

Table S1. The characteristics of individuals taking different medication at baseline and week8.

	Third-generation TKIs (n=70)	First/Second-generation TKIs (n=24)	Monoclonal Antibodies (n=19)	<i>P</i>-value
Baseline (week0)				
Age (years)	62.7 (10.4)	66.8 (10.8)	58.6 (12.5)	0.15
Sex				0.06
Men	17 (24%)	8 (33%)	10 (53%)	
Women	53 (76%)	16 (67%)	9 (47%)	
Dermascope Score	5.7 (3.4)	3.7 (1.6)	4.0 (1.5)	0.01
WCSC (microSiemens)	29 (22)	25 (25)	38 (54)	0.43
PH	5.43 (0.59)	5.58 (0.61)	5.30 (0.49)	0.29
Xerosis Grade (CTCAE V5.0)				0.42
Grade 1	2 (3%)			
Grade 2	23 (33%)	4 (17%)	7 (37%)	
Grade 3	45 (64%)	20 (83%)	12 (63%)	
Pruritus Grade (CTCAE V5.0)				0.26
Grade 0	5 (8%)	3 (14%)		
Grade 1	13 (22%)	1 (5%)	3 (17%)	
Grade 2	28 (47%)	8 (38%)	10 (56%)	
Grade 3	14 (23%)	9 (43%)	5 (28%)	
DLQI	2.43 (4.6)	6.0 (7.0)	4.7 (7.4)	0.01
Itch Intensity score	5.5 (2.8)	6.1 (3.4)	5.4 (1.9)	0.52

Itch Duration score				0.08
Grade 0	6 (10%)	3 (14%)		
Grade 1	35 (58%)	9 (43%)	9 (50%)	
Grade 2	12 (20%)	2 (10%)	7 (39%)	
Grade 3	7 (12%)	7 (33%)	2 (11%)	
Last follow-up (week8)				
Dermascope Score	1.9 (2.6)	1.3 (1.3)	1.4 (1.3)	0.60
WCSC (microSiemens)	51 (47)	49 (46)	82 (69)	0.09
PH	5.21 (0.55)	5.35 (0.65)	5.08 (0.43)	0.44
Xerosis Grade (CTCAE V5.0)				0.56
Grade 1	28 (40%)	6 (25%)	5 (26%)	
Grade 2	28 (40%)	12 (50%)	8 (42%)	
Grade 3	14 (20%)	6 (25%)	6 (32%)	
Pruritus Grade(CTCAE V5.0)				0.24
Grade 0	14 (23%)	4 (19%)	1 (6%)	
Grade 1	24 (40%)	10 (48%)	12 (37%)	
Grade 2	12 (20%)	5 (24%)	5(28%)	
Grade 3	10 (17%)	2 (10%)		
DLQI	1.5 (3.0)	2.8 (5.3)	2.3 (3.3)	0.37
Itch Intensity Score	3.1 (2.9)	2.1 (2.1)	2.4 (2.0)	0.39
Itch Duration Score				0.45
Grade 0	15 (25%)	4 (19%)	2 (11%)	
Grade 1	32 (53%)	14 (67%)	15 (83%)	
Grade 2	8 (13%)	1 (5%)	1 (6%)	
Grade 3	5 (8%)	2 (10%)		

Xerosis Grade Change				0.40
Grade change = 0	28 (40%)	8 (33%)	9 (47%)	
Grade change = 1	23 (33%)	12 (50%)	8 (42%)	
Grade change = 2	19 (27%)	4 (17%)	2 (11%)	
Pruritus Grade Change				0.24
Grade change = 0	31 (52%)	7 (33%)	5 (28%)	
Grade change = 1	17 (28%)	7 (33%)	9 (50%)	
Grade change = 2	12 (20%)	7 (33%)	4 (22%)	

Data are presented as mean (standard deviation) except for qualitative variables, which were expressed as n (%). TKIs: Tyrosine Kinase Inhibitors; WCSC: Water Content Stratum Corneum; DLQI: Dermatology Life Quality Index.

Table S2. Linear mixed model showing the role of different predictors in skin-related measurements changes.

Predictor	Estimate	SE	<i>P</i>-value
Dermascope Score			
GroupB (ref: GroupA)	-0.33	0.37	0.375
Age	-0.01	0.01	0.237
Sex (ref: male)	-0.03	0.21	0.883
Baseline value	0.45	0.03	<0.001
Time (ref: week0)			
week2	-0.95	0.34	0.005
week4	-2.53	0.34	<0.001
week6	-2.67	0.34	<0.001
week8	-3.48	0.34	<0.001
Interaction (GroupB × Time)			
week2	0.25	0.50	0.612
week4	0.48	0.50	0.336
week6	0.21	0.50	0.666
week8	0.45	0.50	0.368
WCSC			
GroupB (ref: GroupA)	5.11	7.75	0.510
Age	-0.73	0.17	<0.001
Sex (ref: male)	-5.50	4.13	0.186
Baseline value	0.34	0.06	<0.001
Time (ref: week0)			
week2	24.81	7.30	<0.001

week4	19.58	7.30	0.008
week6	24.60	7.30	<0.001
week8	18.23	7.30	0.013
Interaction (GroupB × Time)			
week2	-0.85	10.65	0.936
week4	-8.40	10.65	0.431
week6	9.17	10.65	0.390
week8	17.80	10.65	0.096
pH			
GroupB (ref: GroupA)	-0.18	0.09	0.051
Age	0.00	0.00	0.294
Sex (ref: male)	0.06	0.05	0.268
Baseline value	0.26	0.04	<0.001
Time (ref: week0)			
week2	-0.42	0.08	<0.001
week4	-0.22	0.08	0.009
week6	-0.19	0.08	0.023
week8	-0.21	0.08	0.012
Interaction (GroupB × Time)			
week2	0.13	0.12	0.275
week4	-0.05	0.12	0.679
week6	0.08	0.12	0.500
week8	-0.04	0.12	0.736
Itch-intensity score			
GroupB (ref: GroupA)	-0.21	0.48	0.670

Age	-0.02	0.01	0.110
Sex (ref: male)	0.36	0.30	0.238
Baseline value	0.37	0.05	<0.001
Time (ref: week0)			
week2	-1.89	0.43	<0.001
week4	-2.94	0.43	<0.001
week6	-2.63	0.43	<0.001
week8	-3.00	0.43	<0.001
Interaction (GroupB $\times$ Time)			
week2	0.44	0.63	0.483
week4	0.63	0.63	0.317
week6	0.31	0.63	0.626
week8	0.38	0.63	0.550

Table S3. The characteristics of the subgroups at baseline and week8.

