알레르기접촉 피부염의 진단과 치료

김 성 진

전남대학교병원 피부과

알레르기 접촉피부염

- 관련 통계/임상적으로 흔한 항원들
- 진단적 첩포검사
- 치료 원칙 (피부염증, 가려움증 조절)

알레르기 접촉피부염 (건강보험 진료통계)

의원 표시과목별 진료인원 | 의원 표시과목별 요양급여비용 | 의원 표시과목별 원외처방전수
의원 표시과목별 원외처방일수 | **다빈도 상병별 현황** | 악성신생물 상병별 현황
입원/외래별 노인 진료 청구 현황 | 건강보험 적용대상자 현황 | 건강보험 적용대상자 1인당 진료현황
연령별 건강보험 적용대상자 1인당 진료현황 | 진료항목 4대 분류별 요양급여비용 | 진료항목 4대 분류별 요양기관 종별요양급여비용

☐ 체크하시면 메뉴 선택 시 해당 창이 자동으로 닫힙니다.

심사년도 2021 조회

다빈도 상병별 현황(단위: 명, 원, 일)

구분	순위	코드	명칭	진료인원	인당진료비	인당입(내)원일수
입원	1	H25	노년백내장	376,535	1,695,173	1.65
	2	Z11	감염성 및 기생충성 질환에 대한 특수선별검사	351,944	166,594	5.13
	3	U07	U07의 응급사용	292,101	2,927,911	12.73
	4	M51	기타 추간판장애	232,164	1,665,092	7.32
	5	A09	감염성 및 상세불명 기원의 기타 위장염 및 결장염	229,152	1,039,550	4.39
	6	K64	치핵 및 항문주위정맥혈전증	152,780	1,224,063	2.52
	7	M75	어깨병변	133,536	2,599,395	8.04
	8	J18	상세불명 병원체의 폐렴	126,753	4,050,859	13.32
	9	M48	기타 척추병증	119,214	2,618,750	10.84
	10	M17	무릎관절증	117,666	6,882,709	20.67
외래	1	K05	치은염 및 치주질환	17,406,772	102,465	2.15
	2	J20	급성 기관지염	7,199,719	54,036	2.96
	3	I10	본태성(원발성) 고혈압	6,748,986	152,902	6.9
	4	K02	치아우식	6,360,105	90,577	1.74
	5	M54	등통증	5,403,645	174,557	4.4
	6	J30	혈관운동성 및 알레르기성 비염	4,910,256	46,428	2.36
	7	K21	위-식도역류병	4,851,741	69,316	2.16
	8	K29	위염 및 십이지장염	4,810,865	60,720	1.78
	9	L23	알레르기성 접촉피부염	4,356,642	36,173	2
	10	H10	결막염	3,915,653	42,325	1.68

설명
- ▶2021년 1월 ~ 12월 건강보험 심사결정분 자료 (한방, 약국 제외)
- ▶'진료인원'이 많은 입원·외래별 10대 상병(3단상병, 주상병) 기준
- ※ 다만, 입원 10순위 중 "출산장소에 따른 생존 출생(Z38)"이 발생하였으나, 동 상병은 질병과 직접적인 관련이 적어 제외하고 차순위 상병 추출
- ▶인당 진료비: 요양급여비용 / 진료인원
- ▶인당 입(내)원일수: 입(내)원일수 / 진료인원
- ▶동 자료는 건강보험 심사청구자료로 비급여에 대한 내역은 제외됨

알레르기 접촉피부염의 유병율

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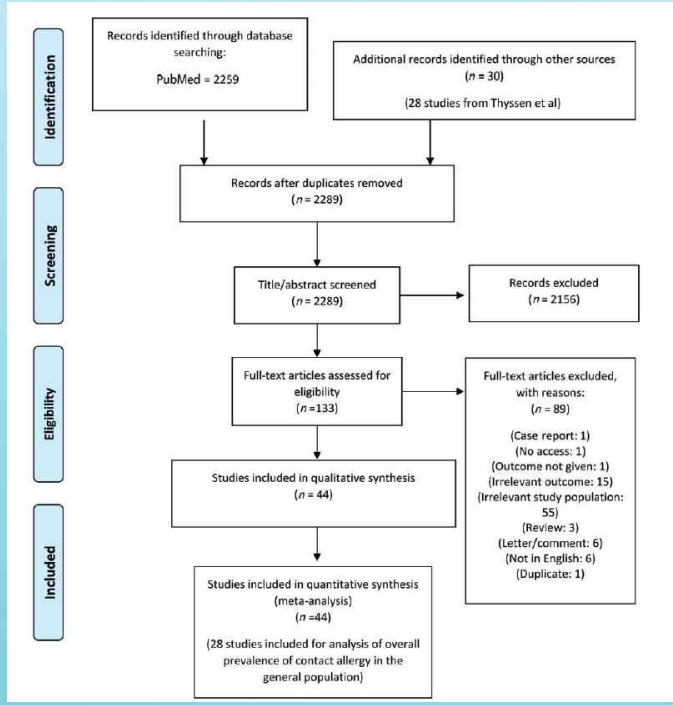
WILEY CONTACT DERMATITIS

REVIEW

Prevalence of contact allergy in the general population: A systematic review and meta-analysis

Farzad Alinaghi | Niels H. Bennike | Alexander Egeberg | Jacob P. Thyssen | Jeanne D. Johansen



2007년-2017년 보고된 자료대상 meta 분석

유병률은 약 20%

여성>남성

흔한 빈도의 유발 항원들:
- **Nickel,**
- **Fragrance mix,**
- **Cobalt,**
- **Peru balsam**
- **Chromium,**
- **Para-phenylene diamine (PPD)**

TABLE 1 Estimates of prevalence and heterogeneity according to different population characteristics

Group	Number of studies	Prevalence, % (95%CI)	I_2, % (95%CI)	Cochran Q
Overall prevalence of contact allergy in the general population				
All studies	28	20.1 (16.8-23.7)	97.1 (96.7-97.5)	941.3 (d.f. = 27) $P < 0.0001$
Adults	20	21.4 (17.0-26.0)	97.8 (97.5-98.0)	856.9 (d.f. = 19) $P < 0.0001$
Children and adolescents (<18 y)	9	16.5 (13.6-19.7)	85.2 (72.7-90.5)	54.1 (d.f. = 8) $P < 0.0001$
Men	12	13.2 (9.3-17.6)	93.1 (90.4-94.8)	160.6 (d.f. = 11) $P < 0.0001$
Women	12	27.9 (21.7-34.5)	96.4 (95.4-97.1)	305.9 (d.f. = 11) $P < 0.0001$
Boys	7	12.4 (8.6-16.8)	87.9 (76.7-92.4)	49.6 (d.f. = 6) $P < 0.0001$
Girls	7	19.0 (15.1-23.1)	83.5 (63.9-90.2)	36.3 (d.f. = 6) $P < 0.0001$
Continent (Europe)	21	19.5 (15.8-23.4)	97.4 (96.9-97.7)	759.5 (d.f. = 20) $P < 0.0001$
Continent (Europe—adults)	14	21.1 (16.1-26.6)	98.0 (97.7-98.3)	664.5 (d.f. = 13) $P < 0.0001$
Continent (Europe—children and adolescents)	7	15.4 (12.3-18.7)	86.4 (72.6-91.6)	44.1 (d.f. = 6) $P < 0.0001$
Continent (Europe—men)	15	11.5 (8.6-14.8)	92.4 (89.6-94.1)	183.2 (d.f. = 14) $P < 0.0001$
Continent (Europe—women)	15	24.0 (18.9-29.5)	96.4 (95.6-97.0)	390.2 (d.f. = 14) $P < 0.0001$
Region (northern Europe)	14	19.2 (15.8-22.8)	95.5 (94.3-96.4)	291.7 (d.f. = 13) $P < 0.0001$
Region (southern Europe)	5	21.0 (12.8-30.7)	96.5 (94.7-97.5)	113.6 (d.f. = 4) $P < 0.0001$
Continent (North America)	4	20.6 (9.2-35.2)	96.3 (93.9-97.5)	81.4 (d.f. = 3) $P < 0.0001$
Year published (1966-2007)	20	21.7 (17.3-26.5)	96.6 (95.9-97.1)	555.3 (d.f. = 19) $P < 0.0001$
Year published (2008-2017)	8	16.4 (11.5-22.1)	97.8 (97.2-98.2)	320.6 (d.f. = 7) $P < 0.0001$
Newcastle-Ottawa Scale (good quality)	8	18.4 (12.1-25.7)	98.9 (98.7-99.0)	619.8 (d.f. = 7) $P < 0.0001$
Newcastle-Ottawa Scale (fair or poor quality)	20	20.9 (17.2-24.8)	94.1 (92.5-95.1)	319.5 (d.f. = 19) $P < 0.0001$
Hapten-specific prevalence in the general population				
Nickel	44	11.4 (9.4-13.5)	97.0 (96.7-97.3)	1442.1 (d.f. = 43) $P < 0.0001$
Fragrance mix I	19	3.5 (2.1-5.4)	97.3 (96.9-97.7)	679.0 (d.f. = 18) $P < 0.0001$
Cobalt	24	2.7 (2.1-3.4)	82.8 (75.3-87.2)	133.5 (d.f. = 23) $P < 0.0001$
Myroxylon pereirae (balsam of Peru)	12	1.8 (1.0-2.7)	85.3 (75.5-90.0)	74.7 (d.f. = 11) $P < 0.0001$
Chromium	19	1.8 (1.3-2.6)	85.6 (78.9-89.4)	124.7 (d.f. = 18) $P < 0.0001$
p-Phenylenediamine	7	1.5 (1.0-2.1)	80.1 (52.7-88.7)	30.2 (d.f. = 6) $P < 0.0001$
Methylchloroisothiazolinone/ methylisothiazolinone	6	1.5 (0.8-2.5)	81.9 (54.2-90.0)	27.6 (d.f. = 5) $P < 0.0001$
Colophonium	11	1.3 (1.0-1.6)	24.4 (0-62.3)	13.2 (d.f. = 10) $P = .2$
p-tert-Butylphenol formaldehyde resin	10	1.2 (1.0-1.4)	0 (0-52.7)	5.6 (d.f. = 9) $P = .8$
Formaldehyde	11	1.2 (0.9-1.5)	37.9 (0-68.2)	16.1 (d.f. = 10) $P = .1$

Abbreviation: d.f., degrees of freedom.

