Impact of international consensus guidelines on antiviral therapy of chronic hepatitis C patients in Switzerland

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Summary

Aim of the study: To assess the impact of international consensus conference guidelines on the attitude of Swiss specialists when facing the decision to treat chronic hepatitis C patients.

Methods: Questionnaires focusing on the personal situation and treatment decisions were mailed to 165 patients who were newly diagnosed with hepatitis C virus (HCV) infection and enrolled into the Swiss Hepatitis C Cohort Study during the years 2002–2004.

Results: Survey respondents (n = 86, 52.1%) were comparable to non-respondents with respect to severity of liver disease, history of substance abuse and psychiatric co-morbidities. Seventy percent of survey respondents reported having been offered antiviral treatment. Patients deferred from treatment had less advanced liver fibrosis, were more frequently infected with HCV genotypes 1 or 4 and presented more often with a history of depression. There were no differences regarding age, socio-economic background, alcohol abuse, intravenous drug abuse or methadone treatment when compared with patients to whom treatment was proposed. Ninety percent of eligible patients agreed to undergo treatment. Overall, 54.6% of respondents and 78.3% of those considered eligible had actually received antiviral therapy by 2007. Ninety-five percent of patients reported high satisfaction with their own hepatitis C management.

Conclusions: Consistent with latest international consensus guidelines, patients enrolled in the Swiss Hepatitis C Cohort with a history of substance abuse were not withheld antiviral treatment. A multidisciplinary approach is warranted to provide antiviral treatment to patients suffering from depression.

Key words: hepatitis C virus; hepatitis C treatment; barriers to treatment; treatment decision-making; consensus guidelines

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Introduction

Chronic hepatitis C virus (HCV) infection affects an estimated 170 million people worldwide [1]. Hepatitis C may progress to cirrhosis and liver cancer, and is the most important indication of liver transplantation in Europe and the USA [2]. Currently, a combination of pegylated interferon-α (PEG-IFN-α) and ribavirin is the standard of care (SOC) to prevent long-term sequelae of HCV-associated liver disease [3]. However, studies in various settings and countries have suggested that 62–90% of patients with confirmed HCV infection are not receiving antiviral treatment. Explanations for these low treatment rates include provider knowledge and experience, pa-

tient preference, medical or psychiatric co-morbidities and substance abuse [4–7]. Recent feasibility studies in patients once considered too difficult to treat, such as active injection drug users, participants in methadone maintenance programs or patients with psychiatric diseases, have reported similar compliance rates and treatment outcomes [8–12]. Taking these findings into account, the US National Institutes of Health (NIH) and French Consensus Conference guidelines issued in the year 2002 advocated a more inclusive approach to treatment, urging the increase of the availability of the best current treatment for patients who have traditionally been considered ineligible [13, 14]. Although the conclusions of these two major conferences differ regarding some details, the basic context is similar. According to both conferences, the general treatment indication is based on a fibrosis stage ≥ F2 (Metavir), whereas in genotypes 2 and 3, due to the elevated sustained virological response rates, treatment can be started at any time without the need to perform a liver biopsy prior to therapy. These guidelines have influenced the attitude of Swiss HCV experts during the past five years, replacing the previous existing ones, issued by the European Association for the Study of the Liver Consensus Conference held in 1999 [15].

Study aims

The following issues were addressed by this survey: (i) to evaluate the impact of the latest Consensus Conference guidelines on the attitude of Swiss HCV specialists when facing the decision to treat patients; (ii) to evaluate patients' personal situation at the time of diagnosis and their views on antiviral treatment in order to identify potentially modifiable barriers to treatment; and (iii) to assess patients' satisfaction concerning their hepatitis C management.

