

Occurrence and outcome of hepatitis C reinfections in opioid agonist therapy patients of the SAMMSU cohort

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BACKGROUND

- Direct-acting antivirals (DAAs), achieving chronic hepatitis C cure rates of nearly 100%, are reimbursed without liver fibrosis restriction in Switzerland since 2017.
- However, a high reinfection rate could hamper HCV elimination efforts.

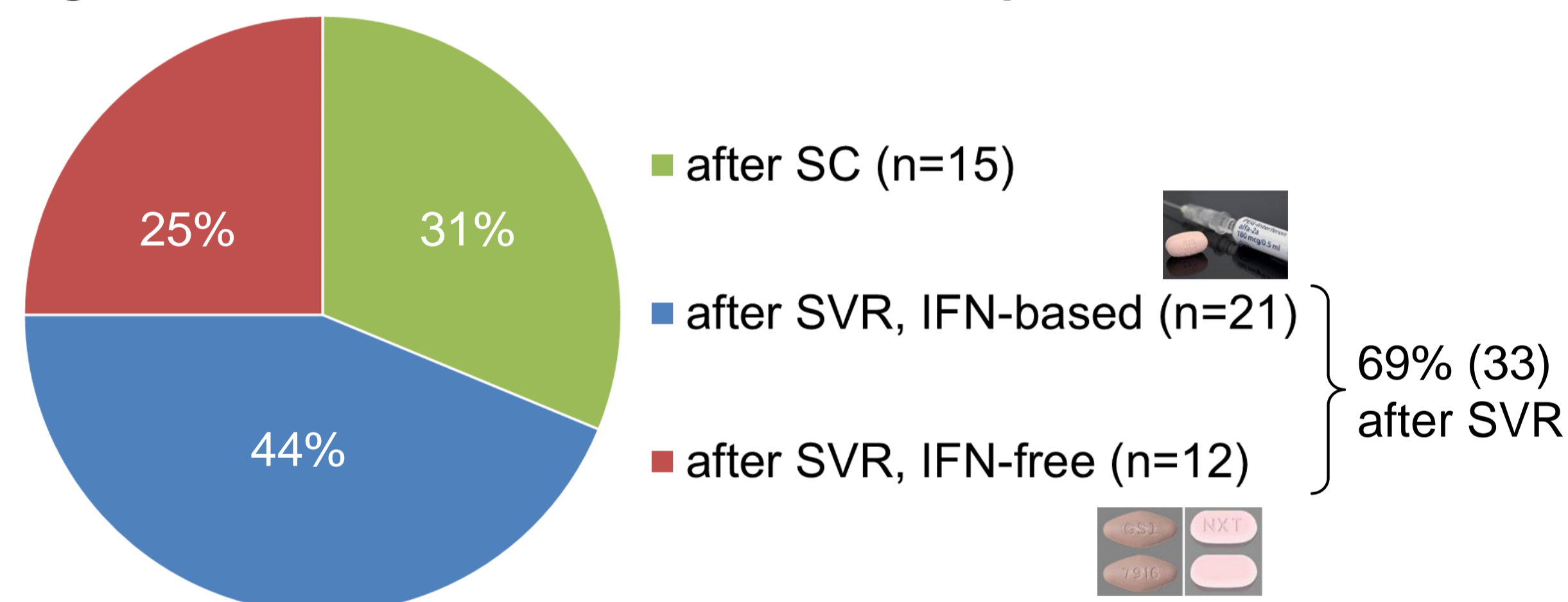
METHODS

- Between 2014 and 02/03/2023, the Swiss Association for the Medical Management in Substance Users (SAMMSU) cohort has recruited 1346 >18-year-old opioid agonist therapy (OAT) patients (75% ever intravenous drug use, 59% HCV-antibody-positive, yearly follow-up).
- For **Figure 1-3**, data derived from a specific “reinfection form” within the database, whereas for **Table 1+2** time-to-event analyses were used considering only the first successful treatment in each patient, resulting in slightly different numbers.
- Regarding the reinfection rate, follow-up time was from the end-of-treatment to the first positive HCV-RNA or the last negative HCV-RNA, if no reinfection occurred.

