Is There Any Relationship Between Hepatitis C Virus Infection and Skin Diseases ?

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Abstract

Background: Hepatitis C virus (HCV) has been associated with several extrahepatic conditions. Although a high prevalence of HCV infection was detected in patients with lichen planus, the pathogenetic potentials of HCV with skin diseases is still controversial.

Objectives: To determine the anti-HCV antibody seropositivity among patients with certain non-communicable skin diseases; lichen planus, psoriasis, alopecia areata, vitiligo, eczema, and urticaria.

Patients and methods: Two hundred patients suffering from non-communicable skin disease were enrolled in this study which was conducted in Baquba for the period from 1st. November/2010 to 1st. July/2011. The patients were attending the Dermatology and Venereology Unit in the outpatient clinic of Baquba General Teaching Hospital. The patients group consists of 18 patients with lichen planus, 23 with psoriasis, 7 with vitiligo, 95 with eczema, 36 with chronic urticaria, and 21 with alopecia areata. The age range of the patients was (5-70) years**.** Additionally, 90 apparently healthy unpaid blood donors were included as control group. Anti-HCV antibody was detected by enzyme linked immunosorbant assay.

Rsults: Only two patients were positive for anti-HCV antibody; one with lichen planus and another with eczema. All other patients with psoriasis, alopecia areata, vitiligo, and urticaria were negative for anti-HCV antibody. There was no significant association between HCV infection and skin diseases under study.

Conclusion: No association between HCV infection and lichen planus, psoriasis, alopecia areata, vitiligo, eczema, and urticaria, probably due to low prevalence of HCV infection among general Iraqi people.

Key words: HCV infection, lichen planus, psoriasis, alopecia areata, vitiligo.

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الخلاصة

تمهيد: تمتاز الاصابة بفيروس التهاب الكبد نمط (ج) بارتباطها بالعديد من الحالات المرضية خارج الكبد٠ بالرغم من سعة انتشار الاصابة بفيروس التهاب الكبد نمط (ج) بين مرضى الحزاز المسطح، فان الدور المرضي المحتمل للفيروس في الامراض الجلدية لاتزال مثيرة للجدل٠

اهداف الدراسة: تهدف الدراسة الى تحديد نسب الاصابة بفيروس التهاب الكبد نمط (ج) بين المرضى المصابين ببعض الامراض الجلدية غير الانتقالية وهي ، الحزاز المسطح ، داء الصدفية ، داء الثعلبة ، البهاق ، الاكزيما و الشرى٠

المرضى وطرائق العمل: أجريت هذه الدراسة في مدينة بعقوبة للفترة من الاول من تشرين الثاني ٢٠١٠ ولغلية الاول من تموز ٢٠١١ ، وشملت ٢٠٠ مريض ممن يعانون من الامراض الجلدية غير الانتقالية من المرجعين لوحدة الامراض الجلدية والزهرية في العيادة الخارجية امستشفى بعقوبة التعليمي٠ وتكونت مجموعة المرضى من ١٨ مريضا مصابون بالحزاز المسطح ، ٢٣ مريضا مصابون بداء الصدفية ، ٧ مرضى مصابون بالبهاق ، ٩٥ مريضا مصابون بالاكزيما ، ٣٦ مريضا مصابون بالشرى المزمن و ٢١ مريضا مصابون بداء الثعلبة٠ معدل اعمار المرضى تراوحت بين ٥-٧٠ سنة٠ فضلا عن ذلك فقد شملت الدراسة على ٩٠ شخصا من الاصحاء ظاهريا كمجموعة سيطرة تم جمعهم من متبرعي الدم٠ تم الكشف عن الضدات النوعية لفيروس التهاب الكبد نمط (ج) بتقنية الاليزا في وحدة الفيروسات في مختبر الصحة العامة في بعقوبة٠

النتائج: اظهرت الدراسة بان اثنين فقط من المرضى كانوا مصابين بفيروس التهاب الكبد نمط (ج)، احدهما مصاب بالحزاز المسطح والاخر مصاب بالاكزيما، اما بقية المرضى المصابون بداء الصدفية ، داء الثعلبة ، البهاق و الشرى فقد كانت نتائجهم سلبية٠ لم تكن هنالك علاقة معنوية بين الاصابة بفيروس التهاب الكبد نمط (ج) والامراض الجلدية موضوع الدراسة٠

الاستنتاج: لم يكن هنالك ترابط بين الاصابة بفيروس التهاب الكبد نمط (ج) والاصابة بالامراض الجلدية كالحزاز المسطح، داء الصدفية ، داء الثعلبة ، البهاق ، الاكزيما و الشرى ، ربما بسبب تدني نسب الاصابة بهذا الفيروس بشكل عام بين العراقيين٠

الكلمات المفتاحية: فيروس التهاب الكبد نمط (ج)، الحزاز المسطح، داء الصدفية، داء الثعلبة، البهاق.