Patients and methods

Setting

The Swiss Hepatitis C Cohort Study (SCCS) is a multicenter study, started in September 2000 and carried out at eight major Swiss hospitals and their local affiliated centres. The goal of the study is to prospectively collect a cohort of anti-HCV-positive patients to provide a framework for scientific projects. A preliminary evaluation of the baseline epidemiologic characteristics has demonstrated that the SCCS is reasonably representative for all anti-HCV positive individuals who have been reported under a mandatory reporting law to the Swiss Federal Office of Public Health [16]. According to the protocol, clinical and laboratory data are collected on a yearly basis. The database includes demographic data (such as age, sex, social and educational background, occupational situation, total household income) patients' somatic and psychiatric co-morbidities, current and previous alcohol consumption and substance abuse. In addition, laboratory data, liver biopsy results and information on anti-HCV treatments are collected. All data are recorded on standardized questionnaires by trained nurses, then independently checked for quality and consistency and entered in a central database. The study was approved by all local ethical committees and conducted according to the Helsinki declaration. All patients consented to participate.

Patient questionnaires

Standardised anonymous questionnaires (available in German, French and Italian) focusing on the personal situation at the time of diagnosis, initial disease management and individual treatment decisions were mailed in January 2007 to all SCCS-enrolled persons (including drop-outs, in order to reach patients possibly unhappy with their disease management) fulfilling the following criteria: diagnosis of HCV infection (positive HCV-antibodies and positive HCV-RNA) in the years 2002/2003 and enrolment in the SCCS in the years 2003/2004. This period was chosen to assess the clinical application of the NIH and French Consensus guidelines issued in 2002. Patients with HCV genotypes other than 1, 2, 3 or 4 were not included, because the consensus conferences did not issue specific recommendations for these rare viral types. In addition, we also excluded patients with co-infection with human immunodeficiency virus or hepatitis B virus, organ transplantation, haemodialysis and severe cardio-pulmonary diseases, because these clinical situations may imply specific and personalised treatment strategies, and therefore their analysis would exceed the framework of this study.

Physician questionnaires at site visits

For each returned patient questionnaire, responses regarding whether anti-HCV treatment was proposed or not by their SCCS physician were correlated with clinical findings (HCV genotype, liver biopsy and laboratory results) existing in the SCCS database. Treatment indications were reviewed for each individual patient in order to assess, according to Consensus guidelines, cases of potential *overtreatment* (= treatment in patients with fibrosis stages F0–F1 according to Metavir or without having performed a liver biopsy in genotype 1 or 4) or potential *undertreatment* (= no treatment in patients with fibrosis stages F2–F4 or no treatment at all and absence of a liver biopsy). When in doubt, questionnaires were mailed to the SCCS physician in charge of the respective patient, asking them to state the reasons he/she considered sufficient for treating or not treating the respective patient. Moreover, site visits for a detailed chart study of the patient history were conducted if deemed necessary.

Statistical methods

In this cross-sectional analysis, different subgroups of patients were compared: a) survey respondents vs non-respondents, b) treatment proposal vs deferral, c) treatment acceptance vs delay. Continuous variables were compared using the two-sample Wilcoxon rank-sum (Mann-Whitney) test. For categorical variables, Fisher's exact or Pearson Chi^2 tests were employed whenever appropriate. p values <0.05 were considered significant. All analyses were performed using Stata (Stata version 9, StataCorp LP, College Station, TX, USA).

Results

Survey respondents vs non-respondents

Among the 165 patients fulfilling the inclusion criteria, 86 (52.1%) returned their questionnaires. Regarding the subgroup of SCCS drop-out patients (n = 20), it was found that 50% (n = 10) sent back their completed questionnaires.

Respondents were significantly older (p = 0.007), more often employed (p = 0.044) and characterized by more advanced fibrosis stages (p = 0.02) and lower viral loads (p = 0.05) when compared to non-respondents (table 1). Distribution of HCV genotypes, ALT levels, duration of disease, presence of liver biopsy, antiviral treatment, gender, history of alcohol abuse, current or past IVDU, current methadone treatment, current or past medical treatment for depression or other psychiatric disorders, and history of imprisonment were comparable between respondents and non-respondents.

Table 1

Comparison between survey respondents vs non-respondents.

