

# The Risk Factors occurrence of contact dermatitis: a cross sectional study

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**Abstract.** Contact dermatitis is a disease that is most often found in the majority of cases dermatology. Several factors can be act as cause of contact dermatitis, therefore the researchers wanted to know the risk factors that contribute to the incidence of contact dermatitis. This work is an analytic observational studies conducted in RSUD Tugurejo hospitals of Semarang with cross sectional approach using total sampling method. In this work, primary data were taken from direct interviews and secondary data were derived from medical records. Data analysis using chi square test. Analysis of the 65 samples showed that there are a relationship between age ( $p = 0.004$ ), gender ( $p = 0.002$ ), history of atopic ( $p = 0.004$ ), irritants ( $p = 0.000$ ), duration of contact ( $p = 0.000$ ), and the location lesions ( $p = 0.000$ ) on the incidence of contact dermatitis. It can be concluded that there is a relationship between age, sex, history of atopic, irritants, contact time and location of the lesions on the incidence of contact dermatitis in Tugurejo hospitals of Semarang.

## INTRODUCTION

Contact Dermatitis is a disease mostly found 86% in the whole dermatology case . The dermatitis prevalence of Central Java in 2007 is around 8%, and dermatitis in Semarang City is around 3,5%. Furthermore, contact dermatitis disease prevalence in RSUD Tugurejo, Semarang is 85% in 2014, whereas irritant contact dermatitis is around 15% of the whole dermatitis contact case.

Contact dermatitis is a multifactorial skin disease, besides the exposure of allergen and irritant, which has some individual and environment factors that take a role in the disease development. Endogenous factor includes age, sex and atopic background and exogenous factors are irritant agent, and exposure period. There are many the contact dermatitis cases and the dermatitis cause factors, so it needs to do a research that aims to know the analyzing factors of contact dermatitis occurrence .

## RESEARCH METHODOLOGY

This research is a cross sectional research conducted in RSUD Tugurejo, January-December 2014. Sampling method is total sampling method. The sampling is the patient diagnosed contact dermatitis in poly RSUD Tugurejo, Semarang. The data is secondary and primary data which are medical record and interview. The variables of this research are age, sex, atopic profile, irritant agent, contact period and lesions location. The data analysis techniques is chi square test.

## THE RESULT OF RESEARCH

From 65 samples analyzed according to the age variable, it has been obtained that : 36 patients above 2 years old (55,4%), 36 woman patient (55,4%), 40 atopic background patient (61,5%). Moreover, there are 33 (50,8) patients exposed strong irritant agent, 40 patients (61,5%) with contact exposure period more than 24 hours, and 20 patients (30,8%) mostly located on hands. Meanwhile, there are 33 patients who get irritant contact dermatitis. (Table 1).

**Table 1.** Contact Dermatitis Sample Characteristic in RSUD Tugurejo

No	Characteristic	Frequency	%
1	Age		
	More than 2 years old	36	55.4%
	Less than 2 years old	29	44.6%
2	Sex		
	Man	29	44.6%
	Woman	36	55.4%
3	Atopic Background		
	Own	40	61.5%
	Not own	25	38.5%
4	Irritant Agent		
	Strong	33	50.8%
	Weak	32	49.2%
5	Contact Period		
	More Than 24 Hours	40	61.5%
	Less Than 24 Hours	25	38.5%
6	Lesions Location		
	Face	11	16.9%
	Neck	11	16.9%
	Hand	20	30.8%
	Leg	16	24.6%
	Other Body Part	7	10.8%
7	Contact Dermatitis		
	Irritant	33	50.8%
	Allergy	32	49.2%

From those analyzed factors, the result are as followed : above 2 years old ( $p=0,004$ ; CI:56-12,68), woman category ( $p=0,002$  ; CI:1,80-1529), atopic background ( $p=0,004$  ; CI:1,61-14,18), exposed strong irritant agent ( $P=0,000$  ; CI:0,01-0,15), getting exposure more than 24 hours ( $P=0,000$  ; CI:7,81-201,03), lesions location ( $p=0,000$  ; CI : 1,54-4,49) and it is the significant total toward contact dermatitis occurrence . The lesions location and irritant agent are the most influencing factors that totally cause contact dermatitis because the confidence interval score distance is the most narrow (Table 2).