RESULTS – Occurrence of reinfections after spontaneous clearance / treatment

- Among the 48 reinfections in 44 patients documented within the SAMMSU cohort, 31% (15) were after spontaneous clearance (SC), 44% (21) after IFN-based and 25% (12) after IFN-free HCV-treatment (**Figure 1, Figure 3**).

Figure 1: Occurrence of reinfections after spontaneous clearance / treatment (n=48)

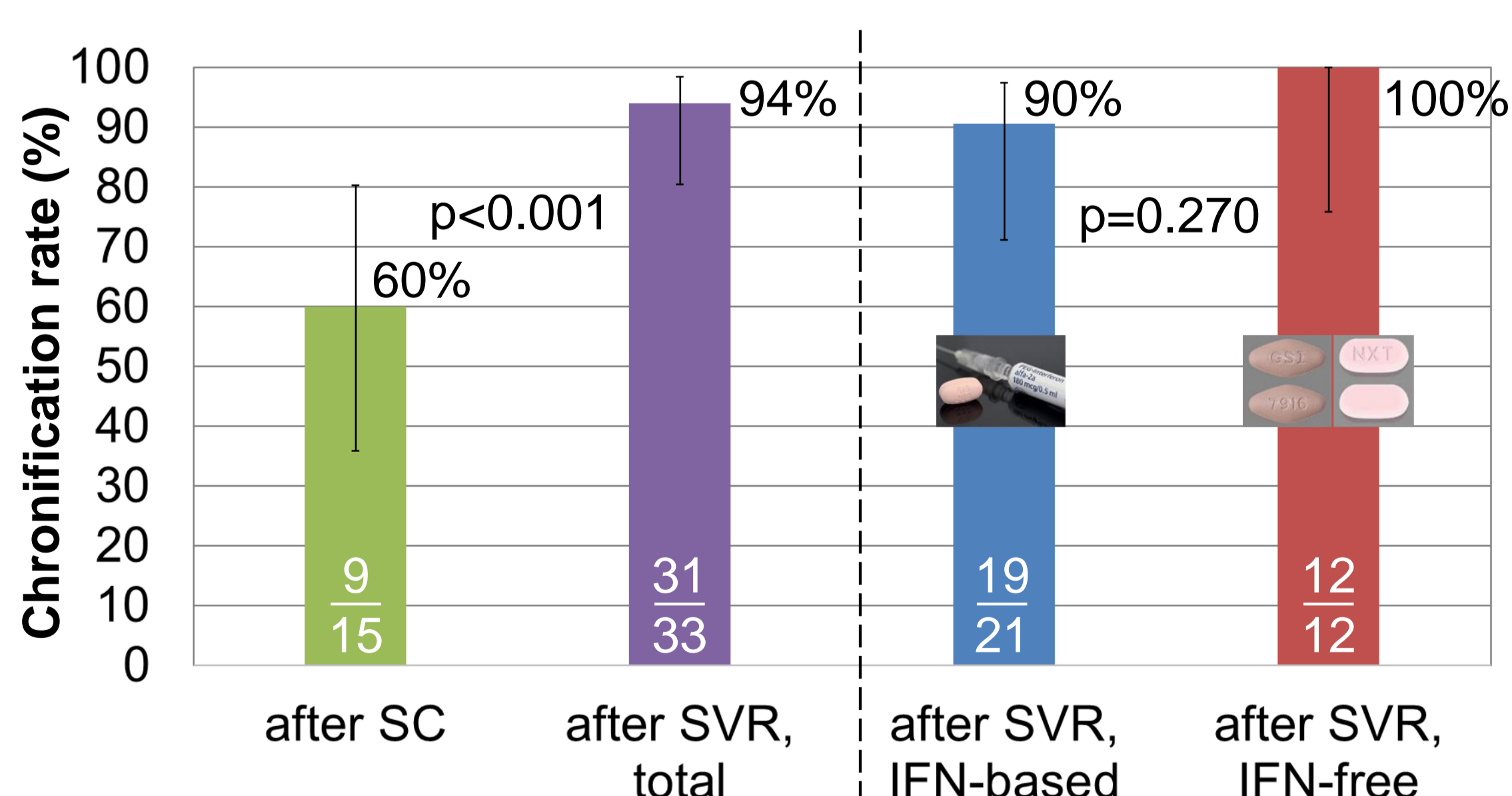


SC = spontaneous clearance, SVR = sustained virological response, IFN = interferon; Data source: specific “reinfection form”

RESULTS – Chronification rate after reinfection

- The proportion of patients developing chronic infection was significantly lower after spontaneous clearance than after successful treatment (60% (9/15) versus 94% (31/33), $p < 0.001$), with no difference between IFN-based and IFN-free treatment (90% (19/21) versus 100% (12/12), $p = 0.270$) (**Figure 2**).

Figure 2: Chronification rate after reinfection according to treatment history (n=48)