	Survey respondents (n = 86)	Survey non-respondents (n = 79)	p	test
	n (%), or mean ± SD	n (%), or mean ± SD		
Male gender	46 (53.5)	47 (59.5)	0.43	B
Age (y)	43.3 ± 1.34	38.5 ± 1.09	0.007	C
Swiss nationality	68 (79.1)	55 (69.6)	0.16	B
Higher education	23 (26.7)	12 (15.2)	0.07	B
Unemployed	22 (24.7)	32 (40.5)	0.044	B
Yearly income >80 000 CHF	17 (20)	8 (10.1)	0.084	B
Self-reported full working ability	51 (59.3)	40 (50.6)	0.263	B
Self-reported full social ability	58 (67.4)	42 (53.2)	0.061	B
Mean duration of disease (y)	16.8 ± 1.22 (n = 73)	15.2 ± 1.61 (n = 67)	0.33	C
HCV genotype 1/2/3/4	39 (45.3) / 6 (7) / 36 (40.7) / 6 (7)	45 (57.7) / 3 (3.9) / 25 (32) / 5 (6.4)	0.43	A
Liver biopsy	50 (58.1)	38 (48.1)	0.32	B
Mean fibrosis stage	2.3 ± 0.21	1.7 ± 0.17	0.02	C
Cirrhosis	10 (11.6)	3 (3.9)	0.08	A
ALT (x ULN)	2.12 ± 0.22	2.89 ± 0.42	0.39	C
HCV RNA (IU/ml)	871,570 ± 206,998	1,686,395 ± 605,670	0.05	C
Ever received antiviral therapy	38 (44.2)	25 (31.7)	0.09	B
Past alcohol drinking >20 g/d	45 (47.1)	38 (48.1)	0.53	B
Past IVDU	48 (61.21)	53 (67.9)	0.138	B
History of depression	23 (26.7)	19 (24.1)	0.69	B
History of psychiatric disorders	12 (13.9)	9 (11.4)	0.62	B
History of imprisonment	15 (17.4)	14 (17.7)	0.96	B
Current alcohol drinking ≥20 g/d	12 (14.0)	8 (10.1)	0.84	B
Current IVDU	4 (5.1)	7 (8.9)	0.09	A
Current methadone treatment	7 (8.9)	8 (10.1)	0.21	B

A Fisher's exact test
B Pearson chi^2
C Two-sample Wilcoxon rank-sum (Mann-Whitney)

Personal situation at the time of diagnosis

The mean age at the time of diagnosis was 43.4 years, and 54% of survey participants were male (table 1). The majority of respondents (75%) were living in a community (with partner, family, friends, drug rehabilitation program) and only 1% of them indicated not having fixed accommodation at the time of diagnosis. A total of 74% were employed and 19% reported a yearly income higher than 80 000 CHF. One fifth (21%) were non-Swiss nationals. Furthermore, 23% indicated that their mother tongue was different from the language in which the medical consultations were held, and 41% of the latter reported communication difficulties (mediocre to absent knowledge of the language in which the medical consultation was held). Diagnosis of HCV infection was established mainly in an outpatient setting, in 48% of cases by general practitioners, 7% by gastroenterologists or hepatologists, and 13% by other specialists. In 26% of cases, the diagnosis was made at the time of a hospitalization (in 12% due to medical/surgical reasons, 14% for drug/alcohol abuse management) and in another 7% on occasion of a blood donation. Around two thirds of survey respondents (72%) claimed to have heard of HCV before being diagnosed. Moreover, 55% of patients reported knowing at least one other person affected by chronic hepatitis C. In contrast, 28% of patients reported that they did not know that HCV existed at all before learning about their diagnosis.

Patients considered eligible for treatment by HCV specialists

Sixty-one patients (71%) reported that antiviral treatment was recommended by their HCV specialist (table 2). Patients who were deferred from treatment were more frequently known for a history of depression (p = 0.022), had less advanced fibrosis stages (p <0.05), and were more frequently characterized by genotypes 1 or 4 (p = 0.001). There were no differences in the number of performed liver biopsies or fibrosis stages when patients with genotypes 1 or 4 were compared with patients presenting genotypes 2 or 3 (data not shown). There were no differences regarding age, gender, socio-economic background, ALT level, viral load, presence of cirrhosis, current/past alcohol consumption or intravenous drug use, current methadone treatment, or psychiatric disorders other than depression, when comparing patients considered eligible for treatment with those to whom antiviral therapy was not proposed.