흔한 유발 항원들과 성별 유병률 차이

TABLE 2 Prevalence of hapten-specific sensitization in total and by sex

Hapten	Individuals (*n*)	Prevalence of contact allergy overall, % (95%CI)	Prevalence of contact allergy in women, % (95%CI)	Prevalence of contact allergy in men, % (95%CI)
Nickel	34 102	11.4 (9.4-13.5)	15.7 (12.8-18.8)	4.3 (3.1-5.6)
Fragrance mix I	19 440	3.5 (2.1-5.4)	3.4 (2.0-5.2)	2.9 (1.6-4.6)
Cobalt	15 389	2.7 (2.1-3.4)	3.3 (2.5-4.2)	2.1 (1.3-3.0)
Myroxylon pereirae	8002	1.8 (1.0-2.7)	1.7 (0.9-2.9)	1.6 (0.8-2.8)
Chromium	13 250	1.8 (1.3-2.6)	1.7 (1.0-2.5)	1.7 (1.1-2.3)
p-Phenylenediamine	13 018	1.5 (1.0-2.1)	1.7 (1.0-2.6)	1.3 (0.9-1.8)
MCI/MI	7533	1.5 (0.8-2.5)	-	-
Colophonium	9923	1.3 (1.0-1.6)	1.8 (1.4-2.1)	0.9 (0.6-1.2)
Formaldehyde	7718	1.2 (0.9-1.5)	0.9 (0.6-1.2)	1.0 (0.7-1.5)
PTBP-FR	8810	1.2 (1.0-1.5)	1.3 (1.0-1.6)	1.3 (0.8-1.8)

Abbreviations: MCI, methylchloroisothiazolinone; MI, methylisothiazolinone; PTBP-FR, *p-tert*-butylphenol formaldehyde resin.

알레르기접촉피부염 환자에서 첩포검사 결과의 분석
- 동일기관에서의 10년 전 결과와의 비교

대한피부과학회지 2020;58(4):254~259

Table 1. Comparison of patch test results for standard allergens

	Allergen	KCDRG[a] (1983~1985) n=937		KCDRG[b] (1986~1993) n=2326		Previous study (2005~2008) n=676		Present study (2015~2018) n=360	
		%	Rank	%	Rank	%	Rank	%	Rank
1	Potassium dichromate	11.8	3	11.3	4	19.5	4	28.9	3
2	4-Phenylenediamine base (PPD)	7.3	5	3.4	10	9.2	9	18.3	6
3	Thiuram mix	3.2	11	2.6	13	4.9	14	3.6	17
4	Neomycin sulfate	7.6	4	7.2	6	8.6	10	5.6	12
5	Cobalt chloride	NA		13.8	2	22.8	2	38.6	2
6	Ammoniated mercury*	15.8	1	8.7	5	20.1	3	6.4	9
7	Nickel sulfate	12.9	2	17.9	1	32.5	1	43.9	①
8	Clioquinol	NA		NA		2.7	19	1.9	24
9	Colophony	NA		3.3	11	4.9	14	5.8	10
10	Paraben mix	3.4	10	2.5	14	7.2	11	5.3	13
11	IPPD**	NA		NA		2.4	21	5.3	13
12	Wool alcohol	3	13	3.3	11	5.6	13	3.3	19
13	Mercapto mix	2.3	15	2.2	18	4.6	16	4.4	15
14	Thimerosal (Merthiolate)	6.7	7	5.7	7	16.1	5	11.4	8
15	Balsam of Peru	7	6	4.7	9	10.9	7	24.2	4
16	PTBP***	1	16	2.4	15	3.7	17	5.8	10
17	Mercaptobenzothiazole (MBT)	NA		NA		2.5	20	4.2	16
18	Formaldehyde	4.4	9	4.8	8	6.4	12	3.3	19
19	Fragrance mix	NA		12.9	3	11.2	6	23.3	5
20	Imidzolidinyl urea	3.2	11	2.3	17	1.5	24	2.5	23
21	Quaternium 15	2.9	14	1.9	19	2.1	22	1.9	24
22	Captan	5	8	2.4	15	10.4	8	11.9	7
23	Cl+Me-isothiazolinone****	NA		NA		3.7	17	3.1	22
24	Budenoside	NA		NA		1.5	24	3.3	19
25	Tixocortol-21-pivalate	NA		NA		2.1	22	3.6	17

[a]Korean Contact Dermatitis Research Group. Ref 2, [b]Korean Contact Dermatitis Research Group. Ref 3, *Mercury ammonium chloride (mercuric amidochloride), **N-Isopropyl-N-phenyl-4-Phenylenediamine, ***4-tert-Butylphenolformaldehyde resin, ****Cl+Me-isothiazolinone (Kathon CG, 100 ppm), NA: Information not available

국내 보고된 자료대상 분석

유병률은 정확히 알 수는 없으나

흔한 빈도의 유발 항원들:
- Nickel,
- Cobalt,
- Potassium chromate,
- Peru balsam
- Fragrance mix,

국외 보고와 유사하지만 순위 차이

니켈

- Nickel sulfate hexahydrate; sulfuric acid, nickel (2+) salt, hexahydrate; nickel monosulfate hexahydrate; Blue salt; single nickel salt

- 금속 용접, 절단, 합금, 도금, 절삭 관련기구/공구 관련 업종, 화학 촉매 관련 건전지, 살충제,직물 인쇄, 정형외과 및 치과 기구, 교정기, 인공관절, 고정 기구
- 시계줄, 안경테, 쇠단추, 금속 장식, 동전, 면도기, 귀걸이, 지퍼, 열쇠, 가위, 마그넷(자석 부착물), 아이쉐도우, 14K 미만 보석(금, 백금), 크롬-브라스(니켈 및 동제품 검정 염색), 각종 금속 제품,
- 녹차, 홍차 > 초콜렛, 원두커피

코발트

- Cobalt dichloride hexahydrate; Cobalt (II) chloride-hexahydrate; Cobalt blue; Cobaltous chloride hexahydrate

- 단단한 금속 합금이나 텅스텐 고정, 유리, 윤활유, 가축 사료, 타이어, 연갈색 색소(머리 염색약), 코발트 블루(도자기, 유리), 색조화장, 문신 색소, 초록색 크레온/물감, 고형 비누, 스프레이 페인트/에나멜, 목재 가공, 건축용 블록
- 교차반응을 보일 수 있는 금속: 니켈, 크롬

크롬

- Chromate, Chromium, Chromium oxide, Potassium dichromate, Potassium bichromate, Chromic acid salts, Dichromic acid, dipotassium salt
- 크롬이 녹아서 크롬염 상태가 되면 문제가 생길 수 있는데, 그 중 6가 크롬(Cr^{6+} or Cr(III))이 3가 크롬(Cr^{3+} or Cr(VI))보다 알레르기를 더 잘 일으킨다.
- 시멘트, 스텐, 가죽 가공 작업, 페인트, 크롬 알로이(자동차 휠), 색조화장품, 비타민 보조제, 마스카라/아이쉐도우 색소, 반창고/접착제, 초록색 문신, 압력처리 목재, 탄화목 가공, 가정용 공구, 절삭유, 부식 방지제, 계면활성제, 배터리, 세라믹(도자기 포함), 드릴 머드, 판화, 종이, 지붕 재료

Peru balsam

- Myroxylon pereira라는 나무의 수액, 신나몬, 바닐라, 클로바향, 벤조익산 등의 다양한 향료 성분과 레진(수지)으로 구성

- 향료/향수, 베이비 파우더, 자외선 차단제, 헤어컨디셔너, 샴푸, 곤충 기피제, 외용 연고/크림, 에센셜오일, 아로마테라피 제품, 허브제품, 클렌저, 입술용 화장품, 속눈썹 포마드, 치질 좌약, 치과용 덴탈 시멘트, 타이거밤, 프로폴리스, 착향음료, 츄잉검, 와인, 향료가 들어간 알콜성 음료, 케이크, 향료 담배, 향기 양초, 공기 청정제, 냄새 제거제

Fragrance mix

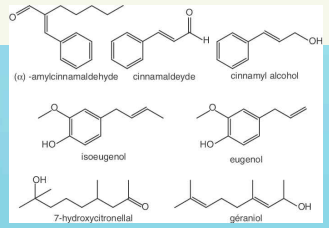
- Cinnamic alcohol, Cinnamic aldehyde, Laurine, 7-Hydroxydihydrocitronellal, Amylcinnamaldehyde, Geraniol, Eugenol, Isoeugenol, Oak moss 등 여러 종류의 합성물

Fragrance mix 1

Oakmoss absolute
Isoeugenol - floral smell
Eugenol - clove
Cinnamyl alcohol - hyacinth
Cinnamaldehyde - cinnamon
Hydroxycitronellol - lily of the valley
Geraniol - rose smell
Amyl cinnamaldehyde - jasmine

Fragrance mix 2

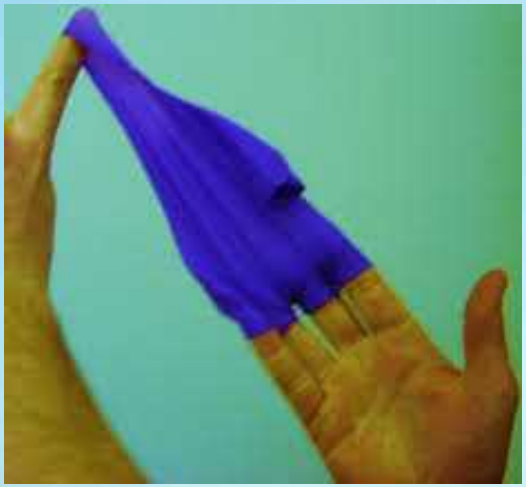
Lyral - floral (potent allergen)
Citral - lemon
Farnesol - floral
Coumarin -vanilla
Citronellal - lemon
Alpha-hexyl cinnamaldehyde - hyacinth