	≥ 67 years			<67 years		
	GroupA (n=29)	GroupB (n=27)	<i>P</i> -value	GroupA (n=31)	GroupB (n=26)	<i>P</i> -value
Baseline (week0)						
Age (years)	71.6 (4.6)	71.5 (4.7)	0.88	53.7 (8.5)	55.2 (8.9)	0.50
Sex			0.89			0.29
Men	11 (38%)	11 (41%)		4 (25%)	9 (38%)	
Women	18 (62%)	16 (59%)		27 (75%)	17 (62%)	
Dermascope Score	5.3 (2.8)	5.3 (3.4)	0.67	5.2 (3.0)	4.0 (2.6)	0.10
WCSC (microSiemens)	22 (18)	28 (25)	0.48	26 (20)	33 (38)	0.80
PH	5.57 (0.53)	5.32 (0.55)	0.09	5.55 (0.66)	5.30 (0.51)	0.15
Xerosis Grade (CTCAE V5.0)			0.27			0.39
Grade 1		1 (4%)		1 (3%)		
Grade 2	7 (24%)	9 (33%)		8 (26%)	10 (38%)	
Grade 3	22 (76%)	17 (63%)		22 (71%)	16 (62%)	
Pruritus Grade(CTCAE V5.0)			0.78			0.86
Grade 0	2 (7%)	4 (15%)		1 (4%)	1 (5%)	
Grade 1	4 (15%)	4 (15%)		5 (19%)	4 (21%)	
Grade 2	12 (44%)	12 (46%)		12 (44%)	10 (53%)	
Grade 3	9 (33%)	6 (23%)		9 (33%)	4 (21%)	
DLQI	3.2 (6.1)	3.7 (6.1)	0.56	3.3 (5.3)	4.2 (6.1)	0.58
Itch Intensity score	6.0 (3.1)	5.8 (3.2)	0.91	5.7 (2.5)	4.8 (2.1)	0.22

Itch Duration score			0.66			0.83
Grade 0	2 (7%)	3 (12%)		1 (4%)	2 (11%)	
Grade 1	13 (48%)	14 (56%)		15 (56%)	11 (58%)	
Grade 2	6 (22%)	3 (12%)		8 (30%)	4 (21%)	
Grade 3	6 (22%)	5 (20%)		3 (11%)	2 (11%)	
Last follow-up (week8)						
Dermascope Score	1.9 (3.5)	1.6 (1.6)	0.77	1.7 (1.3)	1.6 (1.8)	0.51
WCSC (microSiemens)	38 (26)	56 (43)	0.15	50 (33)	83 (83)	0.27
PH	5.47 (0.54)	5.09 (0.57)	<0.01	5.24 (0.54)	5.03 (0.49)	0.12
Xerosis Grade (CTCAE V5.0)			0.33			0.07
Grade 1	7 (24%)	11 (41%)		8 (26%)	13 (50%)	
Grade 2	14 (48%)	12 (44%)		16 (52%)	6 (23%)	
Grade 3	8 (28%)	4 (15%)		7 (23%)	7 (27%)	
Pruritus Grade(CTCAE V5.0)			0.59			0.61
Grade 0	7 (26%)	4 (15%)		5 (19%)	3 (16%)	
Grade 1	12 (44%)	16 (62%)		10 (37%)	8 (42%)	
Grade 2	4 (15%)	4 (15%)		7 (26%)	7 (37%)	
Grade 3	4 (15%)	2 (8%)		5 (19%)	1 (5%)	
DLQI	2.7 (5.1)	1.6 (2.9)	0.46	1.4 (2.7)	2.0 (3.4)	0.43
Itch Intensity score	2.5 (2.6)	2.5 (2.2)	0.73	3.2 (2.9)	3.0 (2.8)	0.99
Itch Duration score			0.18			1.00
Grade 0	7 (26%)	3 (12%)		7 (26%)	4 (21%)	
Grade 1	16 (59%)	17 (65%)		16 (59%)	12 (63%)	
Grade 2	1 (4%)	5 (19%)		2 (7%)	2 (11%)	
Grade 3	3 (11%)	1 (4%)		2 (7%)	1 (5%)	

Xerosis Grade Change			0.59			0.59
Grade change = 0	12 (41%)	10 (37%)		14 (45%)	9 (35%)	
Grade change = 1	12 (41%)	9 (33%)		10 (32%)	12 (46%)	
Grade change = 2	5 (17%)	8 (30%)		7 (23%)	5 (19%)	
Pruritus Grade Change			0.88			0.79
Grade change = 0	11 (41%)	11 (42%)		11 (41%)	10 (53%)	
Grade change = 1	8 (30%)	9 (35%)		10 (37%)	6 (32%)	
Grade change = 2	8 (30%)	6 (23%)		6 (22%)	3 (16%)	
	Male			Female		
	GroupA (n=15)	GroupB (n=20)	P-value	GroupA (n=45)	GroupB (n=33)	P-value
Baseline (week0)						
Age (years)	65.6 (10.3)	63.8 (10.6)	0.51	61.3 (11.5)	63.3 (11.1)	0.45
Sex						
Men	15	20				
Women				45	33	
Dermascope Score	5.3 (2.6)	4.6 (3.0)	0.32	5.2 (3.0)	4.7 (3.2)	0.27
WCSC (microSiemens)	24 (20)	40 (53)	0.45	26 (20)	29 (26)	0.81
PH	5.48 (0.58)	5.37 (0.41)	0.52	5.58 (0.61)	5.27 (0.59)	0.04
Xerosis Grade (CTCAE V5.0)			0.32			0.90
Grade 1				1 (2%)	1 (3%)	
Grade 2	3 (20%)	9 (45%)		12 (27%)	10 (30%)	
Grade 3	12 (80%)	11 (55%)		32 (71%)	22 (67%)	
Pruritus Grade(CTCAE V5.0)			0.86			0.95
Grade 0	1 (8%)	3 (18%)		2 (5%)	2 (7%)	