Evaluation of treatment indications

By matching patient responses to the question regarding whether antiviral treatment was proposed by their HCV specialist with clinical data from the SCCS database, we were able to evaluate indications and possible contraindications for an-

tiviral therapy. Treatment decisions in conformity with guidelines were observed in 64 cases (74%). There were only five cases of suspected *overtreatment* (= treatment in the absence of significant liver fibrosis (stages F0–F1 according to Metavir) [n = 2] or without having performed a liver biopsy in genotype 1 or 4 infection [n = 3]) and 17 cases of potential *undertreatment* (= no treatment in patients with significant fibrosis (stages F2–F4 according to Metavir)) [n = 2] or no treatment and absence of a liver biopsy [n = 15]) were observed. As described above, additional information was assessed either by questionnaires directed at the respective HCV specialist, or, in more complex cases, by a review of the patient chart during site visits. The main reasons stated in favour of a potential *overtreatment* were (multiple answers were allowed): highly motivated patients who insisted on treatment (3 cases out of 5), extrahepatic manifestations (2 cases) and the desire to eradicate HCV before a pregnancy (2 cases). Concerning the potential *undertreatment*, physicians stated the following reasons for deferral: normal liver enzymes (6 cases out of 17), missed follow-up visits (2 cases), current psychiatric disorder (2 cases), past psychiatric disorder (1 case), ongoing IVDU (1 case), ongoing alcohol abuse (1 case), chaotic lifestyle of patient (1 case) and low viral load (1 case).

Table 2

Comparison of patients according to treatment allocation.

	Treatment proposed (n = 61)	No treatment proposed (n = 25)	p	test
	n (%) or mean ± SD	n (%) or mean ± SD		
Male gender	38 (62.3)	8 (32.0)	0.110	B
Mean age	43.75 ± 1.48	41.11 ± 0.92	0.389	C
Swiss nationality	48 (78.7)	20 (80.0)	0.799	A
Higher education	14 (22.9)	9 (36.0)	0.214	B
Employed	44 (72.1)	20 (80.0)	0.469	A
Income >80 000 CHF	13 (21.3)	4 (16.0)	0.574	A
Living alone	17 (27.9)	4 (16.0)	0.331	A
Children	20 (32.8)	12 (48.0)	0.185	B
Working ability 100%	35 (57.4)	16 (64.0)	0.57	B
Social ability 100%	41 (67.2)	17 (68.0)	0.944	B
Language difference	15 (24.6)	5 (20.0)	0.782	A
Diagnosis as outpatient	41 (67.2)	17 (68.0)	0.752	B
Diagnosis at hospitalization	16 (26.2)	6 (24.0)		B
Mean duration of disease (y) (n = 54)	17.15 ± 1.36	15.62 ± 2.73	0,602	C
Genotype 1–4	24 (39.3)	21 (84.0)	0,001	A
Genotype 2–3	37 (60.7)	4 (16.0)		
Liver biopsy	41 (67.2)	7 (28.0)	0.001	B
Fibrosis stage	2.75 ± 0.23	1.25 ± 0.25	0.05	C
Cirrhosis	8 (13.1)	2 (8.0)	0,717	A
ALT, times the ULN	2.08 ± 0.18	2.25 ± 0.58	0,165	C
HCV RNA, IU/ml	721,652 ± 191,679	1,260,412 ± 525,164	0.426	C
History of alcohol >20 g/d	35 (56.4)	10 (40.0)	0,123	B
History of IVDU	36 (59.0)	12 (48.0)	0,350	B
History of depression	14 (22.9)	12 (48.0)	0.022	A
History of other psychiatric disorders	9 (14.8)	3 (12.0)	1,000	A
History of imprisonment	13 (21.3)	2 (8.0)	0.212	A
Current alcohol ≥20 g/d	10/37 (27.0)	2/10 (20.0)	0.703	B
Current IVDU	4/37 (10.8)	0 (0)	0,560	A
Current methadone treatment	6/37 (16.2)	1/10 (10.0)	0,662	A
Current depression	5/37 (13.5)	3/10 (30.0)	0.394	A
Current other psychiatric disorder	3/37 (8.1)	2/10 (20.0)	0.587	A

A Fisher's exact test; B Pearson chi^2; C Two-sample Wilcoxon rank-sum (Mann-Whitney)

Treatment acceptance by patients

Of the 61 patients considered eligible for treatment, 45 patients (74%) agreed to start treatment immediately, 12 (20%) considered to start treatment at a later date, and 4 (7%) refused treatment altogether (table 3). In other words, 93% of the patients to whom antiviral therapy was offered showed a generally favourable attitude towards treatment.