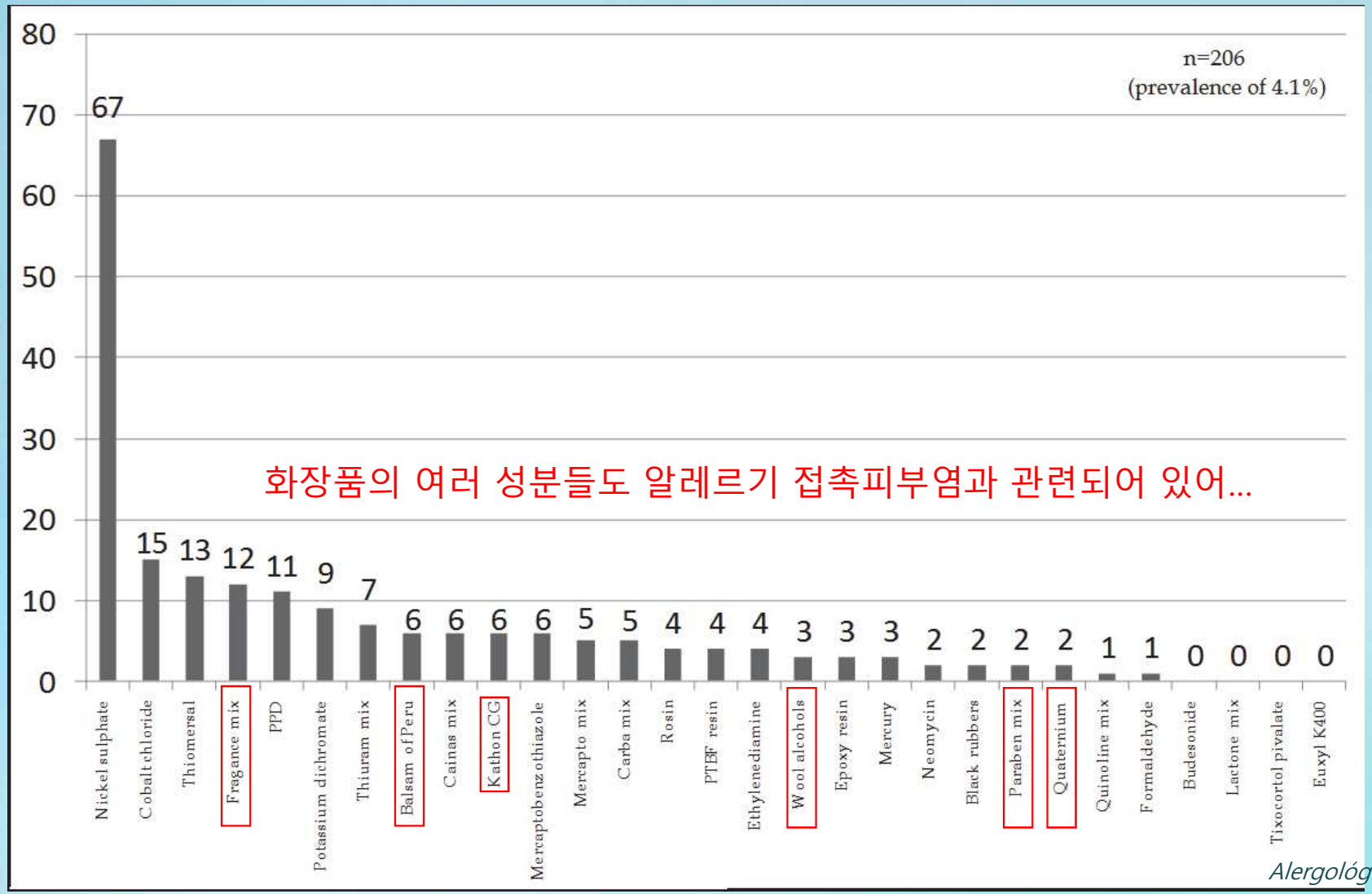


- 향료(Perfumes, colognes), 화장품(로션, 스킨, 메이크업 베이스, 파운데이션, 마스카라. 아이쉐도우, 샴푸, 린스, 무스, 에프터쉐이브, 립스틱, 립밤, 매니큐어 제거제, 스킨 케어 제품, 향료 제품(향양초, 향 휴지, 애완동물용품, 비누, 클렌저, 냄새 제거제, 치약, 가글, 개인 위생용품, 공기청향제, 아로마테라피 제품, 세제, 세탁용 첨가물, 살충제, 향담배), 향료 포함 음식/음료

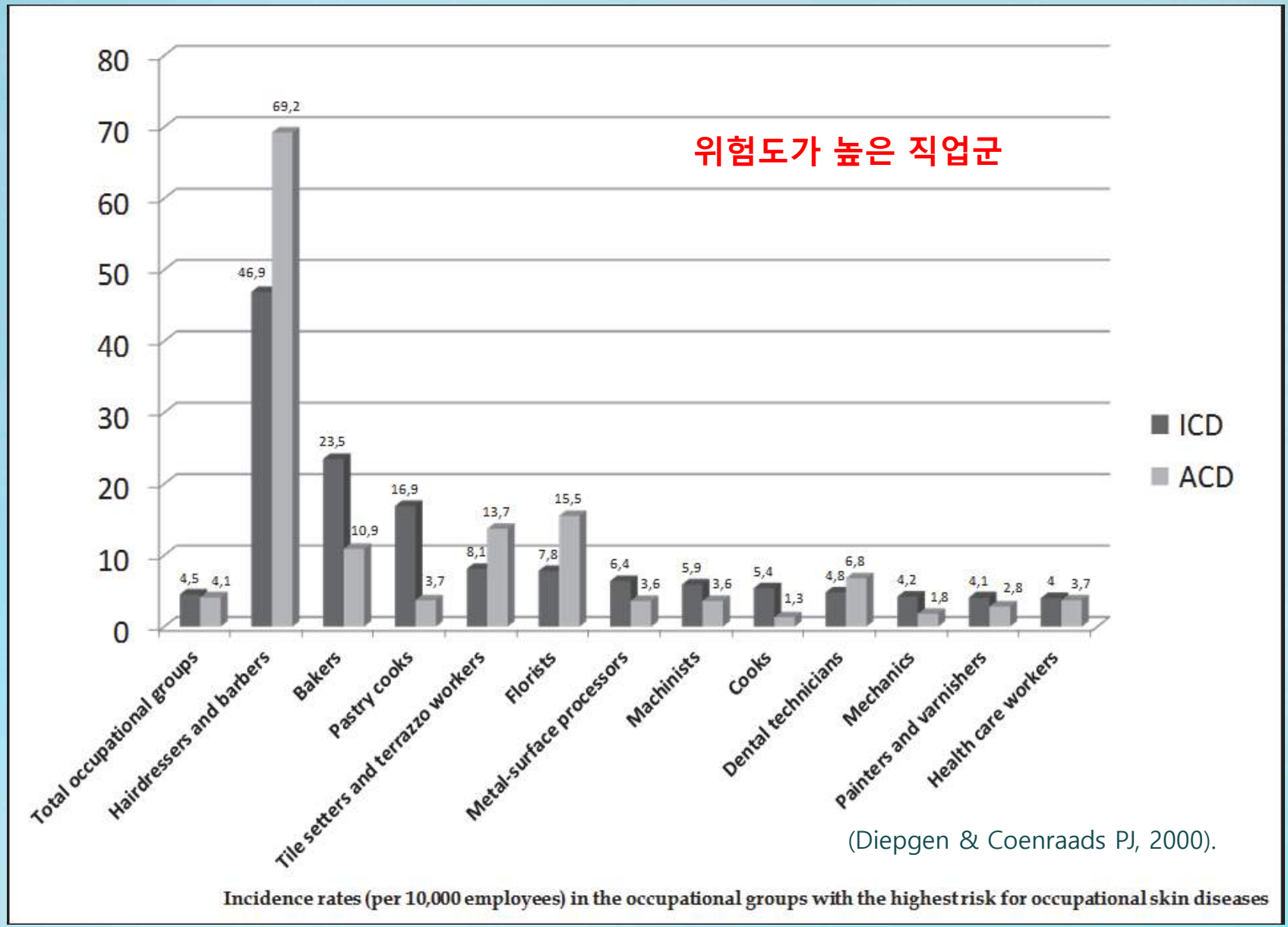
Allergic Contact Dermatitis의 임상양상

Allergic Contact Dermatitis의 임상양상





Alergológica-2005



(Diepgen & Coenraads PJ, 2000).

Incidence rates (per 10,000 employees) in the occupational groups with the highest risk for occupational skin diseases

접촉피부염 Contact dermatitis 분류

자극 접촉피부염

- 임상적 특징은 자극 물질이 직접 닿았던 부위에만 국한되어 손, 발, 얼굴, 귀, 가슴 등 신체 어디에서나 발생할 수 있음
- 강한 비누, 용매나 산이나 알칼리와 같은 특정성분 약품 자극성 화학물질

알레르기 접촉피부염

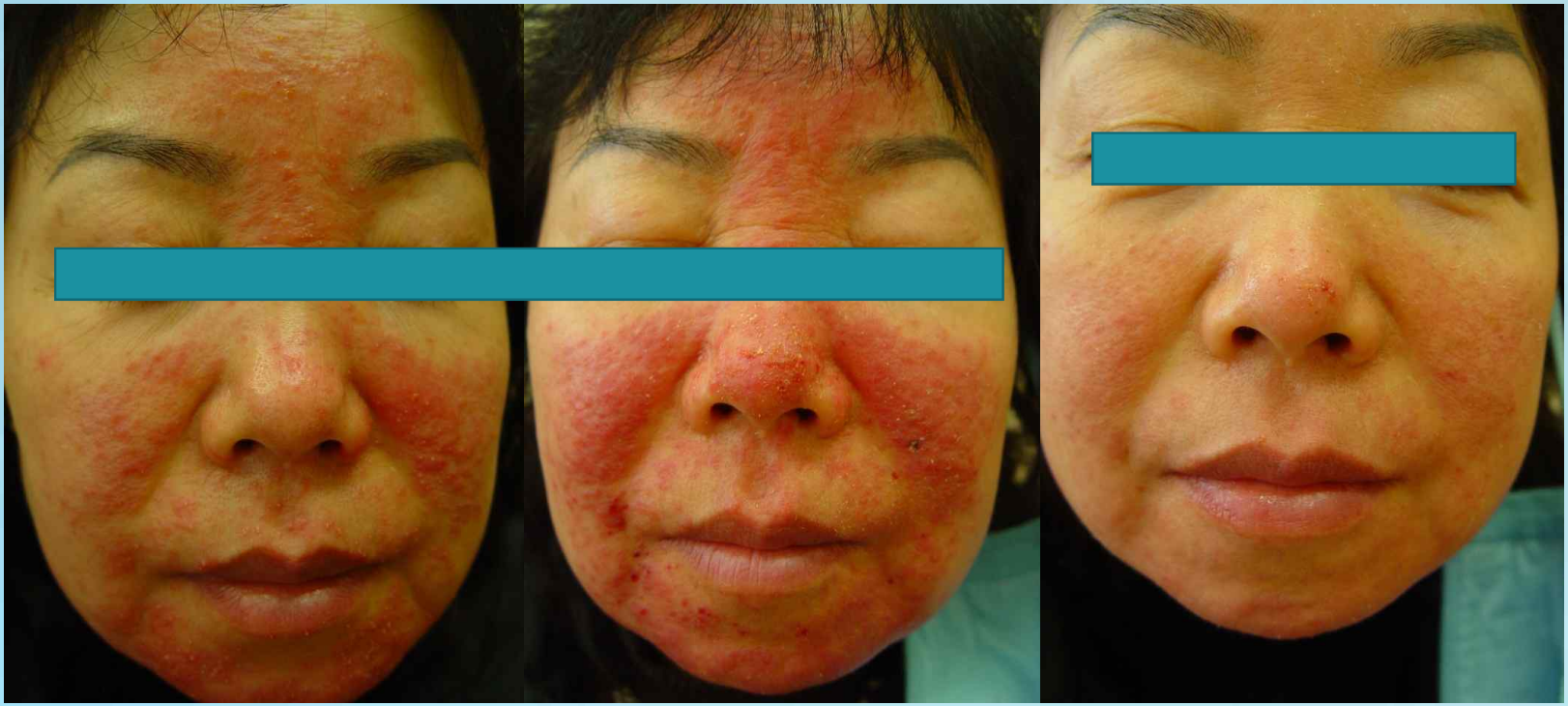
- 후천적 면역 반응으로 이전에 접촉한 적이 있는 어떤 항원에 감작된 사람이 동일 물질과 다시 접촉하면 나타나는 알레르기 반응
- 피부 증상은 접촉 후 며칠이 지난 후 가려움, 구진, 반점 등 다양하게 출현
- 식물(담쟁이덩굴, 오크, 옻나무 등)에 포함된 물질, 금속류에 함유된 니켈과 코발트, 피부 항생제 연고의 네오마이신, 가죽 구두나 의복의 무두질에 쓰는 칼륨중크롬산염, 장갑과 고무 의복에 있는 라텍스, 포름알데히드 같은 방부제류, 화장품의 특정 보존제 같은 원료성분