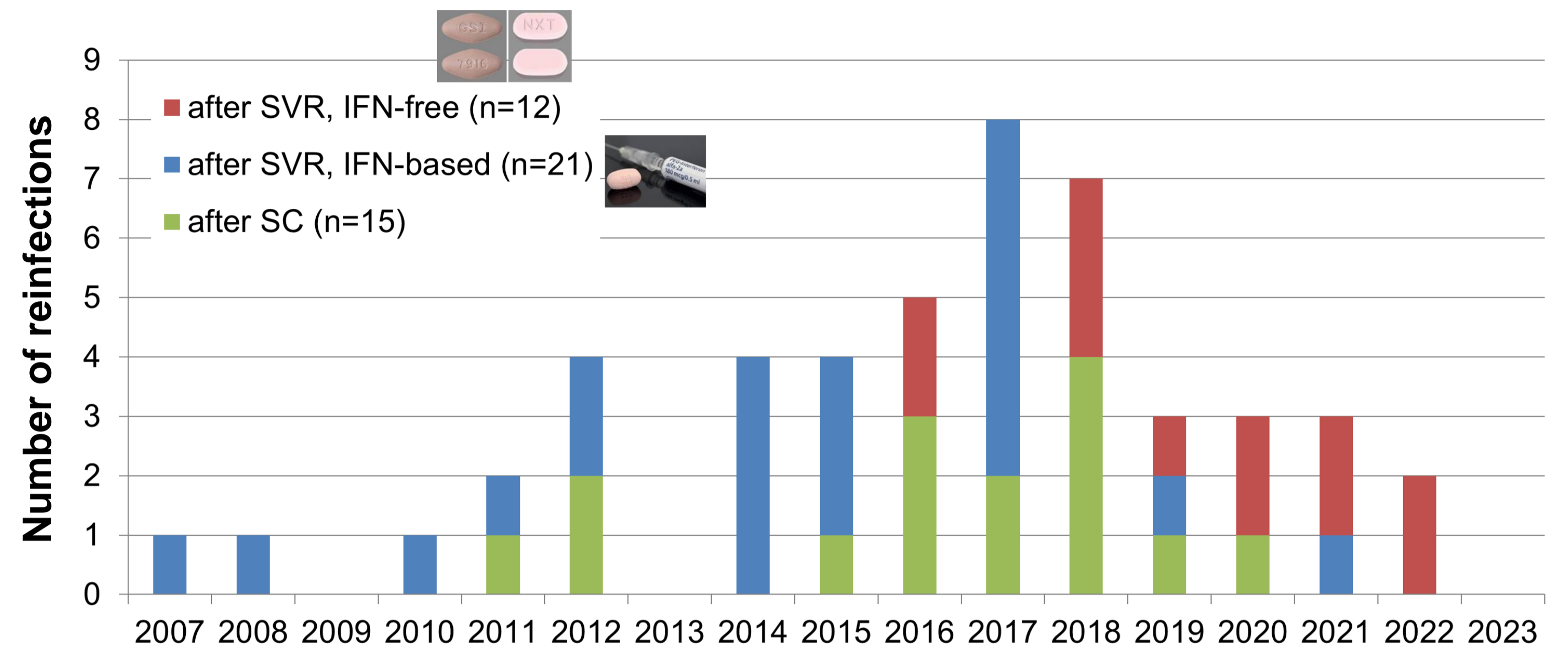


SC = spontaneous clearance, SVR = sustained virological response, IFN = interferon; The error bars show the lower and upper limit of the 95% confidence interval (Score(Wilson)). Data source: specific “reinfection form”

ACKNOWLEDGEMENT/SPONSORING

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Figure 3: Occurrence of reinfections: year of diagnosis (n=48)



SC = spontaneous clearance, SVR = sustained virological response, IFN = interferon Status: 02.03.2023, 48 reinfections in 44 patients; Data source: specific “reinfection form”

RESULTS – Cumulative reinfection rate after treatment

- Between 1988 and 02/03/2023, 33 HCV reinfections occurred in 486 successfully treated patients (median follow-up time: 2.82 (IQR: 0.94-5.00) years, cumulative reinfection rate: 6.8%).
- The cumulative reinfection rate was 17.1% (20/117) after IFN-based and 3.5% (13/369) after IFN-free treatment ($p < 0.001$) (**Table 1**).

Table 1: Cumulative reinfection rate after successful treatment

	Observation period	Reinfections after SVR (n)	Successfully treated patients (n)	Cumulative reinfection rate (%)	95% CI
IFN-based	1988*-2023	20	117	17.1	11.4-24.9
IFN-free	2013#-2023	13	369	3.5	2.1-5.9
Total	1988-2023	33	486	6.8	4.9-9.4

SVR = sustained virological response, IFN = interferon, CI = confidence interval,

*end of first successful IFN-based HCV treatment in the SAMMSU cohort,

#end of first successful IFN-free HCV treatment in the SAMMSU cohort,

