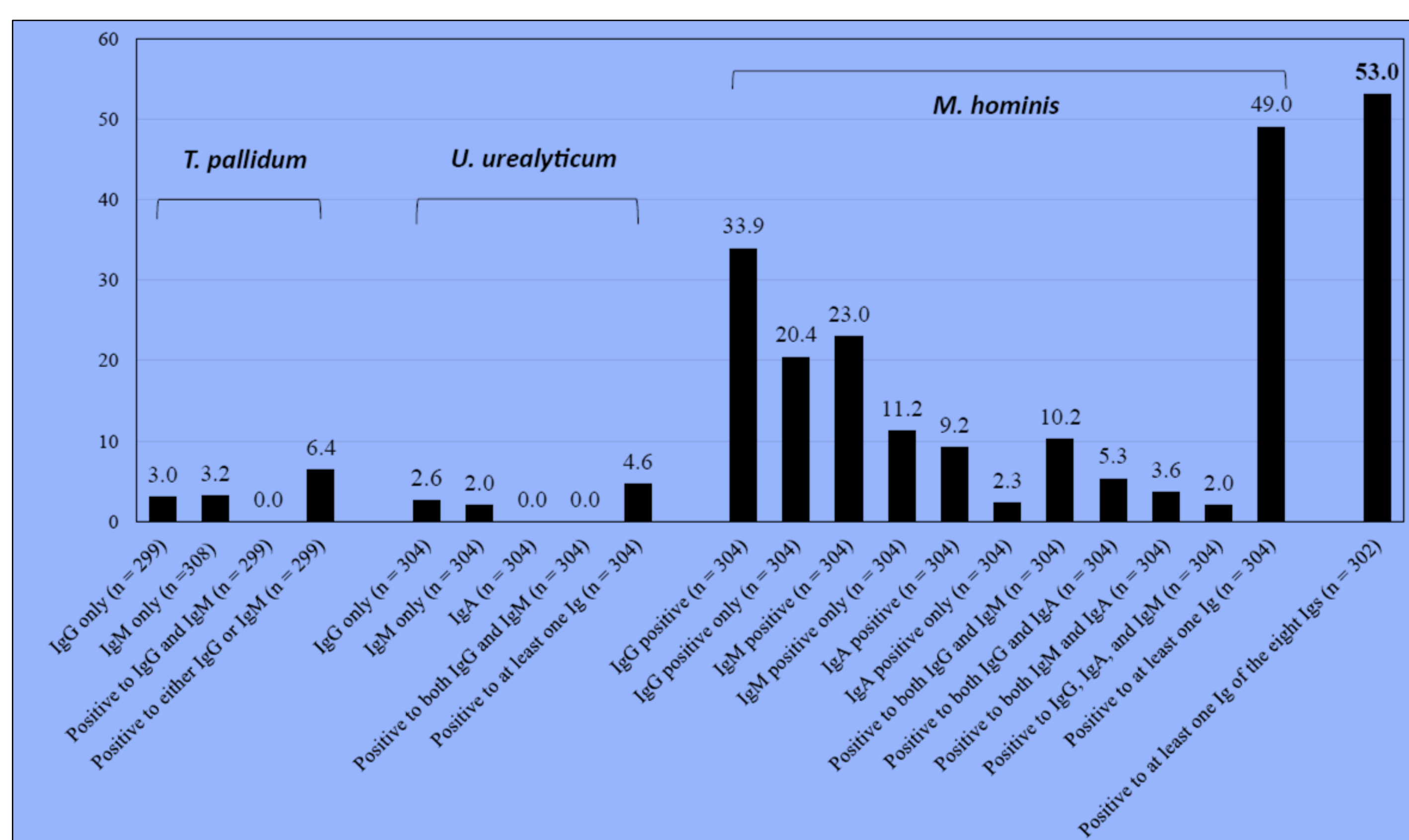


Figure 1. Seroprevalence *T. pallidum*, *U. urealyticum*, and *M. hominis* by immunoglobulin in fertility treatment-seeking patients in the Emirate of Abu Dhabi, United Arab Emirates.

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Ethics: Abu Dhabi Health Research and Technology Committee Institutional Review Board (Ref: DOH/CVDC/2020/1191).

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