Introduction

Hepatitis C virus (HCV) is one of the major causes of chronic liver disease and hepatocellular carcinoma worldwide, but its morbidity is also due to a variety of extra-hepatic manifestations [1]. Several extrahepatic manifestations have been reported in the natural history of HCV infection, up to 40-74% of patients infected with HCV may develop at least one extrahepatic manifestation during the course of their disease that involves primarily the joints, muscles, and skin [2,3]. Among extra-hepatic manifestations of HCV infection particular interest is focused on some dermatological diseases such as porphyria cutanea tarda, vasculitis associated with mixed essential cryoglobulinemia, oral lichen planus, and psoriasis. Other dermatological disorders include erythema nodosum, erythema multiforme, urticaria may be direct consequences of hepatitis C infection [4,5].

About possible association between lichen planus and chronic liver diseases, and hepatitis C infection as well, suggest 35% prevalence of hepatic disorders in patients with lichen planus, and 9.8-23% of hepatitis C virus seropositivity [4,6-9].The significantly high association between HCV infection and lichen planus suggesting that routine HCV infection testing of patients with lichen planus should be considered[10-17]. On the contrary, other studies have suggested that such association may not be significant in some geographical areas [18-20]. Reverse transcription-polymerase chain reaction (RT-PCR) followed by nested-PCR reported the presence of anti-genomic- as well as genomic-strand HCV RNAs in lichen planus lesions in patients with chronic hepatitis C; suggesting that HCV-associated lichen planus lesions may be sites of HCV replication [21].

In a study on patients presented with skin disorders, 12.5% of them were positive for HCV infection, 1 case of each of pruritus, urticaria, psoriasis, and 2 cases of each of oral lichen planus and alopecia areata[22]. In another study, Of 155 patients with chronic HCV infection in Cairo, Egypt, 45.8% had dermatological manifestations: pruritus without evident skin lesions 21.3%, pigmented purpuric eruption 5.2%, aphthous ulcer and lichen planus 3.9% each, leukocytoclastic vasculitis 2.6%, psoriasis 1.9%, tinea versicolor 1.3% and other conditions 5.8% [20]. Similar study indicates no association of HCV infection and psoriatic arthritis [23]. Despite reports showing co-existence of HCV infection and vitiligo, particularly those patient received Interferon therapy, HCV may not be involved in the pathogenesis of this disease [24,25].

Materials and Methods

Two hundred patients suffering from non-communicable skin disease were enrolled in this study which was conducted in Baquba for the period from 1st. November/2010 to 1st. July/2011. The patients were attending the Dermatology and Venereology Unit in the outpatient clinic of Baquba General Teaching Hospital. The patients group consists of 18 patients with lichen planus, 23 with psoriasis, 7 with vitiligo, 95 with eczema, 36 with chronic urticaria, and 21 with alopecia areata. The age range of the patients was (5-70) years and the mean age was (32.2 ± 15.1) years. Of these, 121 (60.5%) were male with a mean (age 32.5 ± 14.9) years and 79 (39.5%) female with mean age 32.2 ±15.5) years. Additionally, 90 apparently healthy individuals were included as control group. They were randomly chosen from those attending the Public Health Laboratory for unpaid blood donation. They were 50 (55.5%) males with mean age (30.7 ± 9.9) years and 40 (45.5%) were female with mean age (29.1 ± 11.6) years. The age range of the control group was (13-60) years with mean age (29.9 ± 10.6) years.

Four to five milliliters of venous blood were collected aseptically by veinpuncture from each subject. Blood samples were left in room temperature for 15 minutes to clot. Sera were separated by centrifugation at 3000 rotation/minute for 5 minutes. Sera were kept frozen until used. Anti-HCV antibody was detected by enzyme linked immunosorbant assay using (Foresith-USA) kit.

Results

The results showed that the overall anti-HCV positivity rate among patients with certain non-communicable skin diseases was 1%. Out of 18 patients with lichen planus, one patient (5.5%) was positive for anti-HCV antibody. The patient with lichen planus/HCV coinfection was 27 years old male, with neither family history of jaundice nor blood transfused. On the other hand, among 95 patients with eczema, one patient was anti-HCV positive (1.05%).She was 32 years old housekeeper with neither family history of jaundice nor blood transfused. Additionally, none of the remaining patients with psoriasis, vitiligo , chronic urticaria, alopecia areata and the control group were positive for anti-HCV anti-body, table (1).