대표적으로 감별해야 할 피부질환 Irritant Contact Dermatitis

July 16. July 30.

피부개선용 화장품에서 흔히 관찰되는 이상반응: 자극성 접촉피부염

대표적으로 감별해야 할 피부질환 Irritant Contact Dermatitis



Apr. 13. Apr. 20. Apr. 27.

자극성 접촉피부염은 원인을 제거하면 대체로 빠르게 회복

Pathogenesis of Allergic contact dermatitis

- **THE SENSITIZATION (AFFERENT) PHASE**

- **THE ELICITATION (EFFERENT) PHASE**

- a delayed type hypersensitivity reaction elicited by the contact of the skin with the offending chemical in individuals who have been previously sensitized to the same chemical. $CD4^+$ and $CD8^+$ T cells, other cell types, such as natural killer T (NKT) cells and T regulatory cells, have emerged as critical participants
- Hapten binding is the initial step. Haptens are low molecular weight (<500 Daltons) chemicals that are able to penetrate the stratum corneum of the skin. Haptens are not immunogenic by themselves but can be efficiently recognized by the immune system after binding to a skin protein carrier.

Pathogenesis of Allergic contact dermatitis

- **THE SENSITIZATION (AFFERENT) PHASE**

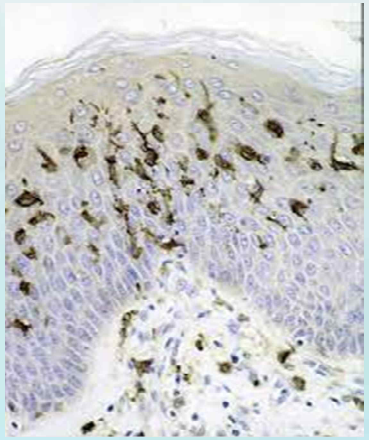
- **THE ELICITATION (EFFERENT) PHASE**

- In the clinically inapparent sensitization phase, Langerhans cells and dermal dendritic cells initiate an adaptive immune response by capturing, processing, and presenting antigens to naïve T cells in the paracortical areas of lymph nodes.
- In the elicitation phase, the clinical manifestations of ACD are the result of a T cell-mediated inflammatory reaction occurring in the skin upon re-exposure to the offending hapten and mediated by the activation of hapten-specific T cells in the skin. The primary effector cells of ACD appear to be $CD8^+$ cells

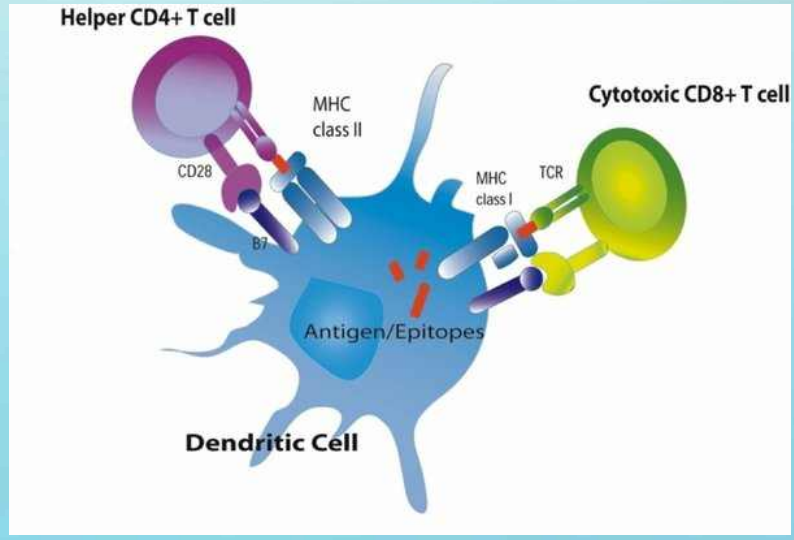
Cell types involved in ACD

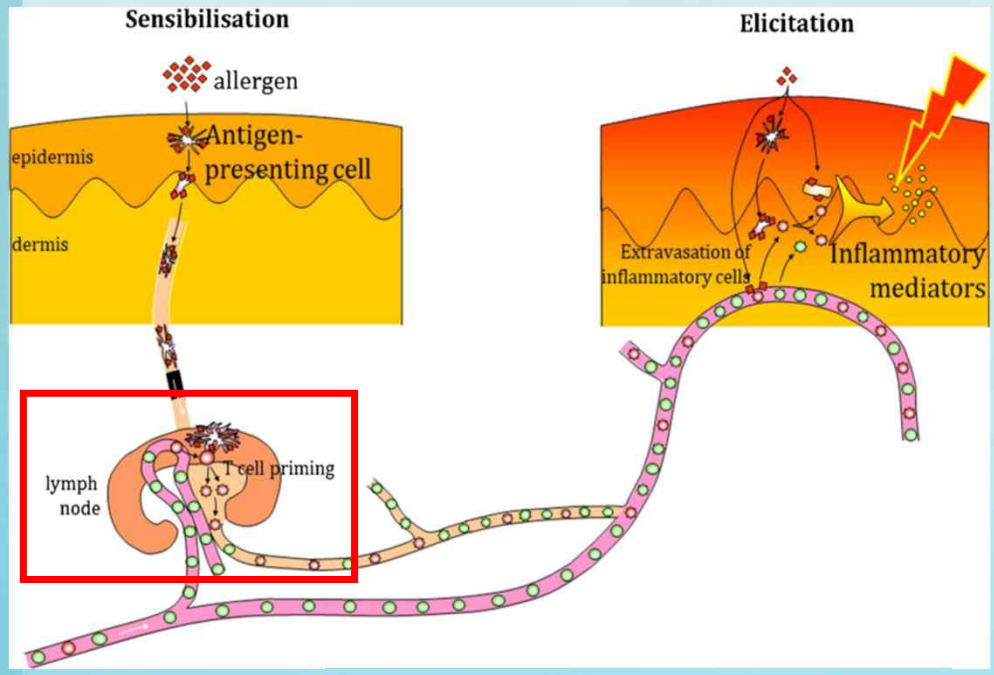
Cell type	Function in ACD
Langerhans cells	Originally thought to be the primary APC, they may also have a regulatory function. Other APCs, such as dermal DCs, may be involved in all phases of ACD.
Keratinocytes	Facilitate T cell infiltration into the epidermis by expressing specific receptors that bind to molecules located on T cell surface. They are involved in the initiation phase of ACD by producing cytokines that mobilize Langerhans cells to migrate and in the termination of ACD through tolerogenic antigen presentation and production of IL-10 and IL-16, which recruit T regulatory cells.
CD8+ T cells	Major effector cell in ACD and source of IFN-gamma production.
CD4+ T cells	Some experimental data support a role for Th1 memory/effector cells in ACD.
B-1 cells (a type of B cell)	Produce IgM antibodies in response to IL-4, leading to complement activation and leukocyte chemotaxis.
Invariant natural killer T cells	Respond to unidentified endogenous glycolipids after hapten exposure, which leads to IL-4 production to activate B-1 cells.
T regulatory cells	T cell subsets (CD4+, CD25high, Foxp3 transcription factor, CTLA-4+) that function to suppress the T cell-dependent inflammatory response seen in ACD and are critical to hapten tolerance.
Natural killer cells	Member of the innate immune system shown to exhibit memory and antigen specificity in a model of murine ACD.
Mast cells	Produce TNF-alpha, which induces DC migration; promote T cell infiltration through release of IL-3, induce T cell proliferation and activation; release mediators that promote inflammation; and may function in antigen presentation.

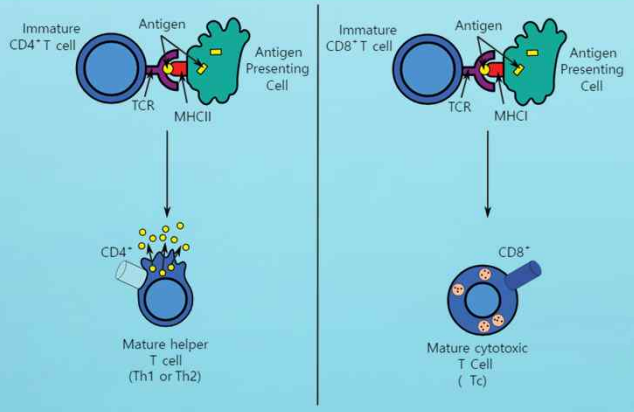
ACD: allergic contact dermatitis; APC: antigen-presenting cell; DC: dendritic cell; IL: interleukin; IFN: interferon; IgM: immunoglobulin M.

