PREVALENCE OF HEPATITIS C VIRUS AMONG PATIENTS WITH DIABETES MELLITUS IN QASSIM REGION, SAUDI ARABIA

Microbiology

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Background

Hepatitis C virus (HCV) infections and diabetes mellitus (DM) are associated with high morbidity and mortality rates, and are prevalent worldwide (1). Many reports suggested that there is an increasing association between HCV and DM. HCV infections can lead to hepatic steatosis and insulin resistance, which in turn to increase the risk of progression to hepatic fibrosis, hepatocellular carcinoma and decreases the response to interferon-α (2). Approximately 3-4 million cases of HCV infections occur annually, and the incidence of DM is also increasing (3). World Health organisation (WHO) has indicated that DM will be the 7th leading cause of death by 2030 (4 & 5). Therefore, this study aimed to find the prevalence of HCV and the associated DM, and the risk factors associated with HCV infection in Qassim region, Saudi Arabia.

Methods

Six hundred and thirty-four blood samples (N= 634) were collected from both diabetic and non-diabetic patients who attended King Fahad Specialty Hospital (KFSH), Buraydah. The samples were screened for HCV using ELISA. The positive samples were further confirmed using TaqMan HCV quantitative test and the viral load was then estimated.

Results

The prevalence of HCV was found to be 2.5% in diabetic participants and there was an association between HCV and DM (OR= 1.77 & 95% CI 0.54-5.83) (Table 1). The association was found to be statistically significant in females' participants with *P*= 0.03 (Figure 1). Two participants with high viral load, 808882 IU/ml and 1987207 IU/ml, respectively had DM (Figure 2). No significant association between behavioral factors and HCV was determined (Table 2)

Table 1: The association between HCV and DM.

Diseases		Anti-HCV positive (N=13)	Anti-HCV negative (N=621)	*P*	Odds ratio	95% CI
DM	Yes	9 (2.5%)	347 (97.5%)	0.40	1.77	0.54 -5.83
	No	4 (1.4%)	274 (98.6%)			