When compared to those who considered antiviral therapy at a later date, patients who were ready to begin treatment immediately were significantly older ($p = 0.0008$), more often employed ($p = 0.033$), were more frequently diagnosed in an outpatient setting ($p = 0.043$), had a longer duration of disease ($p = 0.004$) and presented less frequently with a history of alcohol abuse ($p = 0.04$), a history of depression ($p = 0.05$) or current psychiatric disorders other than depression ($p = 0.009$). Patients who wished to postpone therapy declared the following reasons for doing so (multiple answers were possible): unstable personal situations (6 cases out of 12), fear of losing jobs (3 cases), pregnancy plans (3 cases), wish to finish studies (1 case), current alcohol abuse (1 case), current depressive episode (1 case), and a plan to go on holiday (1 case). The four patients who refused treatment altogether did not share any distinct common demographic or disease-related features. They indicated the following reasons for their decision (multiple answers were accepted): doubts in the efficacy of treatment (4 cases out of 4), fear of side effects (3 cases), fear of reimbursement problems/costs (2 cases), other intensive medical treatment already in progress (1 case), and old age (1 case).

Gender, the current living and family situation, level of education, nationality or language difficulties did not seem to influence survey participants when it came to the decision to accept or defer treatment. Furthermore, the fact of knowing another person with HCV and having shared experiences regarding antiviral treatment did not seem to affect personal treatment decisions either.

Prescription rates

Treatment prescription rates were then evaluated and it was found that by July 2007, 47 patients

Table 3

Univariate analysis: Comparison of treatment readiness.

	Willing to start treatment immediately (n = 45)	Willing to postpone treatment (n = 12)	p	test
	n (%) or mean ± SD	n (%) or mean ± SD		
Male gender	28 (62.2)	8 (66.7)	0.700	A
Mean age	45.64 ± 1.43	33.17 ± 2.58	0.0008	C
Swiss nationality	35 (77.8)	10 (93.3)	0.675	A
Higher education	10 (22.2)	2 (16.7)	0.675	A
Employed	36 (80.0)	7 (58.3)	0.033	A
Income >80000 CHF	10 (22.2)	2 (16.7)	0.675	A
Living alone	14 (31.1)	2 (16.7)	0.139	A
Children	18 (40.0)	2 (16.7)	0.182	A
Self reported full working ability	27 (60.0)	7 (58.3)	0.917	B
Self reported full social ability	31 (68.9)	8 (66.7)	0.883	B
Language difference	11 (24.4)	3 (25.0)	1.000	A
Diagnosis as outpatient	33 (73.3)	3 (25.0)	0.043	A
Diagnosis during hospitalization	9 (20.0)	6 (50.0)		
Mean duration of disease (y) (n = 50)	19.6 ± 1.50	9.55 ± 2.70	0,004	C
Genotype 1–4	16 (35.6)	6 (50.0)	0.346	A
Genotype 2–3	29 (64.4)	6 (50.0)		
Liver biopsy	32 (71.1)	5 (41.7)	0.088	A
Mean fibrosis stage	2.7 ± 0.22	2 ± 0	0.520	C
Cirrhosis	7 (15.6)	0	0.325	A
ALT, times the ULN	2.07 ± 0.22	1.89 ± 0.33		C
Mean HCV-RNA (IU/ml)	549,540 ± 190,743	1,248,707 ± 643,350	0.504	C
History of alcohol drinking >20 g/d	20 (44.4)	10 (83.3)	0.04	B
History of IVDU	26 (57.8)	9 (75.0)	0.335	A
History of depression	8 (17.8)	6 (50.0)	0.05	A
History of other psychiatric disorders	6 (13.3)	2 (16.7)	0.670	A
History of imprisonment	8 (17.8)	4 (33.3)	0.254	A
Current alcohol drinking >20 g/d	7/26 (26.9)	2/8 (25.0)	1	A
Current IVDU	2/26 (7.6)	2/8 (25.0)	0.229	A
Current methadone treatment	3/26 (11.5)	3/8 (37.5)	0.126	A
Current depression	2/26 (7.6)	3/8 (37.5)	0.072	A
Current other psychiatric disorder	0 (0)	3/8 (37.5)	0.009	A
Knew about HCV before being diagnosed	31 (68.9)	9 (75.0)	1	A
Knows other persons with HCV	21 (46.7)	9 (75.0)	0.089	A