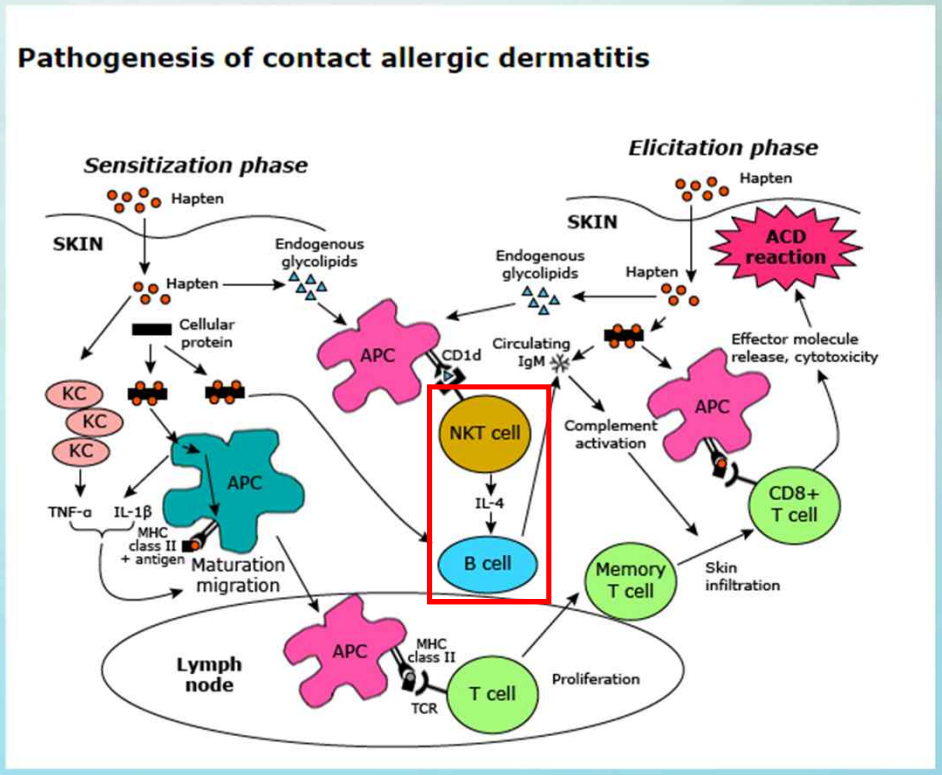


Langerhans cell









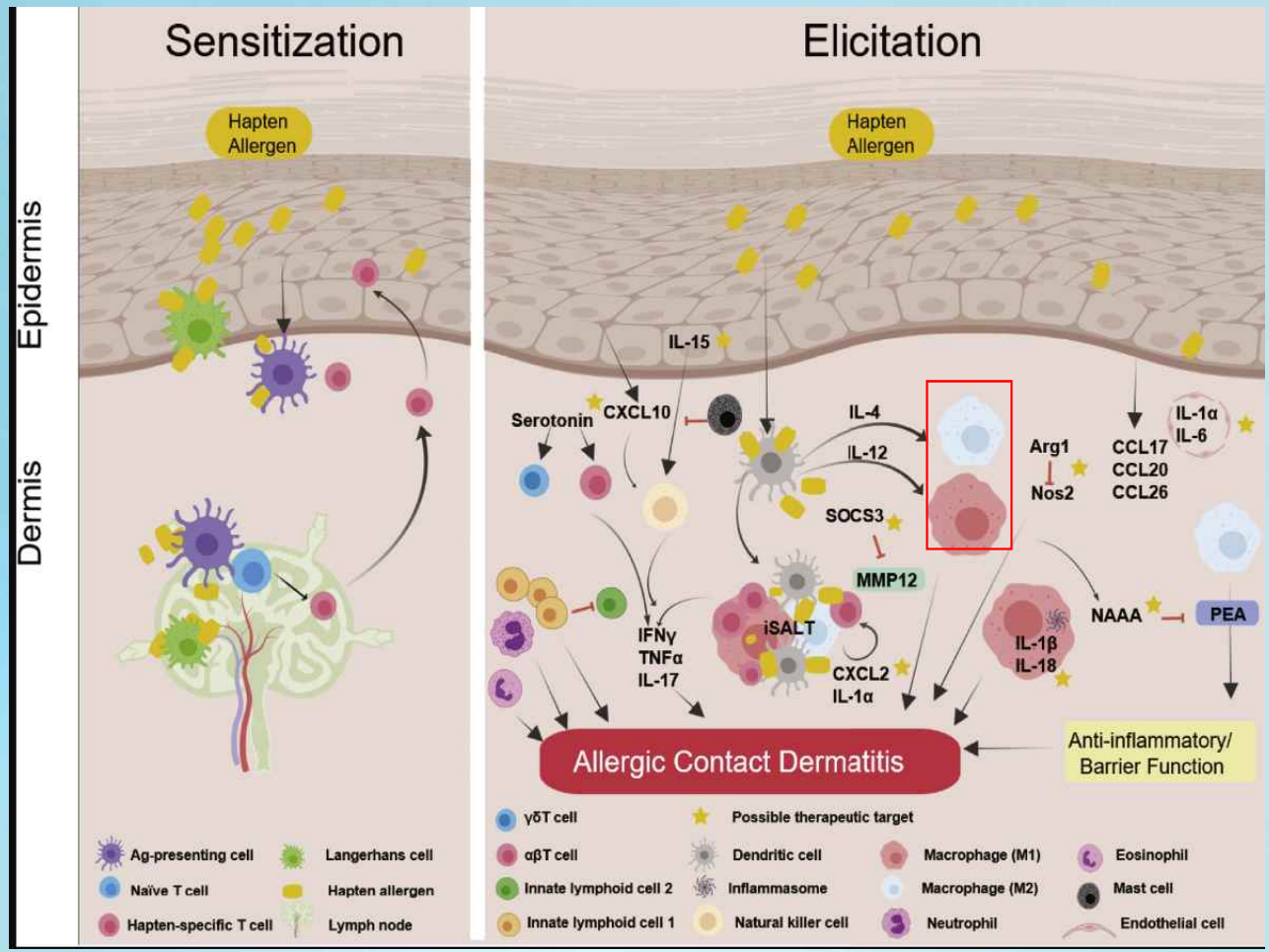
병태생리에 관여하는 염증세포들이 다양하게 조절되는 기전들이 근래에 개념적으로 조금씩 변화하는 양상

Pathogenesis of Allergic contact dermatitis

- **THE INNATE IMMUNITY**
- **REGULATORY MECHANISMS**

- The role of the innate immune system in allergic contact dermatitis (ACD) has traditionally been confined to the initial antigen sensitization phase.
- However, more recent findings have shown the role of innate immunity in the effector phase of the classic type IV hypersensitivity reaction.
- As a result, the precise immunologic mechanisms mediating ACD are more complex than previously believed.

Ever changing concept: examples

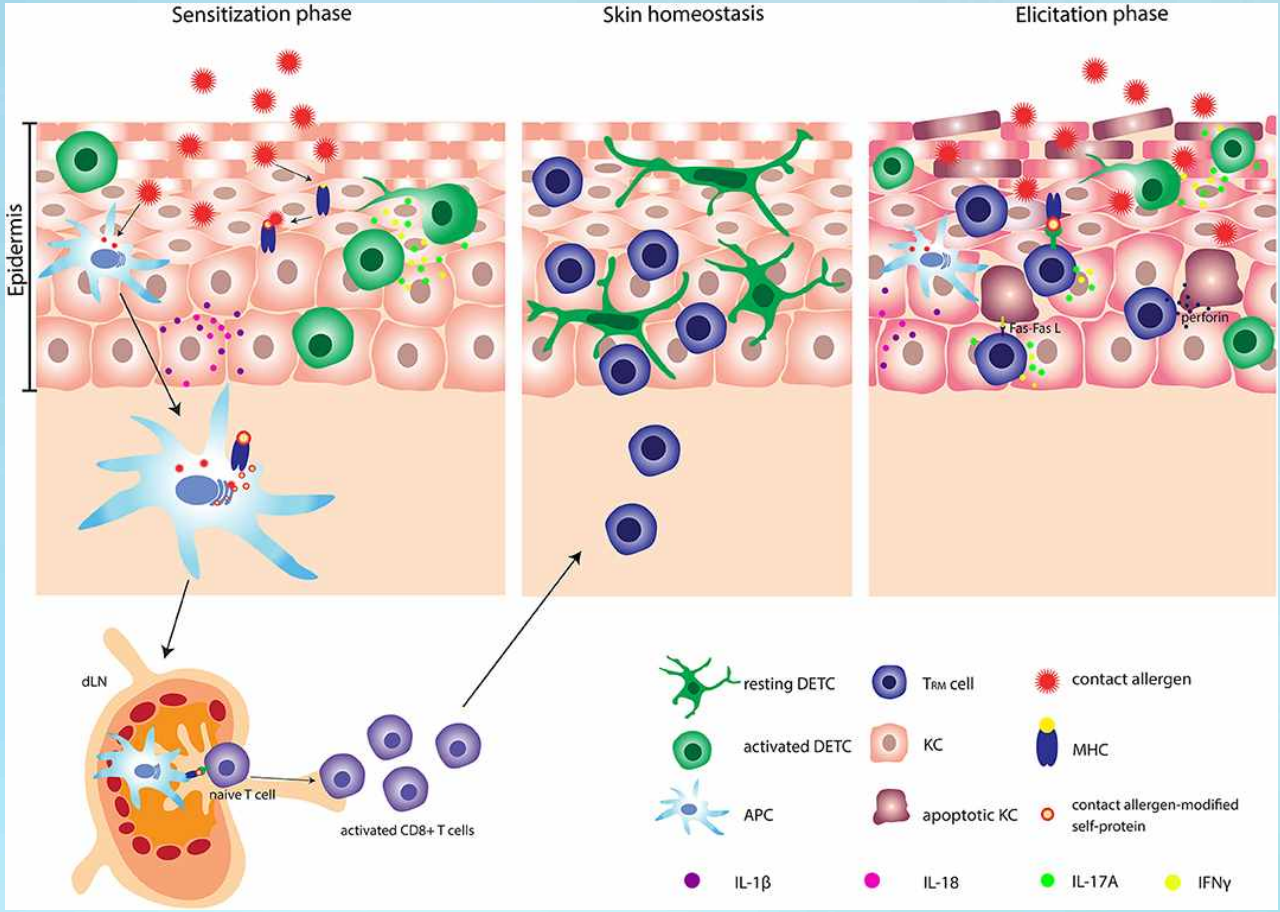


Integrated roles of innate immunity in the sensitization and elicitation phases of ACD.

