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Cosmetovigilance in the Netherlands 2017–2018

RIVM Letter report 2019-0036
M. Woutersen



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Colophon

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Synopsis

Cosmetovigilance in the Netherlands 2017–2018

Cosmetics are in principle safe to use. In some cases, however, cosmetic products may lead to undesirable reactions, such as itching and erythema. In 2009, the RIVM set up a monitoring system in which participating dermatologists can register undesirable and allergic reactions caused by cosmetics: Consumer Exposure Skin Effects and Surveillance (CESES).

In the period under consideration, undesirable and allergic reactions mainly occurred on the face and hands after using make-up, skin/facial care and hair products. Most patients were diagnosed with contact allergy. Fragrances and (meth)acrylates were the ingredients causing most of the allergic reactions.

This report provides an overview of the 53 notifications received within CESES in the period October 2017–December 2018. Dermatologists carry out patch tests and, where necessary, tests on specific ingredients of the associated cosmetic products.

Fragrances are a diverse group of compounds that contains multiple well-known skin sensitizers. Fragrances were also amongst the most frequent sensitizers in previous years.

(Meth)acrylates are often used in nail products as monomers and harden after polymerization, for example after exposure to UV-light. The monomers are known sensitizers if they come into contact with the skin. The number of reactions to (meth)acrylates is higher than in previous years. About half of the allergy cases concerned professionals (eg. nail stylists), the other half concerned consumers.

In comparison with previous years, there was a reduction of the number of cases caused by isothiazolinones. This is likely to be caused by more stringent European legal restrictions on the use of methylisothiazolinone (MI) from the start of 2018.

Three cases of reactions to tattoos were notified. All three concerned red tattoos. The allergen could not be identified in any of these cases.

The Ministry of Health decided to discontinue CESES after 2018. In 2019 alternative ways to monitor adverse skin reactions to cosmetics, and possibly other consumer products will be explored.

Keywords: cosmetics, undesirable reactions, monitoring, cosmetovigilance, contact allergy

Publiekssamenvatting

Huidklachten door cosmetische producten in Nederland 2017-2018

Cosmetica zijn in principe veilig maar kunnen soms huidklachten veroorzaken, zoals roodheid en jeuk. Het RIVM beheert sinds 2009 een systeem waarin deelnemende dermatologen ongewenste en allergische reacties na gebruik van cosmetica kunnen registreren (CESES, Consumer Exposure Skin Effects and Surveillance). In het afgelopen jaar meldden de dermatologen vooral klachten op het gezicht en de handen na gebruik van make-up, huid- of gezichtsverzorgingsproducten en haarproducten. De meest gestelde diagnose is contactallergie. Geurstoffen en (meth)acrylaten veroorzaakten de meeste allergische reacties.

Dit blijkt uit een overzicht van de 53 meldingen die binnen CESES tussen 1 oktober 2017 en 31 december 2018 zijn afgerond. Om te bepalen welk ingrediënt de klacht veroorzaakt, voeren dermatologen bij deze patiënten een allergieonderzoek uit, indien nodig met specifieke ingrediënten uit het verdachte product.

Geurstoffen vormen een diverse groep stoffen. Relatief veel geurstoffen hebben allergene eigenschappen. Ook in vorige jaren werden veel gemelde klachten veroorzaakt door geurstoffen. (Meth)acrylaten worden veel gebruikt in nagelproducten. Ze vormen een hard laagje na polymerisatie, bijvoorbeeld na blootstelling aan UV-licht. De monomeren kunnen een allergie veroorzaken als ze in contact komen met de huid. Het aantal reacties veroorzaakt door (meth)acrylaten is hoger dan in voorgaande jaren. Ongeveer de helft van deze meldingen betrof klachten bij professionals door gebruik van nagelproducten (bijvoorbeeld nagelstylistes).

In vergelijking met voorgaande jaren zijn er minder meldingen van klachten veroorzaakt door isothiazolinonen. Dit komt waarschijnlijk door de aanscherping van de Europese Cosmetica wetgeving ter beperking van het gebruik van methylisothiazolinone (MI) met ingang van begin 2018.

Er zijn drie meldingen van reacties op tatoeages. In alle drie de gevallen ging het om een reactie op rode inkt. In geen van de gevallen kon het allergene bestanddeel worden gevonden.