Table (1): Anti-HCV antibody positivity rate among patients.

Skin disease	No. tested	No. positive (%)	No. negative (%)
Lichen planus	18	1 (5.5)	17 (94.5)
psoriasis	23	0 (0)	23 (100)
vitiligo	7	0 (0)	7 (100)
eczema	95	1 (1.05)	94 (98.9)
Chronic urticaria	36	0 (0)	36 (100)
Alopecia areata	21	0 (0)	21 (100)
Total	200	2 (1%)	198 (99%)

Discussion

More than 20 years after the discovery of the hepatitis C virus, it is now well established that HCV is of global importance affecting all countries, leading to a major global health problem that requires widespread active interventions for its prevention and control. The recent assessment finds a global prevalence of 2.35%, affecting 160 million chronically infected individuals [1]. Significant differences in prevalence and epidemiology of HCV infection was documented among the Middle East countries or even inside the countries [26]. A part from highly risk population, Iraq was still ranked with very low prevalence of HCV infection accounting for 1.1% among unpaid blood donors [27]. Therefore, the present study uncovered that the HCV positivity rate among patients with certain non-communicable skin diseases was almost similar to that in the general Iraqi population, that is to say, these skin diseases does not constitute a risk factors for acquisition of HCV infection in our community. So, our results, at lease regarding lichen planus, were inconsistent with most worldwide studies that affirm the significant relationship between HCV infection and that skin condition [10-17].

Although the studies concerning the link between HCV infection and other skin diseases such as psoriasis, vitiligo, chronic urticaria, alopecia areata and eczema were few. However, generally our results were in agreement with these studies in that such skin conditions have no association with HCV infection [20-22,23]. Another possible explanation for this dissociation may be related to the limited therapeutic use of interferon in the treatment of HCV positive patients in our health settings [24, 25].

Of note, the two patients who were anti-HCV positive, they had neither family history of jaundice nor blood transfused. This is probably due to the facts that only 25% of HCV positive patients are symptomatic and 10% of patients are remains with unknown risk factor [26,28].

In conclusion, the present study proved that there was no association between HCV infection and certain skin non-communicable diseases, and that these conditions cannot be considered as risk factors for infection by HCV.

References

[1] Lavanchy, D. Evolving epidemiology of hepatitis C virus. Clin. Microbiol. Infect. 2011;17(2):107-15.

[2] Galossi, A.; Guarisco, R.; Bellis, L.; Puoti, C. Extrahepatic manifestations of chronic HCV infection. J. Gastrointestin. Liver Dis.2007;16(1):65-73.

[3] Nocente, R.; Ceccanti, M.; Bertazzoni, G.; Cammarota, G.; Silveri, N.G. and Gasbarrini G. HCV infection and extrahepatic manifestations. Hepatogastroenterology. 2003;50(52):1149-54.

[4] Poljacki, M.; Gajinov, Z.; Ivkov, M.; Matic, M. and Golusin, Z. Skin diseases and hepatitis virus C infection. Med. Pregl.2000;53(3-4):141-5.

[5] Chung, C.M. and Nunley, J.R. Overview of hepatitis C and skin. Dermatol. Nurs. 2006;18(5):425-30.

[6] Nagao, Y. and Sata, M. Hepatitis C virus and lichen planus. J. Gastroenterol. Hepatol.2004;19(10):1101-13.

[7] Daramola, O.O.; George, A.O. and Ogunbiyi, A.O. Hepatitis C virus and lichen planus in Nigerians: any relationship? Int. J. Dermatol. 2002; 41 (4):217-9.

[8] Konidena, A. and Pavani, B.V. Hepatitis C virus infection in patients with oral lichen planus. Niger. J. Clin. Prac.2011;14(2):228-31.

[9] Paoletti, V.; Mammarella, A.; Basili, S.; Paradiso, M.; Di Franco, M.; De Matteis, A. and Musca, A. Prevalence and clinical features of skin diseases in chronic HCV infection. A prospective study in 96 patients. Panminerva. Med.2002;44(4):349-52.

[10] Gimenez-García, R. and Perez-Castrillon, J.L. Lichen planus and hepatitis C virus infection. J. Eur. Acad. Dermatol. Venereol. 2003;17(3):291-5.

[11] Harman, M.; Akdeniz, S.; Dursun, M.; Akpolat, N. and Atmaca, S. Lichen planus and hepatitis C virus infection: an epidemiologic study. Int. J. Clin. Pract.2004;58(12):1118-9.