NK cells modulate sensitization and stimulate the CHS response with the formation of T-cell clusters. The inflammatory milieu of ACD ultimately results in the activation of both M1 and M2 macrophages,

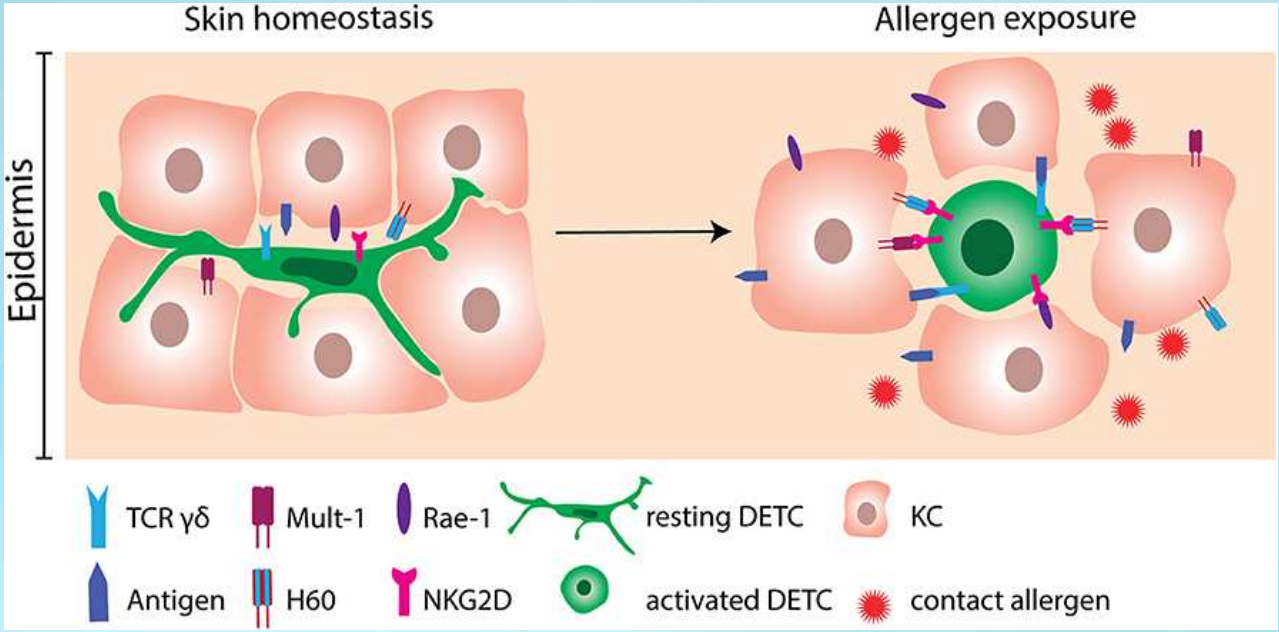
iSALT, inducible skin-associated lymphoid tissue;
MMP, matrix metalloproteinase;
NAAA, N-acylethanolamine acid amidase;
PEA, palmitoylethanolamide;

Ever changing concept: role of dendritic epidermal T cell



DETC, dendritic epidermal γδ T cell; APC, antigen presenting cell; T_{RM} cells, tissue-resident memory T cells; KC, keratinocyte.
Dendritic Epidermal T Cells in Allergic Contact Dermatitis. Front. Immunol., 19 May 2020

Allergen-induced activation of DETC is partly mediated by numerous allergen-induced stress proteins expressed on the keratinocytes (KC). Several stress proteins, like mouse UL-16-binding protein-like transcript 1 (Mult-1), histocompatibility 60 (H60) and retinoic acid early inducible-1 (Rae-1) α−ε family in mice and major histocompatibility complex (MHC) class I chain-related A (MICA) in humans, are upregulated on allergen-exposed KC.
Allergen-induced stress proteins expressed on the KC are consequently recognized by NKG2D receptor on DETC.



Dendritic Epidermal T Cells in Allergic Contact Dermatitis. Front. Immunol., 19 May 2020

Allergic Contact dermatitis 임상특징

- Contact sensitization has become a significant public health problem.
- In many parts of the world, more than 20% of the adult population is suffering from contact allergy.
- The profile of sensitizations may differ in each country.
- However, nickel sulphate is the most prevalent allergen (hapten) practically everywhere.

Epidemiology

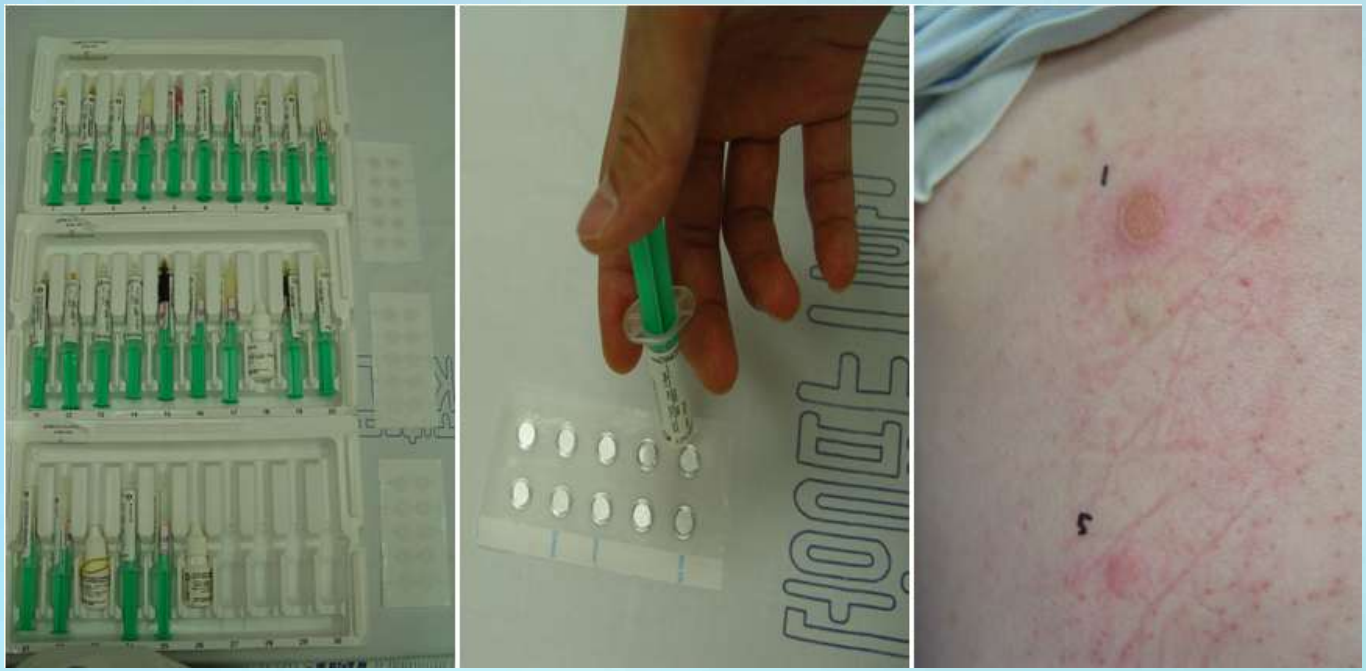
- Age/sex/race influenced by barrier function, exposure pattern etc.
- Ex, *ICD:/ Black < Caucacian < Asian
- Atopy history
- Occupation: ex, Hair dresser

- *ICD: irritant contact dermatitis

알레르기접촉피부염이 의심되는 경우

- 병력조사
- 유발관련 요인 평가 기록
- 진단적 검사 (CBC, IgE, etc)
- 첩포검사
- 양성반응결과는 임상적 유효성 (relevancy)과 함께 평가
- 예방적 주의사항 정보전달
- 추적관찰

첩포검사 patch test
(48h 후 96h까지 판독 지연형 피부면역반응도 관찰)



Korean Standard patch test; 에코덤 합텐항원류

Korean Standard Series KOR-1000

Print

Patch test record form

	Art.No	Name	Conc
1.	N-002A	Nickel(II)sulfate hexahydrate	5.0% pet
2.	W-001	LANOLIN ALCOHOL	30.0% pet
3.	N-001	Neomycin sulfate	20.0% pet
4.	P-014A	Potassium dichromate	0.5% pet
5.	M-022	Mercury(II)amidochloride	1.0% pet
6.	Mx-07	Fragrance mix I	8.0% pet
7.	C-020	COLOPHONIUM	20.0% pet
8.	I-001A	IMIDAZOLIDINYL UREA	2.0% pet
9.	C-015	Clioquinol	5.0% pet
10.	B-001	Peru balsam	25.0% pet
11.	I-004	N-Isopropyl-N-phenyl-4-phenylenediamine (IPPD)	0.1% pet
12.	C-017A	Cobalt(II)chloride hexahydrate	1.0% pet
13.	B-024	4-tert-Butylphenolformaldehyde resin (PTBP)	1.0% pet
14.	Mx-03C	Paraben mix	16.0% pet
15.	C-025	Captan	0.5% pet
16.	B-033B	Budesonide	0.01% pet
17.	C-009A	METHYLISOTHIAZOLINONE+ METHYLCHLOROISOTHIAZOLINONE	0.01% aq
18.	C-007A	QUATERNIUM-15	1.0% pet
19.	M-003A	2-Mercaptobenzothiazole (MBT)	2.0% pet
20.	P-006	p-PHENYLENEDIAMINE (PPD)	1.0% pet
21.	F-002A	FORMALDEHYDE	1.0% aq
22.	Mx-05A	Mercapto mix	2.0% pet
23.	T-007	THIMEROSAL	0.1% pet
24.	Mx-01	Thiuram mix	1.0% pet
25.	T-031B	Tixocortol-21-pivalate	0.1% pet