VWS heeft besloten CESES eind 2018 te beëindigen. Onderzocht wordt of er een andere manier voor dermatologen is om ongewenste huidreacties veroorzaakt door cosmetica en mogelijk andere consumentenproducten te kunnen blijven monitoren.

Kernwoorden: cosmetica, huidklachten, monitoring, cosmetovigilance, contactallergie

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Summary

This report summarises the notifications received in the clinical route of the CESES project in the period October 2017 till December 2018. These notifications from dermatologists describe undesirable reactions attributed to the use of cosmetics under normal, foreseeable, circumstances. In this period, 61 cases were finalized, of which 3 concerned tattoos (these are not cosmetics) and 5 were not usable, leaving 53 case reports for further analyses. The tattoo cases were analysed separately.

Erythema, scaling and itching were the most often reported symptoms. Make-up, skin and hair products were the most reported product types and most of the reactions reported were on the face and hands.

Patch tests showed that fragrances and (meth)acrylates were responsible for the majority of the undesirable reactions (34% and 26% of the cases, respectively).

Fragrances are a diverse group of compounds that contains multiple well known skin sensitizers. As they are often tested as mixtures, they are presented as one group. Fragrances were amongst the most frequent sensitizers in previous years.

The number of reactions to (meth)acrylates is striking, as they were not reported often before. (Meth)acrylates are often used in nail products as monomers and harden after polymerisation. The monomers are known sensitizers if they come into contact with the skin. The SCCS recently concluded that there is no direct risk if these nail products are properly applied. However, they did note a concern for professionals. This is also seen in the CESES cases, half of which concerned professionals (nail stylists e.g.).

In comparison with previous years, there was a reduction of the number of cases caused by isothiazolinones. This is likely to be caused by more stringent European legal restrictions on the use of methylisothiazolinone (MI) from the start of 2018.

Three cases of reactions to tattoos were notified. All three concerned red tattoos. Unfortunately, the allergen could not be identified in any of these cases.

The Ministry of Health decided to discontinue CESES after 2018. In 2019 alternative ways to monitor adverse skin reactions to cosmetics, and possibly other consumer products will be explored.

1 Introduction

The Consumer Exposure Skin Effects and Surveillance (CESES) project was initiated by RIVM in 2009, at the request of the Netherlands Food and Consumer Product Safety Authority (NVWA) and the Ministry of Health, Welfare and Sport (VWS). The aim of the project is to monitor undesirable reactions attributed to cosmetics products. These monitoring data are used to gain insight into the incidence and prevalence of undesirable reactions to cosmetics and to assist in the identification of the specific products and product ingredients responsible for these reactions. This knowledge can in turn contribute to the regulation of cosmetics in the EU. A complete overview of the background and goal of the CESES project can be found in previous reports and in a scientific paper (Salverda-Nijhof et al. 2011; De Wit-Bos et al. 2012; Salverda et al. 2013).

This report provides an overview and discussion of the notifications obtained in the period 1 October 2017 – 31 December 2018. With one exception, all the notifications were also initiated in this period. As the public route for complaints on cosmetics is organized by NVWA, only dermatologist notifications will be discussed in this report. A short summary of the consumer complaints reported to NVWA is given in Chapter 2.

The dermatologists who reported undesirable reactions in the past two years are part of six participating dermatological centres. These centres comprise four academic hospitals (Erasmus MC, UMCU, VUMC and UMCG) and two peripheral hospitals (St Antonius Hospital and VieCurie Hospital).

Within the CESES project, an undesirable reaction is defined as any adverse effect attributed to the use of cosmetics under reasonably foreseeable conditions.

Due to increased interest in the incidence and causality of allergic reactions to tattoos, the option to report these reactions was included in the update of the questionnaire in August 2017.

2 Consumer complaints reported to the NVWA

A short summary is provided here of the consumer complaints relating to adverse health effects caused by cosmetics. These complaints were received by NVWA in 2018.

In this period, NVWA registered twenty complaints and four serious undesirable effects (SUEs, defined in the Cosmetics Regulation as 'undesirable effects which result in temporary or permanent functional incapacity, disability, hospitalisation, congenital anomalies or an immediate vital risk or death').