A: Fisher's exact test; B: Pearson chi^2; C: Two-sample Wilcoxon rank-sum (Mann-Whitney)

(55% of respondents and 77% of those considered eligible) had actually received antiviral therapy. Of the 45 patients originally ready to start therapy immediately, two had to refrain from treatment because of the diagnosis of concomitant severe diseases (lymphoma, oropharyngeal cancer). Regarding the 12 patients planning to postpone therapy, eight had not started treatment yet, mainly because of missed follow-up visits, ongoing IVDU and/or alcohol abuse or planned pregnancy. Concerning the four patients who had initially refused therapy, none of them reconsidered their own decisions.

Patient satisfaction

Patients reported high rates of accordance with their disease management: 93% of patients who were considered eligible for antiviral treatment indicated that they felt well informed when they made their decision for or against treatment. In the group of patients to whom treatment was not recommended, 95% found that the reasons for treatment deferral were well explained and another 95% agreed with their physicians' decision not to treat.

Figure 1 shows a flow-chart schematising a comprehensive overview of antiviral treatment eligibility, treatment readiness and prescription rates of survey participants.

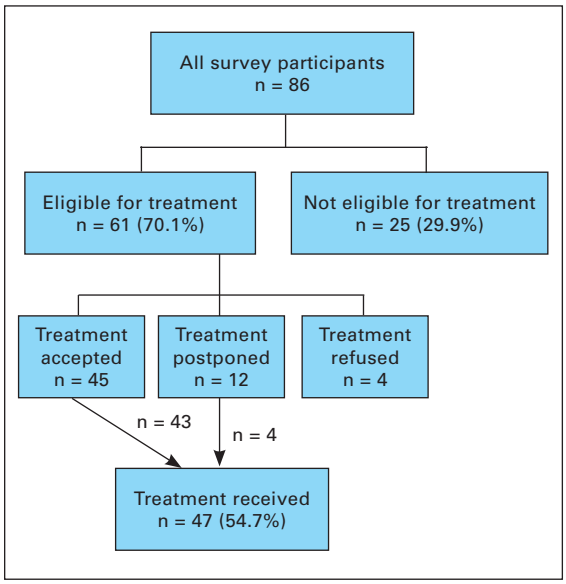

Figure 1

Flow-Chart illustrating antiviral treatment eligibility and prescription rates of survey participants with chronic hepatitis C infection.

Discussion

In this retrospective multicenter study, it was found that 71% of 86 anti-HCV positive patients were considered eligible for antiviral treatment, and that 77% of these actually received treatment by 2007. The results are comparable with those of several large international randomized trials of PEG-IFN-α and ribavirin combination therapy stating treatment eligibility rates between 66–

78% [17–19]. In contrast, when analyzing the results of studies conducted in smaller centres in different countries and settings, often regarding special patient subgroups, treatment eligibility and prescription rates are dramatically lower, ranging between 10 and 30% [6, 7–22].