Data source: time-to-event analyses considering only the first successful treatment in each patient

RESULTS – Reinfection rate after treatment

- With a total follow-up time of 1904.16 years, the reinfection rate was 1.73 (95% CI: 1.23-2.44)/100 person-years (**Table 2**).
- It was similar after IFN-based and IFN-free treatment (1.98 (95% CI: 1.28-3.07) versus 1.45 (95% CI: 0.84-2.51)/100 person-years, $p = 0.385$).
- Total follow-up time was 1010.46 years after IFN-based treatment (median: 7.60 (IQR: 4.26-11.52) years) and 893.69 years after IFN-free treatment (median: 2.25 (IQR: 0.63-3.70) years).

Table 2: Reinfection rate after successful treatment

	Median FUP-time (y) (95% CI)	Reinfections after SVR (n)	Total FUP-time (y)	Reinfection rate (per 100 PY)	95% CI
IFN-based	7.6 (4.3-11.5)	20	1010.46	1.98	1.28-3.07
IFN-free	2.3 (0.6-3.7)	13	893.69	1.45	0.84-2.51
Total	2.8 (0.9-5.0)	33	1904.16	1.73	1.23-2.44

FUP = follow-up, y = years, SVR = sustained virological response, IFN = interferon, CI = confidence interval; Data source: time-to-event analyses considering only the first successful treatment in each patient

CONCLUSIONS

- With a low reinfection rate of <2 per 100 person-years, reinfections do not compromise HCV elimination efforts in Swiss OAT-patients.
- While >90% of patients reinfected after successful HCV treatment develop chronic infection, patients reinfected after spontaneous clearance should be monitored regarding another spontaneous clearance.

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