Grade 1	1 (8%)	2 (12%)		8 (19%)	6 (21%)	
Grade 2	8 (67%)	11 65%)		16 (38%)	11 (39%)	
Grade 3	2 (17%)	1 (6%)		16 (38%)	9 (32%)	
DLQI	1.6 (2.6)	2.4 (4.1)	0.74	3.8 (6.3)	4.9 (6.8)	0.32
Itch Intensity score	5.3 (2.7)	4.8 (3.2)	0.74	5.3 (2.7)	4.8 (3.2)	0.70
Itch Duration score			0.18			0.67
Grade 0	1 (8%)	3 (18%)		2 (5%)	3 (11%)	
Grade 1	7 (58%)	10 (59%)		21 (50%)	15 (54%)	
Grade 2	3 (25%)			11 (26%)	7 (25%)	
Grade 3	1 (8%)	4 (24%)		8 (19%)	3 (11%)	
Last follow-up (week8)						
Dermascope Score	1.5 (1.0)	1.8 (1.8)	0.86	1.9 (2.9)	1.5 (1.6)	0.63
WCSC (microSiemens)	44 (24)	82 (84)	0.21	44 (32)	62 (54)	0.25
PH	5.25 (0.65)	5.13 (0.62)	0.45	5.39 (0.51)	5.02 (0.47)	<0.01
Xerosis Grade (CTCAE V5.0)			0.03			0.46
Grade 1	2 (13%)	10 (50%)		13 (29%)	14 (42%)	
Grade 2	12 (80%)	7 (35%)		18 (40%)	11 (33%)	
Grade 3	1 (7%)	3 (15%)		14 (31%)	8 (24%)	
Pruritus Grade(CTCAE V5.0)			0.60			0.19
Grade 0	2 (17%)	4 (24%)		10 (24%)	3 (11%)	
Grade 1	8 (67%)	8 (47%)		14 (33%)	16 (57%)	
Grade 2	2 (17%)	5 (29%)		9 (21%)	6 (21%)	
Grade 3				9 (21%)	3 (11%)	
DLQI	1.1 (2.8)	1.1 (2.5)	1.00	2.3 (4.4)	2.3 (3.4)	0.75
Itch Intensity score	2.1 (2.2)	2.5 (2.5)	0.70	3.1 (2.9)	2.9 (2.4)	0.98

Itch Duration score			0.44			0.50
Grade 0	3 (25%)	3 (18%)		11 (26%)	4 (14%)	
Grade 1	9 (75%)	11 (65%)		23 (55%)	18 (64%)	
Grade 2		3 (18%)		3 (7%)	4 (14%)	
Grade 3				5 (12%)	2 (7%)	
Xerosis Grade Change			0.34			0.43
Grade change = 0	4 (27%)	7 (35%)		22 (49%)	12 (36%)	
Grade change = 1	9 (60%)	7 (35%)		13 (29%)	14 (42%)	
Grade change = 2	2 (13%)	6 (30%)		10 (22%)	7 (21%)	
Pruritus Grade Change			0.40			1.00
Grade change = 0	4 (33%)	9 (53%)		18 (43%)	12 (43%)	
Grade change = 1	4 (33%)	6 (35%)		14 (33%)	9 (32%)	
Grade change = 2	4 (33%)	2 (12%)		10 (24%)	7 (25%)	
	Xerosis Grade=2			Xerosis Grade=3		
	GroupA (n=15)	GroupB (n=19)	P-value	GroupA (n=44)	GroupB (n=33)	P-value
Baseline (week0)						
Age (years)	61.5 (12.4)	64.1 (10.7)	0.52	62.9 (11.1)	62.9 (11.1)	1.00
Sex			0.15			0.62
Men	3	9		12	11	
Women	12	10		32	22	
Dermascope Score	4.5 (2.5)	4.5 (2.3)	0.86	5.6 (3.0)	4.8 (3.5)	0.06
WCSC (microSiemens)	31 (27)	52 (53)	0.13	24 (18)	23 (21)	0.56
PH	5.33 (0.57)	5.07 (0.50)	0.15	5.63 (0.60)	5.43 (0.50)	0.18
Xerosis Grade (CTCAE V5.0)						

Grade 1						
Grade 2	15	19				
Grade 3				44	33	
Pruritus Grade(CTCAE V5.0)			0.71			0.31
Grade 0	1 (8%)	3 (19%)		2 (5%)	2 (7%)	
Grade 1	4 (31%)	6 (38%)		5 (12%)	1 (4%)	
Grade 2	7 (54%)	5 (31%)		17 (41%)	17 (61%)	
Grade 3	1 (8%)	2 (13%)		17 (41%)	8 (29%)	
DLQI	3.3 (6.1)	3.7 (6.4)	0.99	3.3 (5.6)	4.0 (6.0)	0.47
Itch Intensity score	5.3 (2.8)	4.1 (3.0)	0.26	6.0 (2.9)	6.1 (2.5)	0.75
Itch Duration score			0.54			0.72
Grade 0	1 (8%)	4 (25%)		2 (5%)	2 (7%)	
Grade 1	8 (62%)	10 (63%)		20 (49%)	14 (50%)	
Grade 2	1 (8%)	1 (6%)		13 (32%)	6 (21%)	
Grade 3	3 (23%)	1 (6%)		6 (15%)	6 (21%)	
Last follow-up (week8)						
Dermascope Score	1.1 (1.2)	2 (1.9)	0.13	2.0 (2.9)	1.5 (1.5)	0.33
WCSC (microSiemens)	55 (42)	83 (74)	0.30	40 (24)	61 (63)	0.28
PH	5.29 (0.51)	4.98 (0.52)	0.08	5.38 (0.57)	5.11 (0.55)	0.02
Xerosis Grade (CTCAE V5.0)			0.07			0.42
Grade 1	3 (20%)	11 (48%)		12 (27%)	13 (39%)	
Grade 2	10 (67%)	7 (37%)		19 (43%)	10 (30%)	
Grade 3	2 (13%)	1 (25%)		13 (30%)	10 (30%)	
Pruritus Grade(CTCAE V5.0)			0.75			0.15
Grade 0	2 (15%)	4 (25%)		10 (24%)	3 (11%)	