Our study shows a fair acceptance of Consensus guidelines by Swiss HCV specialists regarding antiviral treatment. This finding is in line with results of a recent survey among Swiss internists reflecting a generally favourable attitude towards international guidelines [23]. In fact, patients with a history of alcohol or intravenous drug use, current methadone treatment, psychiatric disorders other than depression as well as cirrhotic patients were not excluded from antiviral treatment. Patients considered ineligible treatment candidates were characterized by less advanced fibrosis stages when compared to patients judged eligible. Furthermore, patients to whom antiviral treatment was not proposed presented with the so-called difficult to treat genotypes 1 or 4 significantly more often. The SOC still represents the most effective means of preventing long-term sequelae from chronic HCV infection [3]. Thus, physicians should be encouraged to offer SOC also to patients infected by the more challenging genotypes 1 and 4, in order to make viral clearance more achievable. Moreover, patients considered ineligible presented a history of depression more frequently. As shown in various feasibility studies [24, 25], successful antiviral treatment is possible in this subgroup of patients as long as a multidisciplinary psychological support is provided. However, in this study it was found that patients suffering from psychiatric diseases other than depression were, in accordance with Consensus guidelines, not excluded from antiviral treatment.

Nevertheless, 25.6% of treatment decisions had to be re-evaluated in regard to their conformity to Consensus guidelines, hereby showing a clear tendency towards possible *undertreatment*. Among the reasons stated by physicians for deferring from treatment, the presence of normal liver enzymes was one of the most frequent answers. As numerous studies published in recent years demonstrated a poor correlation between the level of transaminases and the grade of liver fibrosis [26, 27], HCV experts today rely much less on liver enzyme values when facing the decision for or against antiviral treatment, compared to during the survey period (2002–2004). Regarding patients' views on antiviral treatment, we found that readiness for immediate treatment was associated with older age and a longer duration of disease. Interestingly, those patients were more frequently diagnosed at an outpatient setting, hereby indicating less severe medical or psychiatric comorbidities that could possibly interfere with antiviral treatment. Patients without a history of alcohol abuse or psychiatric disorders obviously feel more ready to face possible treatment side effects. The main reasons for treatment delay indicated by patients were an unstable personal situation and the fear of losing their job because of treatment–related reduced performance.

Ten percent of eligible patients refused antiviral treatment altogether, which is in line with findings from other studies [28, 29]. The leading reason for patient refusal was their doubts regarding the efficacy of treatment. Unfortunately, as there is currently no alternative to the SOC, which offers rates of viral eradication between 50 and 80% [3, 30], those concerns are understandable. Patients with minimal liver disease can be advised to wait for the arrival of new molecules, which are expected to be on the market in two or three years from now. The most promising candidates include direct inhibitors of the HCV nonstructural (NS) 3 protease, and both nucleoside and non-nucleoside inhibitors of the NS 5B RNA-dependent RNA polymerase. These agents represent the concept of specifically targeted antiviral therapy for HCV (STAT-C) – a new strategy in which the main goal is to increase the effectiveness of antiviral responses across all genotypes, with shorter treatment duration and better tolerability [31, 32].

Interestingly, the current living and family situation, level of education, nationality or language difficulties did not seem to influence survey participants regarding the decision to accept or defer treatment. Furthermore, the fact of knowing another person with HCV and having shared experiences regarding antiviral treatment did not seem to affect personal treatment decisions either.

Besides the well-known limitations due to a relatively small study population and the retrospective design, we acknowledge that our study reflects the disease management of chronic hepatitis C in a highly specialized setting, and that the treatment of patients by general practitioners or in small medical centres might differ. Concerning a possible selection bias of patients eventually characterized by an above-average compliance due to their participation in the SCCS and their participation in this survey, we would like to mention that patient questionnaires were sent to all patients fulfilling the above-cited inclusion criteria, including all drop-out patients of the SCCS in order to reach also patients possibly discontent with their disease management or otherwise characterized by a problematic follow-up. 50% of patients that originally dropped out of the SCCS nevertheless sent back their completed questionnaires, thus showing a response rate comparable to patients still participating in the cohort study.

In conclusion, we found that international Consensus guidelines on hepatitis C disease management are accepted and applied by Swiss HCV experts, offering antiviral treatment to a large proportion of patients, including those previously considered difficult to treat. Nevertheless, further multidisciplinary efforts are needed to extend the access to antiviral treatment for patients infected by genotype 1 or 4 and patients suffering from depression. Patients showed a generally very favorable attitude towards antiviral treatment.

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