

Supplementary Online Content

Khalil S, Bardawil T, Saade S, et al. Use of topical glycolic acid plus a lovastatin-cholesterol combination cream for the treatment of autosomal recessive congenital ichthyoses. *JAMA Dermatol*. Published online September 12, 2018. doi:10.1001/jamadermatol.2018.2904

eFigure. The cholesterol metabolic pathway and the cholesterol sulfate cycle

eTable 1. Scoring criteria

eTable 2. Baseline patient characteristics

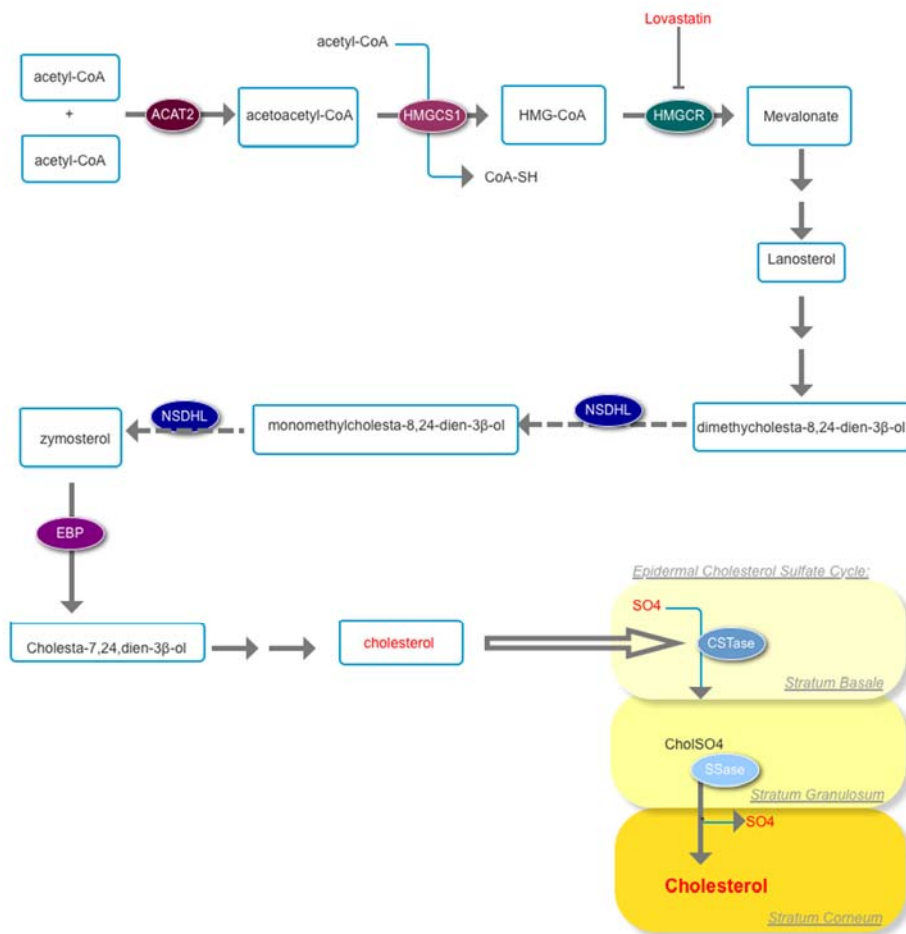
eTable 3. Severity score before, 2 months and 3 months after treatment

eTable 4. Response in patients who applied the combination of statin with cholesterol on the right side of the body only

This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure:

The cholesterol metabolic pathway and the cholesterol sulfate cycle: Synthesis of cholesterol starts with the condensation of two molecules of acetyl-CoA. The rate limiting step is catalyzed by HMG-CoA reductase, the enzyme targeted by statins. After being formed, cholesterol is sulfated by the enzyme cholesterol sulfotransferase (SULT2B1b) in the lower epidermis to form cholesterol sulfate. The latter is then de-sulfated by the enzyme steroid sulfatase (SSase) in the outer epidermis.



eTable 1: Scoring criteria

Criterion	Maximum Score
Skin thickness/ scaling	20
Pain/ Pruritis/ Discomfort	20
Erythema	20
Impact of the condition on the ability to perform daily functions	20
Patient severity scoring	20
Total score	100

eTable 2: Baseline patient characteristics

Patient ID	Gender
1	male
2	male
3	male
4	female
5	female
6	male
7	male
8	male
9	male
10	male
11	female
12	female
13	male
14	male
15	female

eTable 3: Severity score before, 2 months and 3 months after treatment.