Grade 1	6 (46%)	9 (56%)		16 (39%)	14 (50%)	
Grade 2	4 (31%)	2 (13%)		7 (17%)	9 (32%)	
Grade 3	1 (8%)	1 (6%)		8 (20%)	2 (7%)	
DLQI	1.8 (2.6)	1.4 (2.8)	0.25	2.1 (4.5)	1.9 (3.3)	0.72
Itch Intensity score	2.6 (2.1)	2.4 (2.0)	0.75	2.9 (2.9)	3.0 (2.7)	0.72
Itch Duration score			0.76			0.01
Grade 0	2 (15%)	4 (25%)		12 (29%)	3 (11%)	
Grade 1	8 (61%)	10 (63%)		24 (59%)	18 (64%)	
Grade 2	3 (23%)	2 (13%)			5 (18%)	
Grade 3				5 (12%)	2 (7%)	
Xerosis Grade Change			0.04			0.42
Grade change = 0	12 (80%)	8 (42%)		13 (30%)	10 (30%)	
Grade change = 1	3 (20%)	11 (58%)		19 (43%)	10 (30%)	
Grade change = 2				12 (27%)	13 (39%)	
Pruritus Grade Change			0.59			0.61
Grade change = 0	7 (54%)	9 (56%)		15 (37%)	11 (39%)	
Grade change = 1	5 (38%)	4 (25%)		13 (32%)	11 (39%)	
Grade change = 2	1 (8%)	3 (19%)		13 (32%)	6 (21%)	

Data are presented as mean (standard deviation) except for qualitative variables, which were expressed as n (%). TKIs: Tyrosine Kinase Inhibitors; WCSC: Water Content Stratum Corneum; DLQI: Dermatology Life Quality Index.

Table S4. Linear mixed model showing the role of different predictors in skin-related measurements changes in subgroup analyses.

Predictor	Estimate	SE	P-value	Estimate	SE	P-value
	≥ 67 years			< 67 years		
Dermascope Score						
GroupB (ref: GroupA)	-0.03	0.58	0.954	-0.57	0.47	0.230
Sex (ref: male)	-0.11	0.31	0.722	0.11	0.30	0.721
Baseline value	0.41	0.05	<0.001	0.50	0.04	<0.001
Time (ref: week0)						
week2	-1.31	0.54	0.016	-0.61	0.42	0.145
week4	-2.86	0.54	<0.001	-2.23	0.42	<0.001
week6	-3.00	0.54	<0.001	-2.35	0.42	<0.001
week8	-3.41	0.54	<0.001	-3.55	0.42	<0.001
Interaction (GroupB × Time)						
week2	0.13	0.78	0.872	0.42	0.62	0.499
week4	0.31	0.78	0.694	0.69	0.62	0.269
week6	0.15	0.78	0.849	0.32	0.62	0.611
week8	-0.22	0.78	0.782	1.13	0.62	0.071
WCSC						
GroupB (ref: GroupA)	3.51	8.68	0.686	5.78	12.93	0.655
Age						
Sex (ref: male)	-7.16	4.95	0.155	-2.35	7.53	0.756
Baseline value	0.40	0.11	0.001	0.34	0.09	0.000
Time (ref: week0)						
week2	24.81	7.30	<0.001	16.60	12.02	0.168

week4	19.58	7.30	0.008	25.15	12.02	0.037
week6	24.60	7.30	<0.001	24.07	12.02	0.046
week8	18.23	7.30	0.013	20.33	12.02	0.092
Interaction (GroupB × Time)						
week2	-20.48	11.41	0.074	18.62	17.79	0.296
week4	1.40	11.41	0.903	-18.00	17.79	0.313
week6	-6.45	11.41	0.572	25.28	17.79	0.157
week8	12.11	11.41	0.290	23.86	17.79	0.181
pH						
GroupB (ref: GroupA)	-0.18	0.13	0.162	-0.16	0.13	0.240
Age						
Sex (ref: male)	0.01	0.07	0.871	0.16	0.08	0.067
Baseline value	0.29	0.07	<0.001	0.24	0.06	<0.001
Time (ref: week0)						
week2	-0.48	0.11	<0.001	-0.35	0.12	0.004
week4	-0.15	0.11	0.182	-0.28	0.12	0.022
week6	-0.10	0.11	0.360	-0.27	0.12	0.027
week8	-0.10	0.11	0.376	-0.31	0.12	0.011
Interaction (GroupB × Time)						
week2	0.21	0.16	0.197	0.06	0.18	0.755
week4	-0.13	0.16	0.430	0.03	0.18	0.881
week6	0.01	0.16	0.969	0.15	0.18	0.396
week8	-0.12	0.16	0.451	0.03	0.18	0.844
Itch-intensity score						
GroupB (ref: GroupA)	-0.15	0.73	0.843	-0.96	0.78	0.220