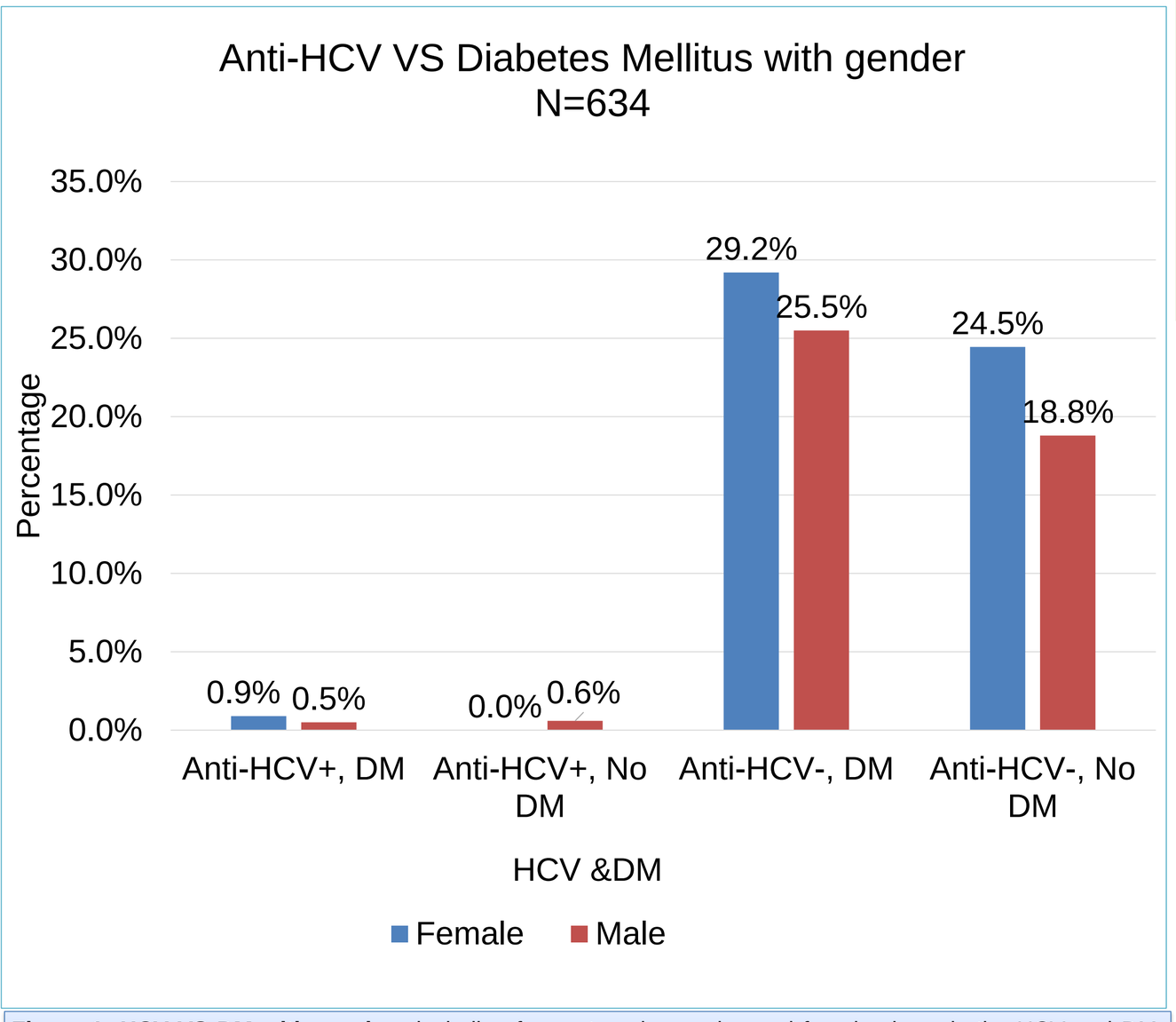

Figure 1: HCV VS DM with gender, including four categories: males and females have bothe HCV and DM, HCV and no DM, DM and no HCV, no HCV and no DM.