[12] Shengyuan, L.; Songpo, Y.; Wen, W.; Wenjing, T.; Haitao, Z. and Binyou, W. Hepatitis C virus and lichen planus: a reciprocal association determined by a meta-analysis. Arch. Dermatol. 2009;145(9):1040-7.

[13] Lodi, G.; Giuliani, M.; Majorana, A.; Sardella, A.; Bez, C.; Demarosi, F. and Carrassi, A. Lichen planus and hepatitis C virus: a multicentre study of patients with oral lesions and a systematic review. Brit. J. Dermatol.2004; 151 (6):1172-81.

[14] Asaad, T. and Samdani, A.J. Association of lichen planus with hepatitis C virus infection. Ann. Saudi Med.2005;25(3):243-6.

[15] Ghodsi, S.Z.; Daneshpazhooh, M.; Shahi, M. and Nikfarjam, A. Lichen planus and Hepatitis C: a case-control study. BMC Dermatol. 2004;4:6.

[16] Lodi, G.; Pellicano, R. and Carrozzo, M. Hepatitis C virus infection and lichen planus: a systematic review with meta-analysis. Oral Dis.2010;16(7):601-12.

[17] Lin, L.H.; Lu, S.Y. and Lu, S.N. Seroprevalence of anti-HCV among patients with oral lichen planus in Southern Taiwan. Oral Surg. Oral Med. Oral Pathol. Oral Radiol. Endod.2010;109(3):408-14.

[18] Karavelioglu, D.; Koytak, E.S.; Bozkaya, H.; Uzunalimoglu, O.; Bozdayi, A.M. and Yurdaydin, C. Lichen planus and HCV infection in Turkish patients. Turk. J. Gastroenterol. 2004;15(3):133-6.

[19] Zhou, Y.; Jiang, L.; Liu, J.; Zeng, X. and Chen, Q.M. The prevalence of hepatitis C virus infection in oral lichen planus in an ethnic Chinese cohort of 232 patients. Int. J. Oral. Sci.2010;2(2):90-7.

[20] Raslan, H.M.; Ezzat, W.M.; Abd El Hamid, M.F.; Emam, H. and Amre, K.S. Skin manifestations of chronic hepatitis C virus infection in Cairo, Egypt. East Mediterr. Health J.2009;15(3):692-700.

[21] Kurokawa, M.; Hidaka, T.; Sasaki, H.; Nishikata, I.; Morishita, K. and Setoyama, M. Analysis of hepatitis C virus (HCV) RNA in the lesions of lichen planus in patients with chronic hepatitis C: detection of anti-genomic- as well as genomic-strand HCV RNAs in lichen planus lesions. J. Dermatol. Sci.2003;32(1):65-70.

[22] Paoletti, V.; Mammarella, A.; Basili, S.; Paradiso, M.; Di Franco, M.; De Matteis, A. and Musca, A. Prevalence and clinical features of skin diseases in chronic HCV infection. A prospective study in 96 patients. Panminerva. Med.2002;44(4):349-52.

[23] Palazzi, C.; Olivieri, I.; D'Amico, E.; D'Agostino, L.; Nicolucci, A.; Pennese, E. and Petricca, A. Hepatitis C virus infection in psoriatic arthritis. Arthritis Rheum.2005;53(2):223-5.

[24] Hamadah, I.; Binamer, Y.; Sanai, F.M.; Abdo, A.A. and Alajlan, A. Interferon-induced vitiligo in hepatitis C patients: a case series. Int. J. Dermatol. 2010;49(7):829-33.

[25] Akbayir, N.; Gokdemir, G.; Mansur, T.; Sokmen, M.; Gundüz, S.; Alkim, C.; Barutcuoglu, B. and Erdem, L. Is there any relationship between hepatitis C virus and vitiligo? J. Clin. Gastroenterol. 2004;38(9):815-7.

[26] Fallahian, F. and Najafi, A. Epidemiology of hepatitis C in the Middle East. Saudi J. Kidney Dis. Transpl.2011;22(1):1-9.

[27] Hasan, A.SH. Prevalence of anti-hepatitis C antibodies among blood donors and risky groups in Diyala. J. Facul. Med.(Bagh) 2008: 50(4): 467-70.

[28] Hasan, A. SH.; Al-Duliami, B. N.; Jabar, F. A. Clinical patterns and serological markers of acute viral hepatitis in Diyala. Iraqi J. Commun. Med. 2005; 18(4): 355-60.