분류 - 전문희귀의약품

제조사
Chemotechnique
Sweden

수입공급회사
㈜ 에코덤
www.ecoderm.co.kr

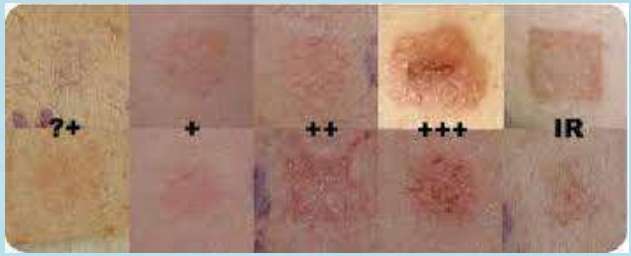
연락처
062-220-4120
blue805@hanmail.net

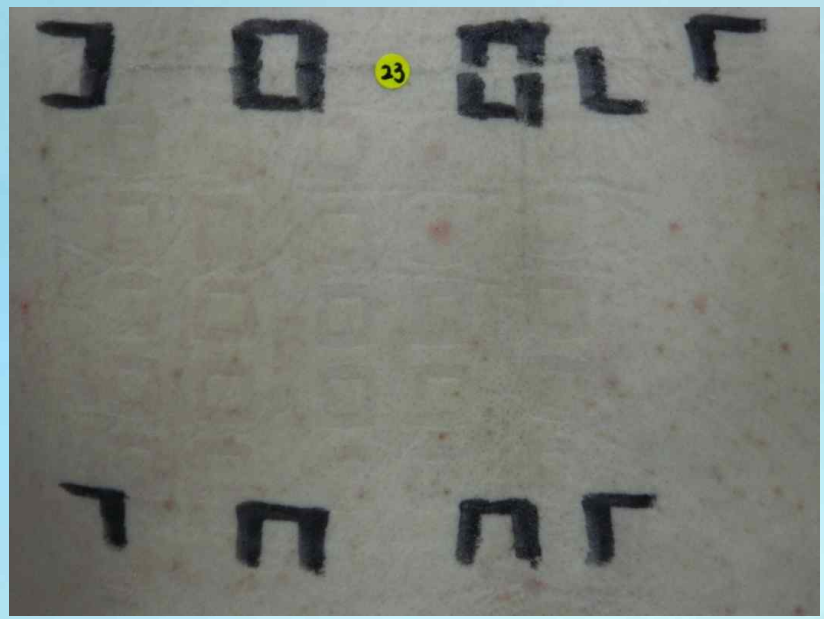
항원(합텐)

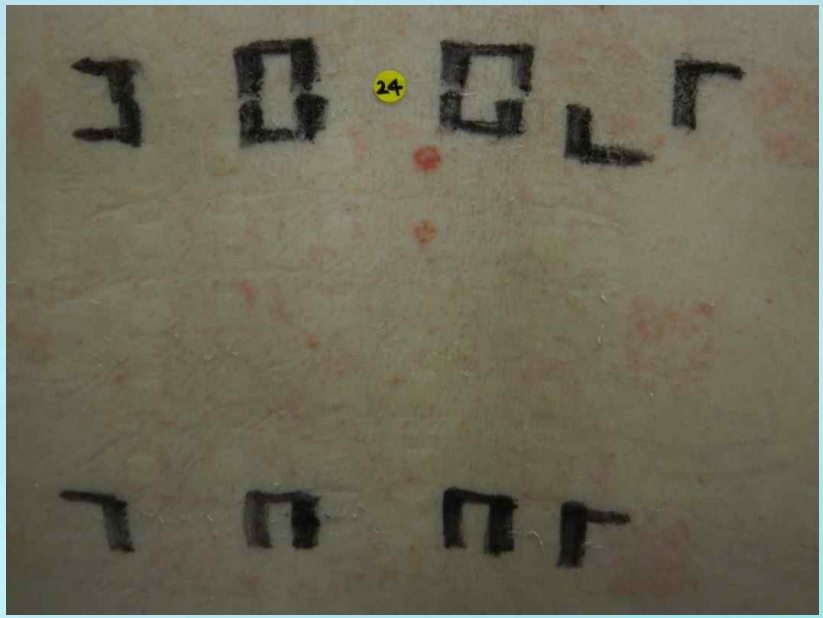
첩포 종류

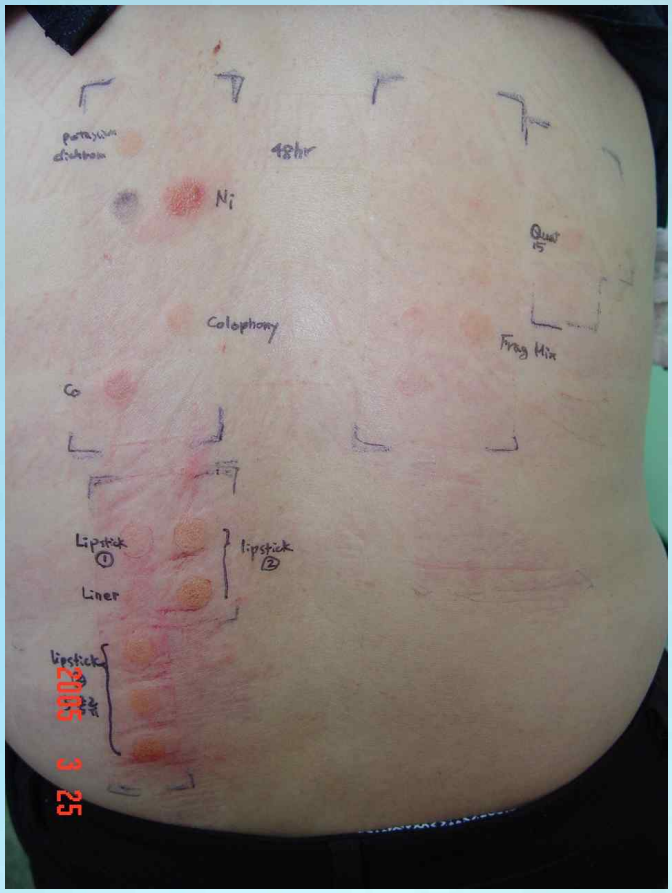
적용방식

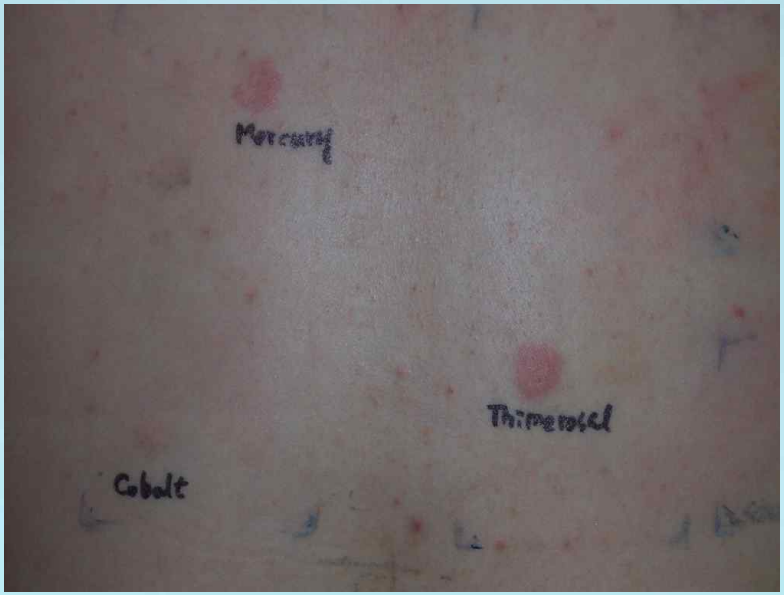
반응의 강도에 따라 ?, 1, 2, 3 순으로 기록





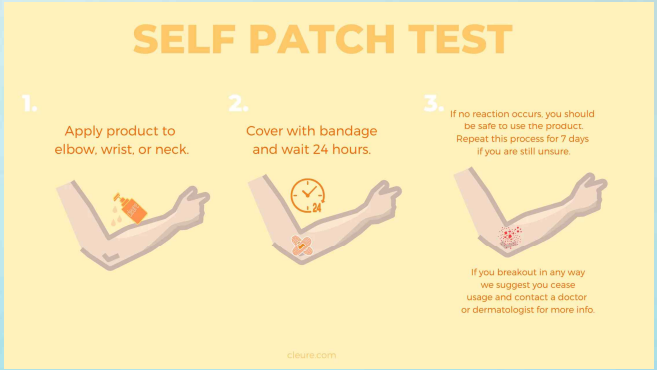



48hr
Ni
Colophony
Frag Mix
Co
Lipstick ①
lipstick ②
Liner
lipstick
2005 3 25


Thimerosol
Cobalt

알레르기 혹은 접촉자극물질의 자가 스크리닝

- Self “as is” challenge



알레르기 접촉피부염의 치료원칙

- 피부염의 염증 개선 (피부장벽기능 회복)

- 일반적인 치료방법 (증상개선)

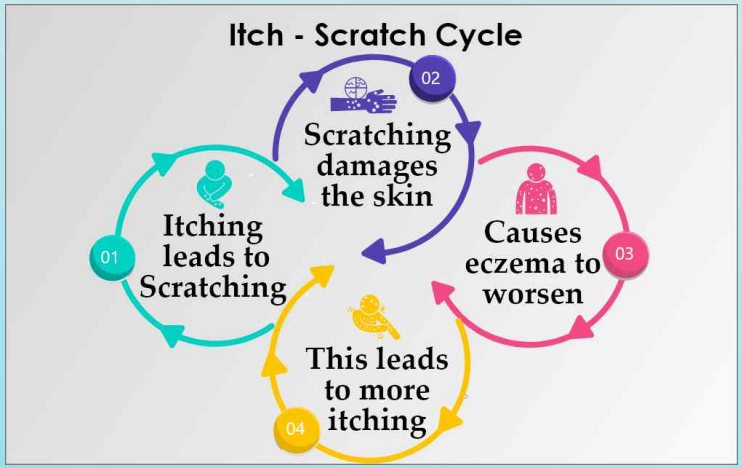
- 국소스테로이드/ 항히스타민제
- 필요시 전신 스테로이드 단기투여

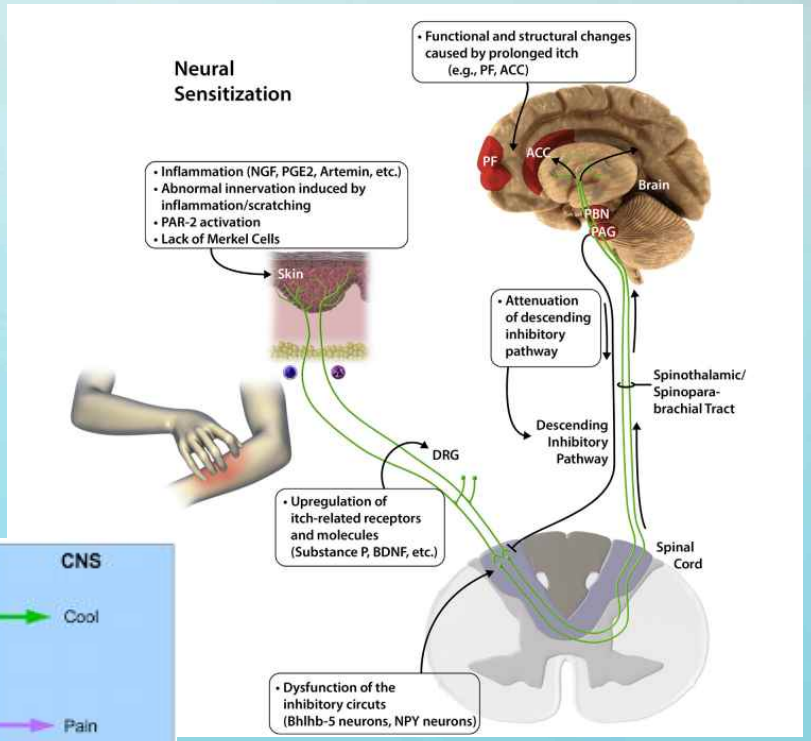
알레르기 접촉피부염의 치료동향

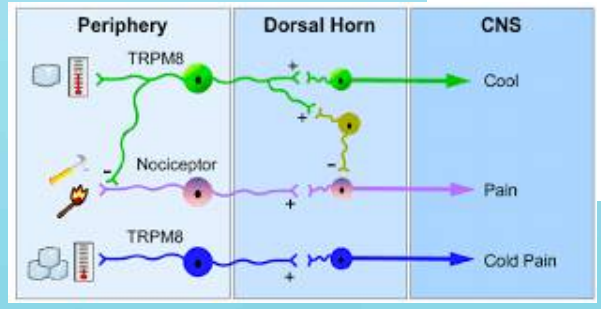
- 비스테로이드성 면역조절제들이나 습진에 관련된 신약개발 동향

알레르기 접촉피부염의 치료원칙

항히스타민에 듣지 않는 가려움증의 전달과 조절 가능한 방법







Topical TRPM8 Agonist (Icilin) Relieved Vulva Pruritus Originating From Lichen Sclerosus et Atrophicus