Results

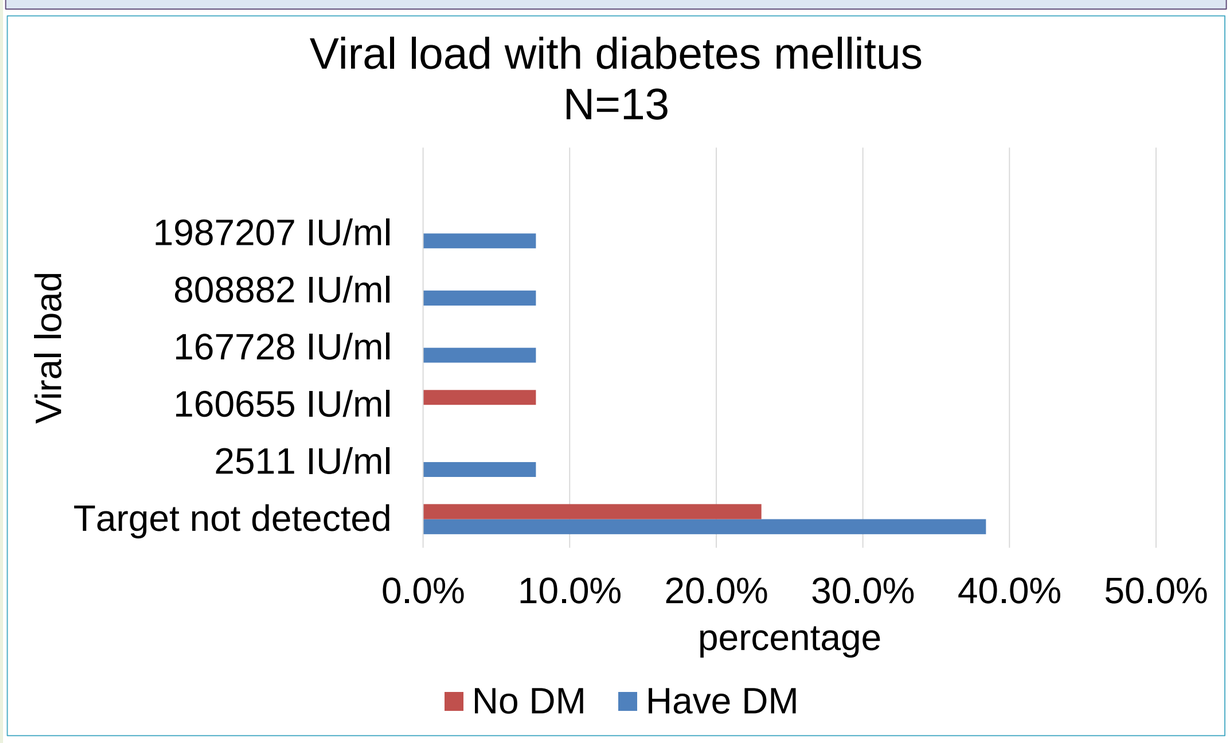

Figure 2: Comparison of viral load with DM, including: target not detected, and target detected with different viral load.

Table 2: The Association between Behavioural Factors and HCV.

Behavioural Factors		Anti-HCV positive (N=13)	Anti-HCV negative (N=621)	*P*
Blood transfusion	Yes	4 (4.7%)	81 (95.3%)	0.08
	No	9 (1.6%)	540 (98.4%)	
Haemodialysis	Yes	0 (0.0%)	10 (100.0%)	1.00
	No	13 (2.1%)	610 (97.9%)	
Tattooing	Yes	0 (0.0%)	13(100.0%)	1.00
	No	13 (2.1%)	608 (97.9%)	
Surgery	Yes	6 (1.8%)	336 (98.2%)	0.58
	No	7 (2.4%)	285 (97.6%)	
Times of surgery	Once	4 (2.0%)	191 (98.0%)	0.75
	Twice	1 (1.2%)	79 (98.8%)	
	Three times	1 (3.1%)	31 (96.9%)	
	>three times	0 (0.0%)	35 (100.0%)	
Hospitalization	Yes	11 (2.5%)	435 (97.5%)	0.36
	No	2 (1.1%)	186 (98.9%)	
Times of hospitalization	Once	6 (2.8%)	208 (97.2%)	0.77
	Twice	1 (1.0%)	94 (99.0%)	
	Three times	2 (3.4%)	57 (96.6%)	
	>Three times	2 (2.6%)	76 (97.4%)	
Hijama	Yes	7 (3.0%)	223 (97.0%)	0.24
	No	6 (1.5%)	398 (98.5%)	
Times of Hijama	Once	5 (4.31%)	111(95.69%)	0.75
	twice	1 (2.00%)	49(98.00%)	
	Three times	1 (3.45%)	28 (96.55%)	
	>three times	0 (0.00%)	35 (100.00%)	
IV Drugs	Yes	0 (0.00%)	13(100.00%)	1.00
	No	13 (2.09%)	608 (97.91%)	
Sharing personal items	Yes	0 (0.00%)	58(100.00%)	0.62
	No	13 (2.26%)	563 (97.74%)	

Conclusion

- ✓ This study showed an association between HCV and DM.
- ✓ The demographic characteristics like gender had influence on HCV and DM status, whereas the behavioral factors had no significant effect on acquiring HCV infection.
- ✓ Future screening of HCV in patients with DM and vice versa is highly recommended.
- ✓ It is also suggested that increasing HCV awareness and preventive control measures in the region should be performed.

References

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