Age						
Sex (ref: male)	1.11	0.52	0.038	-0.27	0.62	0.661
Baseline value	0.03	0.04	0.479	0.01	0.04	0.740
Time (ref: week0)						
week2	-2.85	0.61	<0.001	-0.93	0.59	0.116
week4	-3.44	0.61	<0.001	-2.44	0.59	<0.001
week6	-2.89	0.61	<0.001	-2.37	0.59	<0.001
week8	-3.44	0.61	<0.001	-2.56	0.59	<0.001
Interaction (GroupB × Time)						
week2	1.24	0.88	0.160	-0.28	0.91	0.755
week4	0.72	0.88	0.416	0.71	0.91	0.439
week6	-0.20	0.88	0.817	1.11	0.91	0.226
week8	0.22	0.88	0.803	0.77	0.91	0.402
	Male			Female		
Dermascope Score						
GroupB (ref: GroupA)	-0.45	0.60	0.453	-0.27	0.47	0.558
Age	-0.01	0.01	0.552	-0.01	0.01	0.349
Baseline value	0.40	0.05	<0.001	0.46	0.04	<0.001
Time (ref: week0)						
week2	-1.20	0.63	0.057	-0.87	0.41	0.033
week4	-3.53	0.63	<0.001	-2.20	0.41	<0.001
week6	-2.33	0.63	<0.001	-2.78	0.41	<0.001
week8	-3.87	0.63	<0.001	-3.36	0.41	<0.001
Interaction (GroupB × Time)						
week2	0.70	0.83	0.399	0.05	0.62	0.938

week4	1.63	0.83	0.050	0.05	0.62	0.938
week6	0.33	0.83	0.688	0.05	0.62	0.935
week8	1.07	0.83	0.200	0.17	0.62	0.780
WCSC						
GroupB (ref: GroupA)	8.71	16.75	0.604	3.05	8.38	0.716
Age	-1.02	0.41	0.018	-0.65	0.19	<0.001
Baseline value	0.37	0.10	<0.001	0.30	0.09	0.002
Time (ref: week0)						
week2	52.40	17.26	0.003	15.61	7.48	0.038
week4	17.00	17.26	0.327	20.45	7.48	0.007
week6	17.47	17.26	0.313	26.98	7.48	<0.001
week8	20.04	17.26	0.248	17.63	7.48	0.019
Interaction (GroupB × Time)						
week2	-18.84	22.83	0.411	2.53	11.49	0.826
week4	-12.89	22.83	0.573	-4.98	11.49	0.665
week6	-3.38	22.83	0.883	18.72	11.49	0.104
week8	21.33	22.83	0.352	15.16	11.49	0.188
pH						
GroupB (ref: GroupA)	-0.06	0.16	0.679	-0.24	0.11	0.039
Age	0.01	0.00	0.054	0.00	0.00	0.872
Baseline value	0.28	0.09	0.002	0.25	0.05	<0.001
Time (ref: week0)						
week2	-0.41	0.16	0.012	-0.42	0.10	<0.001
week4	-0.25	0.16	0.117	-0.20	0.10	0.036
week6	-0.21	0.16	0.179	-0.18	0.10	0.068

week8	-0.23	0.16	0.142	-0.20	0.10	0.043
Interaction (GroupB × Time)						
week2	0.00	0.21	0.992	0.21	0.15	0.163
week4	-0.08	0.21	0.703	-0.02	0.15	0.884
week6	0.00	0.21	0.997	0.14	0.15	0.359
week8	-0.01	0.21	0.961	-0.05	0.15	0.733
Itch-intensity score						
GroupB (ref: GroupA)	-0.62	0.89	0.491	-0.30	0.66	0.649
Age	-0.07	0.03	0.016	-0.01	0.02	0.763
Baseline value	0.03	0.09	0.785	0.02	0.03	0.558
Time (ref: week0)						
week2	-2.00	0.78	0.012	-1.86	0.51	<0.001
week4	-3.50	0.78	<0.001	-2.79	0.51	<0.001
week6	-1.33	0.78	0.091	-3.00	0.51	<0.001
week8	-3.17	0.78	<0.001	-2.95	0.51	<0.001
Interaction (GroupB × Time)						
week2	1.18	1.02	0.251	0.04	0.80	0.964
week4	0.97	1.02	0.343	0.61	0.80	0.449
week6	-1.17	1.02	0.255	0.79	0.80	0.327
week8	0.93	1.02	0.363	0.10	0.80	0.905
	Xerosis Grade=2			Xerosis Grade=3		
Dermascope Score						
GroupB (ref: GroupA)	0.00	0.60	0.995	-0.45	0.48	0.342
Age	-0.01	0.01	0.311	-0.01	0.01	0.506
Sex (ref: male)	-0.25	0.35	0.476	0.16	0.27	0.567

Baseline value	0.43	0.07	<0.001	0.44	0.04	<0.001
Time (ref: week0)						
week2	-0.40	0.59	0.497	-1.16	0.42	0.006
week4	-2.53	0.59	<0.001	-2.57	0.42	<0.001
week6	-1.87	0.59	0.002	-2.95	0.42	<0.001
week8	-3.40	0.59	<0.001	-3.61	0.42	<0.001
Interaction (GroupB × Time)						
week2	-0.28	0.79	0.718	0.46	0.64	0.472
week4	1.22	0.79	0.123	0.11	0.64	0.859
week6	0.18	0.79	0.817	0.08	0.64	0.906
week8	0.87	0.79	0.268	0.31	0.64	0.628
WCSC						
GroupB (ref: GroupA)	17.09	14.91	0.254	-1.00	9.33	0.915
Age	-0.79	0.32	0.021	-0.72	0.22	0.001
Sex (ref: male)	1.40	7.62	0.856	-8.90	5.14	0.088
Baseline value	0.32	0.08	<0.001	0.43	0.12	<0.001
Time (ref: week0)						
week2	12.31	15.15	0.418	29.82	8.35	<0.001
week4	31.25	15.15	0.041	15.98	8.35	0.057
week6	18.11	15.15	0.234	27.63	8.35	0.001
week8	23.82	15.15	0.118	15.95	8.35	0.057
Interaction (GroupB × Time)						
week2	-10.78	20.27	0.596	7.82	12.76	0.540
week4	-38.83	20.27	0.058	5.57	12.76	0.663
week6	-11.75	20.27	0.563	20.58	12.76	0.108