**Table 2.** Risk Factor Relation toward Contact Dermatitis

No	Characteristi c	Contact Dermatitis		95% CI		P score
		Dki	Dka	Low	Up	
1	Age					
	More Than 2 Years old	24 (36,9%)	12 (18,5%)	1,56	12,68	0,004
	Less than 2 Years Old	9 (13,8%)	20 (30,8%)			
2	Sex			1,80	15,29	0,002

	Man	21 (32,3%)	8 (12,3%)			
	Woman	12 (18,5%)	24 (36,9%)			
3	<b>Atopic Background</b>					
	Own	26 (40%)	14 (21,5%)	1,61	14,18	0,004
	Not Own	7 (10,8%)	18 (27,7%)			
4	<b>Irritant Agent</b>					
	<b>Strong (Metal , Dangerous Chemical Material)</b>	<b>6 (9,2%)</b>	<b>27 (41,5%)</b>	<b>0,01</b>	<b>0,15</b>	<b>0,000</b>
	<b>Weak (Detergent, Baby Diapers)</b>	<b>27 (41,5%)</b>	<b>5 (7,7%)</b>			
5	<b>Contact Period</b>					
	More Than 24 Hours	31 (47,7%)	9 (13,8%)	7,81	201,03	0,000
	Less Than 24 Hours	2 (3,1%)	23 (35,4%)			
6	<b>Lesions Location</b>					
	<b>Face</b>	<b>10 (15,4%)</b>	<b>1 (1,5%)</b>			
	<b>Neck</b>	<b>11 (16,9%)</b>	<b>-</b>			
	<b>Hand</b>	<b>6 (9,2%)</b>	<b>14 (21,5%)</b>	<b>1,54</b>	<b>4,49</b>	<b>0,000</b>
	<b>Leg</b>	<b>2 (3,1%)</b>	<b>14 (21,5%)</b>			
	<b>Other Body Part</b>	<b>4 (6,2%)</b>	<b>3 (4,6%)</b>			

## DISCUSSION

It can be proven that age has a relation with contact dermatitis occurrence . There are mostly irritant contact dermatitis occurrence for 2 years old, whereas there are mostly allergy contact dermatitis occurrence in less 2 years old. This research matches toward Potts Ro research (2003) who stated that skin susceptibility toward irritant effect decreases coming along with aging which is caused by the reduction of skin barrier function.

Sex is proven that has a relation with contact dermatitis occurrence . For man, there are more irritant contact dermatitis occurrence and there are mostly allergic contact dermatitis occurrence for woman. It is appropriate to the former retrospective research in Surabaya.

Atopic background is proven that has a relation with contact dermatitis occurrence . Atopic background patient mostly get irritant contact dermatitis, whereas allergy contact dermatitis mostly happens to the patients who have not atopic background. This result is appropriate to former research which stated 43% allergic contact dermatitis patients have atopic background.

Irritant agent is proven that has a relation toward contact dermatitis occurrence . In strong irritant agent, patients mostly have allergic contact dermatitis and in patients of weak irritant agent mostly have irritant contact dermatitis. Weak irritant agent can reduce the risk factors of contact dermatitis compared to strong irritant agent. The result above is appropriate with Hudyono (200) who stated that skin which contacts with strong irritant chemical material continuously and long will cause susceptibility for workers from common phase until serious phase.

Contact period is proven that has a relation toward contact dermatitis occurrence . Patients exposed more than 24 hours will have irritant contact dermatitis, whereas patients exposed less than 24 hours will have allergic contact dermatitis occurrence . This result is appropriate with Irfan's research (2014), which stated that there is a relation between the period contact and contact dermatitis occurrence .

Lesions location is proven that it is related to contact dermatitis occurrence . Irritant contact dermatitis patients mostly get this disease on their faces and necks. Allergic contact dermatitis patients mostly have the disease on their hands and legs. Lesion location patients have irritant dermatitis contact on their around chest and whole of body. This result is appropriate to another research which stated that contact dermatitis is mostly found on hands.

## CONCLUSION AND SUGGESTION

Based on this research, it can be concluded that factors<sup>2</sup> which influence contact dermatitis among age, sex, atopic background, irritant agent, contact period and lesion location are statistically related to the contact dermatitis occurrence .

According to this research result, it can be informed the importance of self protection as the preventive effort from irritant agent such as, detergent, liquid body soap, sawdusts, and also other dangerous chemical material for skin.

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