Real-World Trends of Patients with Syphilis in Japan Using Integrated Data of IQVIA Claims, JAST Data and Desc Database

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Background and objectives

Background

Incidence rates of syphilis, a sexually transmitted infection (STI) caused by Treponema pallidum, is increasing in Japan. In 2022, the number of reported cases of syphilis diagnosed was over 10 thousands, reached as high standard for the first time in about half a century [1].
Symptoms of syphilis are four stages: primary, secondary, latent, and tertiary; with long incubation period between stages. Symptoms of primary stage include chancre and sores. Symptoms of secondary stage include skin rashes and mucous membrane lesions. In latent stage, patients show no visible symptoms and in tertiary syphilis, infections affect multiple organs [2].
Benzylpenicillin benzathine and amoxicillin are recommended as first line regimen in Japan. Duration of standard treatments are 2-8 weeks [3].
To our knowledge, real-world data evidence for syphilis in Japan has not been reported.

Objectives

- To describe of baseline information of patients with early syphilis.
- To describe of duration and cost of treatment of early syphilis.

Methods

This study is a retrospective descriptive cohort study. Patients with early syphilis (ICD-10: A51) and corresponding treatment who have 6 months follow-up and 6 months look-back period in the IQVIA Claims, JAST data and the DeSC database were identified. IQVIA Claims and JAST data are payer claims data of the health insurance union for Japanese workers. DeSC database contains national health insurance (provided for individuals below 75 years of age who are not covered by other public health insurance); and later-stage elderly healthcare system (provided for individuals over 75 years old). The data period for this study was between April 2015 and June 2022.
Index date was defined by first diagnosis month of early syphilis. Treatment gap with more than 14 days was considered as end of follow-up. Cost of treatment was estimated by treatment claims records and Japan medical fee points.

Note: Early syphilis (ICD-10: A51) refers to primary and secondary syphilis.

Discussion

Most patients with early syphilis was male in our study, which is consistent with the reported cases by WHO (2022). The patients in our study were slightly older in both male and female compared to the report by National Institute of Infectious Diseases (NIID) in Japan, in which reported cases have similar proportion ranged from late 20s to late 40s in male, and early 20s in female [1].
The major administrative route of penicillin in the US is thru injection, whereas according to Japanese guideline, the major treatment is remained to be oral penicillin. Our study suggested the main treatment and administrative route remained oral penicillin in Japan and this might be due to the injectable drug for syphilis has only been approved since September 2021 [4].
Cost of treatment in 1st stage syphilis was higher compared to 2nd stage syphilis. There were more older patients in 1st stage compared to 2nd stage (**Figure 1**), suggesting this might be the cause for longer treatment duration (mean: 38.8 days) and thus higher cost of treatment in 1st stage syphilis.

Conclusion

To our knowledge, this is the first-time report about the patient demographics, treatment, and cost for patients with early syphilis in Japan real-world setting. The study reflects the real-world practice of syphilis in Japan. As the cases of STI increasing in Japan, awareness of STI including syphilis should be raised to control the spread as current preventive measures, screening and management in STI remain limited, especially for asymptomatic infections.

Limitation

Database studies in general do not necessarily reflect the overall population and the results may not be fully generalizable.

Results

Of 440 patients in the main cohort have definitive diagnosis of early-stage syphilis, 6 months look-back period, 6 months follow-up period and least one syphilis treatments. Of 299 patients in the subgroup have 1 year follow-up period and 1 year look-back period. 342 (77.7%) patients were male, and 98 (22.3%) patients were female. Mean (SD) age for male and female was 42 (12.5) and 35.4 (15.2), respectively, whereas the median (1st quantiles, 3rd quantiles) was 41 (32, 51) and 31(24, 43), respectively. Most patients were treated with oral penicillin (**Table 1**).
Of all syphilis patients, mean of treatment duration was 38.2 days and median was 28 days. Of first-stage syphilis patients, mean of treatment duration was 38.8 days and median was 29 days (**Table 2**).
Mean of treatment cost in all patients was 10,708.6 yen and its median was 2,495 yen. Mean treatment and cost of first stage syphilis was higher than second stage syphilis (**Table 3**).

Table 1. Baseline characteristics

	All patients	Male	Female
N	440	342	98
Age at index year (year)			
n	440	342	98
Mean	40.5	42	35.4
SD	13.4	12.5	15.2
Min	14	19	14
1st quantiles	30	32	24
Median	39	41	31
3rd quantiles	49	51	43
Max	87	81	87
Treatment of drug (Multiple count, n)			
Penicillins	422	326	96
Oral	422	326	96
Injection	0	0	0
Other antibiotics	19	17	2
Stage (ICD) (Multiple count, n)			
1st stage (ICD10 code: A51.0, A51.1 and A51.2)	233	196	37
2nd stage (ICD10 code: A51.3 and A51.4)	37	33	4
Other (ICD10 code: A51.5 and A51.9)	189	127	62

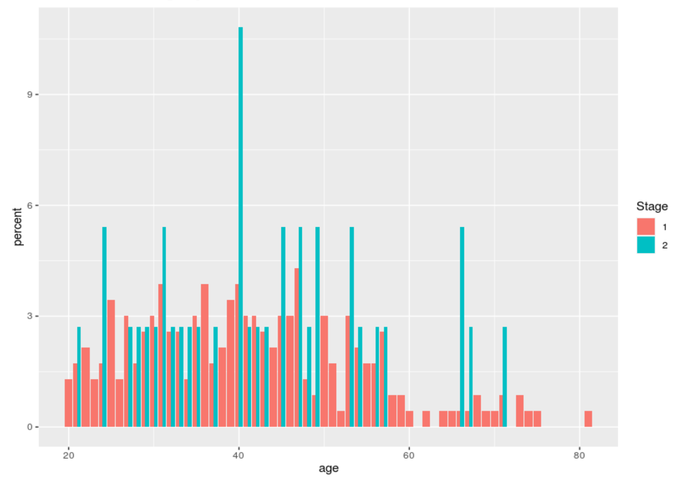
Table 2. Treatment duration (day)

	Duration all patients	1st stage	2nd stage	Other
n	440	233	37	189
Mean	38.2	38.8	34.6	37.8
SD	28.9	28	20.2	30.8
Min	3	3	4	3
1st quantiles	16.8	26	14	14
Median	28	29	30	28
3rd quantiles	56	56	56	53
Max	214	203	66	214

Table 3. Cost of treatment (Japanese yen)

	Cost of treatment	1st stage	2nd stage	Other
n	440	233	37	189
Mean	10,709	10,961	7,100	10,705
SD	23,512	18,563	10,128	29,212
Min	0	0	0	0
1st quantiles	500	660	550	250
Median	2,495	2,800	2,000	2,100
3rd quantiles	11,838	14,800	7,280	8,600
Max	320,340	118,860	35,130	320,340

Figure 1. Patients age percent distribution



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DISCLOSURES:
All authors declare that they have no competing interests. All authors are employees in IQVIA.