week8	6.64	20.27	0.744	22.66	12.76	0.077
pH						
GroupB (ref: GroupA)	-0.13	0.19	0.472	-0.15	0.11	0.179
Age	0.00	0.00	0.940	0.00	0.00	0.228
Sex (ref: male)	0.13	0.12	0.272	0.05	0.06	0.431
Baseline value	0.35	0.10	0.002	0.24	0.05	<0.001
Time (ref: week0)						
week2	-0.19	0.17	0.274	-0.49	0.09	<0.001
week4	-0.05	0.17	0.767	-0.27	0.09	0.004
week6	-0.03	0.17	0.875	-0.23	0.09	0.016
week8	-0.04	0.17	0.817	-0.25	0.09	0.008
Interaction (GroupB × Time)						
week2	0.23	0.23	0.321	0.02	0.14	0.888
week4	0.09	0.23	0.707	-0.16	0.14	0.280
week6	0.18	0.23	0.445	-0.01	0.14	0.946
week8	-0.05	0.23	0.838	-0.07	0.14	0.608
Itch-intensity score						
GroupB (ref: GroupA)	-0.69	0.89	0.438	0.20	0.65	0.756
Age	-0.09	0.02	0.001	0.01	0.02	0.454
Sex (ref: male)	0.40	0.62	0.523	0.93	0.47	0.052
Baseline value	0.03	0.04	0.504	-0.01	0.04	0.887
Time (ref: week0)						
week2	-1.69	0.78	0.033	-1.95	0.51	<0.001
week4	-2.00	0.78	0.012	-3.24	0.51	<0.001
week6	-1.85	0.78	0.020	-2.88	0.51	<0.001

week8	-2.69	0.78	<0.001	-3.10	0.51	<0.001
Interaction (GroupB × Time)						
week2	0.88	1.05	0.406	0.09	0.80	0.907
week4	0.25	1.05	0.813	0.64	0.80	0.429
week6	0.85	1.05	0.424	-0.25	0.80	0.758
week8	0.94	1.05	0.373	-0.08	0.80	0.918

Table S5. Satisfactory scoring on xerosis and pruritus improvements of subgroup analyses.

	Mean/Count	SD/%	Median	Mean/Count	SD/%	Median	P-value
≥ 67 years	GroupA (n=29)			GroupB (n=27)			
Satisfaction score on xerosis							
Satisfaction score	4.5	0.8	5	4.9	0.2	5	0.039
5-Most Satisfied	14	48%		16	59%		0.053
4-Somewhat Satisfied	4	14%		1	4%		
3-Neutral	3	10%					
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	8	28%		10	37%		
Satisfaction score on Itchness							
Satisfaction score	4.6	0.9	5	4.4	1	5	0.701
5-Most Satisfied	15	56%		11	42%		0.723
4-Somewhat Satisfied	2	7%		2	8%		
3-Neutral	2	7%		2	8%		
2-Somewhat Dissatisfied	1	4%		1	4%		
1-Least Satisfied							
No Comment	7	26%		10	38%		
< 67 years	GroupA (n=31)			GroupB (n=26)			
Satisfaction score on xerosis							

Satisfaction score	4.8	0.6	5	4.7	0.7	5	0.317
5-Most Satisfied	24	77%		17	65%		0.586
4-Somewhat Satisfied	1	3%		3	12%		
3-Neutral	2	6%		2	8%		
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	4	13%		4	15%		
Satisfaction score on Itchness							
Satisfaction score	4.7	0.8	5	4.7	0.7	5	0.953
5-Most Satisfied	20	74%		15	79%		1.000
4-Somewhat Satisfied				1	5%		
3-Neutral	4	15%		2	11%		
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	3	11%		1	5%		
Male	GroupA (n=15)			GroupB (n=20)			
Satisfaction score on xerosis							
Satisfaction score	4.6	0.7	5	4.9	0.4	5	0.388
5-Most Satisfied	7	47%		11	55%		0.618
4-Somewhat Satisfied	2	13%		2	10%		
3-Neutral	1	7%					
2-Somewhat Dissatisfied							
1-Least Satisfied							

No Comment	5	33%		7	35%		
Satisfaction score on Itchness							
Satisfaction score	4.9	0.3	5	4.8	0.4	5	0.770
5-Most Satisfied	8	67%		10	59%		1.000
4-Somewhat Satisfied	1	8%		2	12%		
3-Neutral							
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	3	25%		5	29%		
Female	GroupA (n=45)			GroupB (n=33)			
Satisfaction score on xerosis							
Satisfaction score	4.7	0.7	5	4.8	0.6	5	0.747
5-Most Satisfied	31	69%		22	67%		1.000
4-Somewhat Satisfied	3	7%		2	6%		
3-Neutral	4	9%		2	6%		
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	7	16%		7	21%		
Satisfaction score on Itchness							
Satisfaction score	4.5	0.9	5	4.5	1.0	5	0.719
5-Most Satisfied	27	64%		16	57%		0.758
4-Somewhat Satisfied	1	2%		1	4%		
3-Neutral	6	14%		4	14%		
2-Somewhat Dissatisfied	1	2%		1	4%		

1-Least Satisfied							
No Comment	7	17%		6	21%		
Xerosis Grade=2	GroupA (n=15)			GroupB (n=19)			
Satisfaction score on xerosis							
Satisfaction score	4.7	0.7	5	4.8	0.4	5	0.669
5-Most Satisfied	7	47%		10	52%		1.000
4-Somewhat Satisfied	1	7%		2	11%		
3-Neutral	1	7%					
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	6	40%		7	37%		
Satisfaction score on Itchness							
Satisfaction score	4.5	0.9	5	4.9	0.3	5	0.329
5-Most Satisfied	6	46%		10	63%		0.546
4-Somewhat Satisfied				1	6%		
3-Neutral	2	15%					
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	5	38%		5	31%		
Xerosis Grade=3	GroupA (n=44)			GroupB (n=33)			
Satisfaction score on xerosis							

Satisfaction score	4.7	0.7	5	4.8	0.6	5	0.580
5-Most Satisfied	30	68%		22	67%		0.747
4-Somewhat Satisfied	4	9%		2	6%		
3-Neutral	4	9%		2	6%		
2-Somewhat Dissatisfied							
1-Least Satisfied							
No Comment	6	14%		7	21%		
Satisfaction score on Itchness							
Satisfaction score	4.6	0.8	5	4.5	1.0	5	0.468
5-Most Satisfied	29	71%		16	57%		0.529
4-Somewhat Satisfied	2	5%		1	4%		
3-Neutral	4	10%		4	14%		
2-Somewhat Dissatisfied	1	2%		1	4%		
1-Least Satisfied							
No Comment	5	12%		6	21%		

Table S6. The characteristics of the study population taking Third-generation TKIs at baseline and week8.