Jung Hyun Han[1], Hoo-Kyun Choi[2] and Seong J. Kim[1]*

*[1]Department of Dermatology, Chonnam National University Medical School, 8 Hak-Dong, Dong-Gu, Gwangju, 501-757 and [2]BK21 Project Team, College of Pharmacy, Chosun University, Gwangju, Korea. *E-mail: seongkim@chonnam.ac.kr*

Accepted July 27, 2011.

Pruritus vulvae is caused by a variety of skin diseases, as well as by neuropathic/neurological, psychosomatic and psychiatric diseases. It is difficult to determine the pathogenesis of itching symptoms over the vulval area, but ongoing inflammatory reactions, may be responsible for lowering the perception threshold of itching (1, 2).

A variety of topical treatments has been used to reduce genital pruritus, including menthol, camphor, tannin preparations, local anaesthetics, antiseptics, urea preparations, glucocorticosteroids, immunomodulators and N-palmitoyl-ethanolamine-containing cream (3). General advice for relief of pruritic symptoms include avoiding sweating and occlusion of the skin, and reducing potential irritative cleansing habits. Empirical observation supports the use of cold compression over the pruritic skin lesion to relieve unpleasant nociception, such as itch and sensation of heat. Thus, local cooling sense evoked by TRPM8 activation can give a wisdom of controlling pruritus as shown in this case.

Fig. 1. Excoriated whitish atrophic lichenified patch in the vulval area.

CASE REPORT

A 54-year-old woman was referred from the department of gynaecology due to uncontrolled itching over the vulval area, which had persisted for one year. She had a history of total hysterectomy for stage T1aN0Mx endometrial carcinoma 3 months previously, but the ongoing itching sensation had not changed after surgery. Physical examination revealed a genital lesion with excoriated lichenification on whitish atrophic linear patches along the labia major (Fig. 1). The patient had been screened for psychiatric disorders such as depression, anxiety, delusion and obsessive compulsive disorder, but no reliable association was revealed.

We asked her to report the itch intensity in several occasions using a visual analogue scale (VAS) (range: 0 = none to 10 = extreme). Her response was always 9. Laboratory test results, including white blood cell counts, and kidney and liver functions, iron and glucose levels, were all within normal limits. Mycological examination and *Papanicolaou* test results were negative or non-contributory. Skin biopsy was performed and histopathology revealed a thin epidermis with a wide band of hyalinization in the upper dermis mixed with lymphohistiocytic infiltrates suggesting a typical pattern of lichen sclerosis et atrophicus (Fig. 2).

Various topical agents, such as glucocorticoids, antifungal, oestrogen cream, including intralesional triamcinolone injection were all ineffective. The patient reported paroxysmal itching symptoms, sometimes related to sleep disturbance, thus we looked for a new agent that could directly affect the itching afferent sensory perception. Menthol is a well-known TRPM8 receptor agonist, which has been used as an additive in topical formulations to evoke a fresh cooling sensation. However, menthol is somewhat irritating in a high concentration and its action time is very short. Icilin has been recognized to have a higher molecular affinity to the TRPM8 receptor and a longer action time than menthol. Thus we decided to use topical icilin (provided as a gift by Dr Edward Wei, Shasun Pharmaceutical, India) in this case. A range of formulations were studied using penetration kinetics on hairless mouse skin. We chose topical 1% icilin emulsion dissolved in benzyl alcohol, then mixed with gelling agent Lutrol® 127, which showed the most favourable penetration profile (Fig. 3).

The itching symptoms were significantly reduced for approximately 10 h after application of 1% icilin over the pruritic vulva area. The application was repeated twice a day and subjective

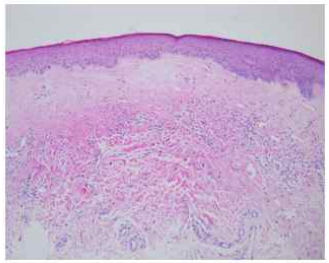
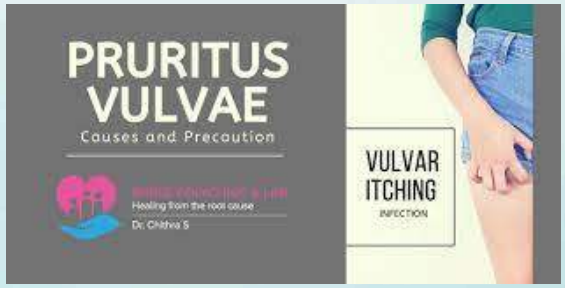
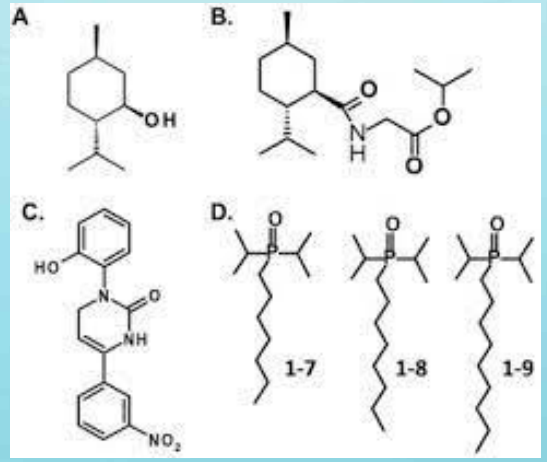


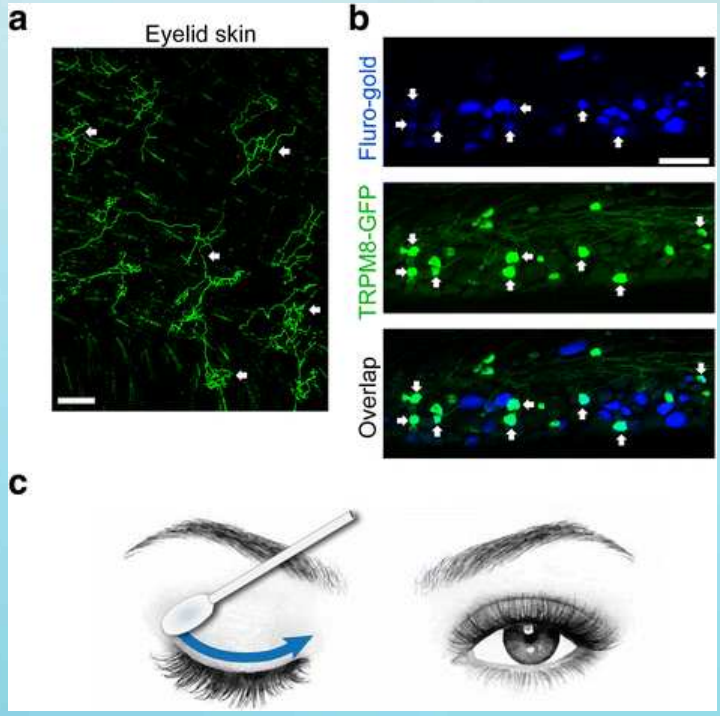
Fig. 2. Histopathological findings, showing thinning epidermal rete ridges and a wide band of upper dermal hyalinization with a scattered lymphohistiocytic infiltration (haematoxylin and eosin staining, original magnification ×100).

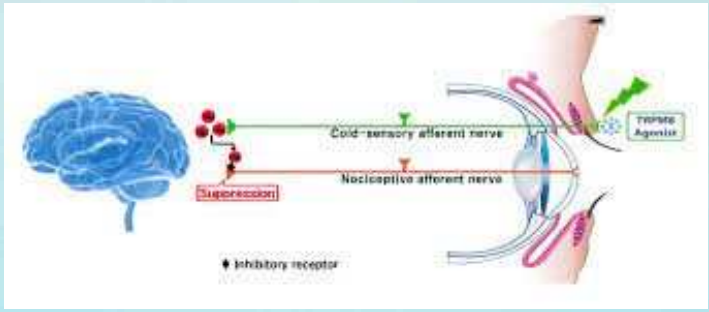


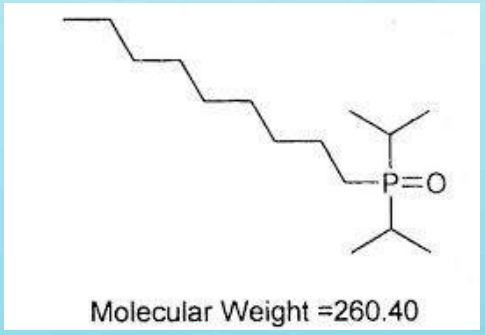


Cryosim 1,2,3

TRPM8 antagonist effect extended to dry eye symptom relieve







Could cool sensations from the eyelids and eye surface boost brain power?

- Our brains work best when the temperature around us is between 18 and 22°C. Any hotter than this, and productivity, motivation and short-term memory all begin to suffer. In exciting new work, Professor Edward Wei's group identified some molecules called cryosims, which can create a cooling effect without reducing body temperature. As well as treating conditions like dry eye discomfort, cryosims can improve brain power by triggering the brain to act as if it is in a cool environment.