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Average	Standard deviation
At Baseline																	
Skin thickness/ scaling	15	12	7	13	6	17	14	15	13	16	14	14	17	18	15		
Pain/ pruritis/ discharge	7	7	4	8	4	10	9	9	10	11	10	14	18	15	15		
Erythema	10	6	3	11	3	13	11	12	12	13	12	10	17	15	15		
Ability to perform daily functions	5	7	3	7	4	10	9	10	10	11	11	7	15	18	15		
Patient severity scoring	18	17	10	16	18	18	15	16	15	17	16	18	20	19	17		
Total score	55	49	27	55	35	68	58	62	60	68	63	63	87	85	77	60.8	
At 2 months																	
Skin	15	9	7	7	2	15	7	7	6	7	6	11	14	14	11		

thickness/ scaling																		
Pain/ pruritis/ discharge	6	6	3	3	3	9	4	4	5	5	5	12	18	10	12			
Erythema	8	6	2	8	2	13	6	5	5	6	5	10	16	10	11			
Ability to perform daily functions	5	5	3	3	1	10	4	4	4	6	6	5	13	8	10			
Patient severity scoring	17	17	10	7	9	17	7	7	8	9	7	10	15	8	12			
Total score	51	43	25	28	17	64	28	27	28	33	29	48	76	50	56	40.2		
% change	- 7.272 73	- 12.24 49	- 7.407 41	- 49.09 09	- 51.42 86	- 5.882 35	- 51.72 41	- 56.451 6	- 53.33 33	- 51.47 06	- 53.968 3	- 23.80 95	- 12.64 37	- 41.17 65	- 27.27 27	- 33.6784 8	- 20.29775 89	
Response	Mild	Mild	Mild	Good	Very good	Mild	Very Good	Very Good	Very good	Very good	Very good	Mild	Mild	Good	Mild	Mild		
At 3 months																		
Skin thickness/ s/	8	5	3	5	4	15	4	2	3	4	2	8	10	12	9			

scaling																		
Pain/ pruritis/ discharge	1	3	1	1	3	7	2	2	2	3	3	5	14	9	10			
Erythema	3	3	2	3	6	12	4	1	2	4	3	5	13	9	9			
Ability to perform daily functions	2	2	1	2	3	10	2	1	3	4	2	2	7	5	7			
Patient severity scoring	6	4	6	4	13	17	3	3	6	5	3	4	10	5	7			
Total score	20	17	13	15	29	61	15	9	16	20	13	24	54	40	42	25.8666 67		
% change	- 63.63 64	- 65.30 61	- 51.85 19	- 72.72 73	- 17.14 29	- 10.29 41	- 74.13 79	- 85.483 9	- 73.33 33	- 70.58 82	- 79.365 1	- 61.90 48	- 37.93 1	- 52.94 12	- 45.45 45	- 57.4732 4	- 21.95395 1	
	Very good	Very good	Very Good	Very good	Mild	Mild	Very good	Excelle nt	Very good	Very good	Excelle nt	Very good	Good	Very good	Good	Very Good		

eTable 4: Response in patients who applied the combination of statin with cholesterol on the right side of the body only

	1		2		3		4		6	
At Baseline	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
Skin thickness/ scaling	15	15	12	12	7	7	13	13	17	17
Pain/ pruritis/ discharge	7	7	7	7	4	4	8	8	10	10
Erythema	10	10	7	6	3	3	11	11	13	13
Ability to perform daily functions	5	5	7	7	3	3	7	7	10	10
Patient severity scoring	18	18	17	17	10	10	16	16	18	18
Total score	55	55	50	49	27	27	55	55	68	68
At 2 months										
Skin thickness/ scaling	15	15	10	8	7	7	8	7	15	16
Pain/ pruritis/ discharge	6	7	6	6	3	3	4	3	8	10
Erythema	9	7	6	6	3	2	9	8	13	13
Ability to perform daily functions	5	5	5	5	3	3	3	3	10	10
Patient severity scoring	17	17	17	17	10	10	8	6	17	17
Total score	52	51	44	42	26	25	32	27	63	66

% change	-5.4545	7.27273 ⁻	-12	-14.2857	-3.7037	7.40741 ⁻	41.818 ⁻	50.909 ⁻	7.35294 ⁻	2.94118 ⁻
Response	Mild	Mild	Mild	Mild	Mild	Mild	Good	Very Good	Mild	Mild
At 3 months										
Skin thickness/ scaling	9	7	6	5	4	2	6	5	14	16
Pain/ pruritis/ discharge	2	1	4	2	2	1	2	1	7	7
Erythema	4	3	4	3	2	2	4	3	13	12
Ability to perform daily functions/ to move	2	2	2	2	1	1	2	2	10	10
Patient severity scoring	8	5	5	3	7	5	5	3	17	17
Total score	25	18	21	15	16	11	19	14	61	62
% change	-54.545	67.2727 ⁻	-58	-69.3878	40.7407 ⁻	59.2593 ⁻	65.455 ⁻	74.545 ⁻	10.2941 ⁻	8.82353 ⁻
Response	Very good	Very good	Very good	Very good	Good	Very good	Very good	Very good	Mild	Mild