	GroupA (n=40)	GroupB (n=30)	P-value
Baseline (week0)			
Age (years)	61.4 (11.2)	64.5 (9.1)	0.34
Sex			0.40
Men	8 (20%)	9 (30%)	
Women	32 (80%)	21 (70%)	
Dermascope Score	5.9 (3.2)	5.5 (3.8)	0.40
WCSC (microSiemens)	27 (19)	30 (27)	1.00
PH	5.54 (0.56)	5.30 (0.60)	0.09
Xerosis Grade (CTCAE V5.0)			0.48
Grade 1	1 (2%)	1 (3%)	
Grade 2	11 (28%)	12 (40%)	
Grade 3	28 (70%)	17 (57%)	
Pruritus Grade(CTCAE V5.0)			0.62
Grade 0	2 (6%)	3 (12%)	
Grade 1	7 (20%)	6 (24%)	
Grade 2	16 (46%)	12 (48%)	
Grade 3	10 (29%)	4 (16%)	
DLQI	2.2 (4.4)	2.7 (4.9)	0.66
Itch Intensity score	5.5 (2.8)	5.4 (3.0)	0.95
Itch Duration score			0.61
Grade 0	2 (6%)	4 (16%)	

Grade 1	21 (60%)	14 (56%)	
Grade 2	7 (20%)	5 (20%)	
Grade 3	5 (14%)	2 (8%)	
Itch Duration score	1.4 (0.8)	1.2 (0.8)	0.31
Last follow-up (week8)			
Dermascope Score	2.1 (3.1)	1.6 (1.8)	0.39
WCSC (microSiemens)	42 (30)	64 (61)	0.10
PH	5.35 (0.51)	5.04 (0.55)	<0.01
Xerosis Grade (CTCAE V5.0)			0.05
Grade 1	11 (28%)	17 (57%)	
Grade 2	20 (50%)	8 (27%)	
Grade 3	9 (23%)	5 (17%)	
Pruritus Grade(CTCAE V5.0)			0.19
Grade 0	10 (29%)	4 (16%)	
Grade 1	12 (34%)	12 (48%)	
Grade 2	5 (14%)	7 (28%)	
Grade 3	8 (23%)	2 (8%)	
DLQI	1.5 (2.9)	1.6 (3.1)	0.88
Itch Intensity Score	3.1 (3.0)	3.1 (2.7)	0.83
Itch Duration Score			0.40
Grade 0	11 (31%)	4 (16%)	
Grade 1	18 (51%)	14 (56%)	
Grade 2	3 (9%)	5 (20%)	
Grade 3	3 (9%)	2 (8%)	
Itch Duration score	0.9 (0.9)	1.2 (0.8)	0.17

Xerosis Grade Change			0.19
Grade change = 0	16 (40%)	12 (40%)	
Grade change = 1	16 (40%)	7 (23%)	
Grade change = 2	12 (20%)	11 (37%)	
Pruritus Grade Change			0.37
Grade change = 0	16 (46%)	15 (60%)	
Grade change = 1	10 (29%)	7 (28%)	
Grade change = 2	9 (26%)	3 (12%)	

Data are presented as mean (standard deviation) except for qualitative variables, which were expressed as n (%). TKIs: Tyrosine Kinase Inhibitors; WCSC: Water Content Stratum Corneum; DLQI: Dermatology Life Quality Index.

Table S7. Linear mixed model showing the role of different predictors in skin-related measurements changes in patients taking Third-generation TKIs.

Predictor	Estimate	SE	P-value
Dermascope Score			
GroupB (ref: GroupA)	-0.15	0.53	0.771
Age	-0.02	0.01	0.146
Sex (ref: male)	-0.08	0.33	0.805
Baseline value	0.45	0.04	<0.001
Time (ref: week0)			
week2	-1.33	0.34	0.004
week4	-2.78	0.34	<0.001
week6	-3.20	0.34	<0.001
week8	-3.75	0.34	<0.001
Interaction (GroupB × Time)			
week2	0.36	0.50	0.610
week4	0.24	0.50	0.731
week6	0.33	0.50	0.635
week8	-0.12	0.50	0.868
WCSC			
GroupB (ref: GroupA)	2.41	17.03	0.003
Age	-0.47	0.23	0.042
Sex (ref: male)	-8.52	5.26	0.110
Baseline value	0.40	0.10	<0.001
Time (ref: week0)			
week2	26.04	8.04	0.001

week4	19.41	8.04	0.016
week6	25.42	8.04	0.002
week8	14.69	8.04	0.069
Interaction (GroupB × Time)			
week2	-6.42	12.29	0.602
week4	-7.39	12.29	0.548
week6	9.69	12.29	0.431
week8	18.78	12.29	0.128
pH			
GroupB (ref: GroupA)	-0.17	0.12	0.142
Age	0.00	0.00	0.619
Sex (ref: male)	0.07	0.08	0.339
Baseline value	0.27	0.06	<0.001
Time (ref: week0)			
week2	-0.37	0.10	<0.001
week4	-0.20	0.10	0.044
week6	-0.20	0.10	0.049
week8	-0.19	0.10	0.064
Interaction (GroupB × Time)			
week2	0.15	0.15	0.338
week4	-0.06	0.15	0.719
week6	0.16	0.15	0.286
week8	-0.09	0.15	0.577
Itch-intensity score			
GroupB (ref: GroupA)	0.14	0.64	0.823

Age	-0.04	0.02	0.030
Sex (ref: male)	0.21	0.41	0.616
Baseline value	0.40	0.06	<0.001
Time (ref: week0)			
week2	-1.34	0.54	0.014
week4	-2.57	0.54	<0.001
week6	-2.26	0.54	<0.001
week8	-2.40	0.54	<0.001
Interaction (GroupB $\times$ Time)			
week2	0.06	0.84	0.940
week4	0.61	0.84	0.467
week6	-0.08	0.84	0.921
week8	0.04	0.84	0.962

Table S8. The characteristics of the study population at baseline and week8 using dataset without MICE.