Remarkably, six of the twenty complaints concerned toothpastes. Five of the toothpastes fall under the regulation for medical devices, but have been reported as cosmetics in the questionnaire linking to the complaint. Most toothpastes are cosmetics, with the exception of toothpastes marketed for medicinal use, which can be recognised by a CE mark. It is noteworthy that toothpastes falling under medical devices were also the largest group of complaints in 2017 (Woutersen, 2018), however it is unclear whether these concern the same toothpastes. There is only one case report from the dermatologists of a reaction to probably tin fluoride in toothpaste, which was of the same brand as the one causing most complaints last year. However, the available information is too narrow a basis to identify the causal agent.

Other notifications by consumers concerned eye crème, hair dye, body crème, shampoo, perfume, makeup powder, nail hardener, sunscreen (2x), eyelash serum, lip-gloss, nail gel, and deodorant (2x).

Of the SUEs, three were skin reactions, of which two were caused by face crèmes and one by a facemask.

The fourth SUE was not a skin reaction, but relatively severe eye irritation caused by a hairstyling product that had leaked in the eyes when the hair got wet.

3 Overview of notifications from dermatologists

A general overview of the notifications by dermatologists finalized in the period October 2017– December 2018 is provided here.

The results are analysed in the following ways:

- A general analysis (Sections 3.1–3.5) of the information provided in all notifications (e.g. occupation, description of the undesirable reaction and product details).
- Results of patch tests with the European Baseline series and of the patch tests on cosmetic products and their batch-specific ingredients (Section 3.6–3.8).

3.1 Number of undesirable reactions

Between 1 October 2017 and 31 December 2018, dermatologists finalised 61 case reports of undesirable reactions. Of these 61 reports, 53 case reports on cosmetics were usable for further analyses (3 concerned only tattoos, which are not cosmetics, and 5 were not usable). The tattoo cases were analysed separately from the cosmetics.

Figure 1 shows the number of notifications initiated by dermatologists per month. Only one notification started before October 2017. Particularly remarkable are the high numbers of notifications at the end of 2017, which can be explained by the additional support provided at the VUMC for the notification of cases.

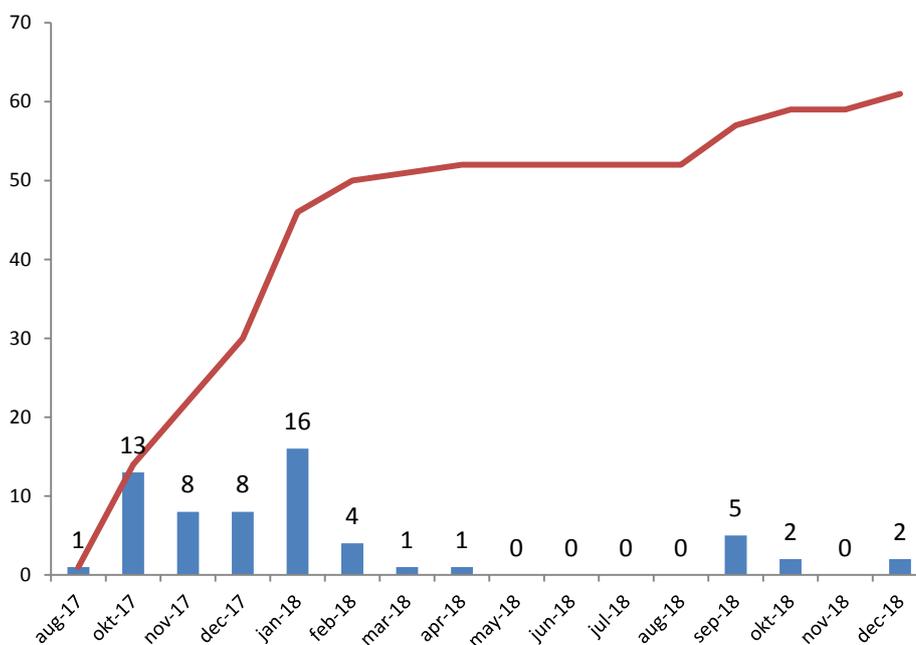


Figure 1: Number of notifications per month and cumulative numbers of notifications finalized between 1 October 2017 and 31 December 2018

3.2 Description of the undesirable reactions

The largest number of undesirable reactions occurred on the hands (20%, n=21), followed by the face (17%, n=18), and neck (15%, n=16) (Figure 2). This distribution is similar to earlier reports.