	GroupA (n=60)	GroupB (n=53)	P-value
Baseline (week0)			
Age (years)	62.4 (11.3)	63.5 (10.8)	0.67
Sex			
Men	15 (25%)	20 (38%)	0.16
Women	45 (75%)	33 (62%)	
Medicine			
Third-generation TKIs	40 (67%)	30 (56%)	0.53
First/Second-generation TKIs	11 (18%)	13 (25%)	
Monoclonal Antibodies	9 (15%)	10 (19%)	
Dermascope Score	5.2 (2.9)	4.7 (3.1)	0.15
WCSC (microSiemens)	26 (21)	33 (38)	0.48
PH	5.58 (0.60)	5.32 (0.53)	0.05
Xerosis Grade (CTCAE V5.0)			
Grade 1	1 (2%)	1 (2%)	0.48
Grade 2	15 (25%)	19 (36%)	
Grade 3	44 (73%)	33 (62%)	
Pruritus Grade(CTCAE V5.0)			
Grade 0	3 (6%)	5 (11%)	0.54
Grade 1	9 (17%)	8 (18%)	
Grade 2	24 (44%)	22 (49%)	
Grade 3	18 (33%)	10 (22%)	

DLQI	3.2 (5.7)	3.9 (6.1)	0.48
Itch Intensity score	5.8 (2.8)	5.4 (2.8)	0.54
Itch Duration score			
Grade 0	3 (6%)	5 (11%)	0.54
Grade 1	28 (52%)	24 (53%)	
Grade 2	14 (26%)	7 (16%)	
Grade 3	8 (15%)	7 (16%)	
Last follow-up (week8)			
Dermascope Score	1.9 (2.8)	1.5 (1.7)	0.56
WCSC (microSiemens)	44 (30)	70 (67)	0.09
PH	5.36 (0.54)	5.10 (0.54)	0.01
Xerosis Grade (CTCAE V5.0)			
Grade 1	14 (23%)	18 (34%)	0.68
Grade 2	20 (33%)	17 (32%)	
Grade 3	10 (17%)	9 (17%)	
Pruritus Grade(CTCAE V5.0)			
Grade 0	10 (19%)	5 (11%)	0.40
Grade 1	16 (30%)	19 (42%)	
Grade 2	7 (13%)	8 (18%)	
Grade 3	7 (13%)	3 (7%)	
DLQI	2.1 (4.3)	1.9 (3.3)	0.90
Itch Intensity Score	2.9 (2.8)	3.1 (2.5)	0.47
Itch Duration Score			
Grade 0	10 (19%)	5 (11%)	0.58
Grade 1	24 (44%)	25 (56%)	

Grade 2	2 (4%)	3 (7%)	
Grade 3	4 (7%)	2 (4%)	

Data are presented as mean (standard deviation) except for qualitative variables, which were expressed as n (%).TKIs: Tyrosine Kinase Inhibitors; WCSC: Water Content Stratum Corneum; DLQI: Dermatology Life Quality Index.

Table S9. Linear mixed model showing the role of different predictors in skin-related measurements changes using dataset without MICE.

Predictor	Estimate	SE	P-value
Dermascope Score			
GroupB (ref: GroupA)	-0.20	0.36	0.574
Age	-0.02	0.01	0.094
Sex (ref: male)	0.16	0.26	0.542
Baseline value	0.56	0.04	<0.001
Time (ref: week0)			
week2	-1.23	0.41	0.003
week4	-2.49	0.32	<0.001
week6	-3.41	0.44	<0.001
week8	-3.49	0.33	<0.001
Interaction (GroupB $\times$ Time)			
week2	-0.42	0.60	0.482
week4	0.21	0.46	0.648
week6	0.48	0.61	0.428
week8	0.15	0.47	0.743
WCSC			
GroupB (ref: GroupA)	3.46	7.37	0.011
Age	-0.45	0.22	0.040
Sex (ref: male)	-2.71	5.27	0.608
Baseline value	0.57	0.08	<0.001
Time (ref: week0)			
week2	36.30	8.65	<0.001

week4	22.48	6.66	<0.001
week6	31.58	9.11	<0.001
week8	19.23	6.79	0.005
Interaction (GroupB × Time)			
week2	-18.73	12.53	0.136
week4	-11.19	9.58	0.244
week6	3.16	12.74	0.804
week8	16.97	9.74	0.083
pH			
GroupB (ref: GroupA)	-0.13	0.09	0.124
Age	0.00	0.00	0.748
Sex (ref: male)	0.02	0.06	0.766
Baseline value	0.41	0.05	<0.001
Time (ref: week0)			
week2	-0.43	0.10	<0.001
week4	-0.24	0.08	0.003
week6	-0.25	0.11	0.021
week8	-0.19	0.08	0.022
Interaction (GroupB × Time)			
week2	0.09	0.15	0.561
week4	-0.07	0.12	0.567
week6	0.01	0.15	0.952
week8	-0.06	0.12	0.630
Itch-intensity score			
GroupB (ref: GroupA)	-0.11	0.45	0.814

Age	-0.01	0.01	0.519
Sex (ref: male)	0.36	0.36	0.318
Baseline value	0.57	0.06	<0.001
Time (ref: week0)			
week2	-2.49	0.48	<0.001
week4	-2.84	0.38	<0.001
week6	-3.20	0.53	<0.001
week8	-3.14	0.40	<0.001
Interaction (GroupB $\times$ Time)			
week2	1.00	0.76	0.190
week4	0.64	0.58	0.268
week6	0.14	0.82	0.867
week8	0.78	0.59	0.186