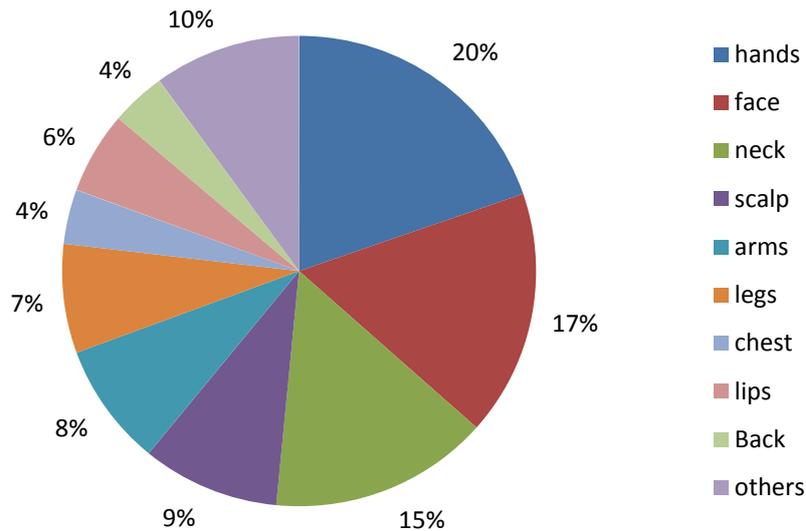


Figure 2: Reported location of undesirable reaction after cosmetics use in % (n=107). The category 'others' includes anogenital zone, abdomen, whole body, eyes and eyelashes, and armpits.

The reported symptoms included mainly erythema (26%, n=45), itching (22%, n=38), and scaling (20%, n=35). Vesicles (6%, n=11), burning sensation (5%, n=9) and plaques (5%, n=9) were the next most frequently reported symptoms (Figure 3). A severe reaction consisting of pain was observed in three cases (2%).

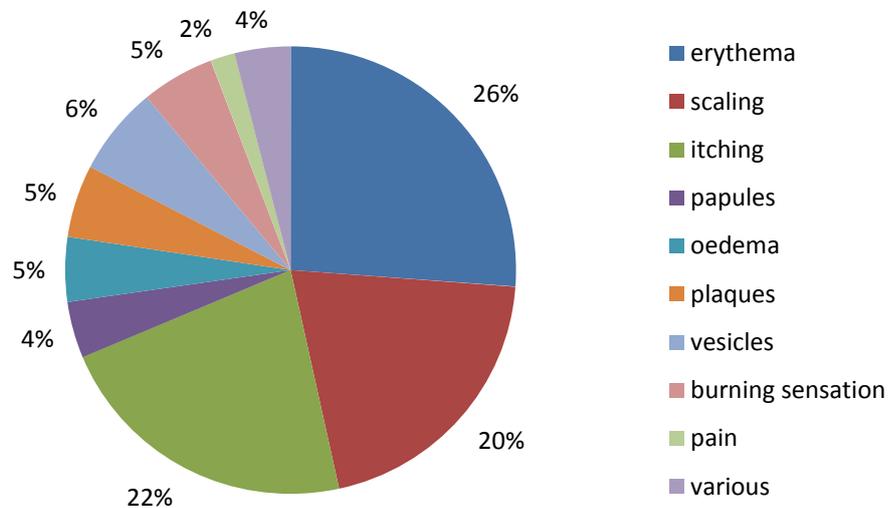


Figure 3: Reported symptoms of undesirable reaction after cosmetics use in % (n=172). The category 'various' includes bullae (fluid-filled sacs).

Most patients (82%, n=42) stated that they did not know when the undesirable reaction had started, and about a quarter of all patients were still suffering from the reaction when they visited the dermatologist. For 15% (n=6) it was not the first time they had an undesirable reaction to the respective cosmetics product.

3.3 Cosmetic products

For all patients, the dermatologists reported one or more cosmetic products as allegedly responsible for the undesirable reaction. They reported a total of 62 suspected products. The most frequently reported product categories were skin products (24%, n=15) and make-up (24%, n=15) followed by hair products (18%, n=11). Perfumes and sunscreen/tanning products were reported 6 times (10%), all other products a maximum of 3 times. See Figure 4 for an overview. Most of the reported skin products were body lotions and day/night creams. The make-up products were mostly nail products, in particular caused by acryl nails (12 out of 15 cases). The hair products were mostly hair dyes and to a lesser extent shampoos.

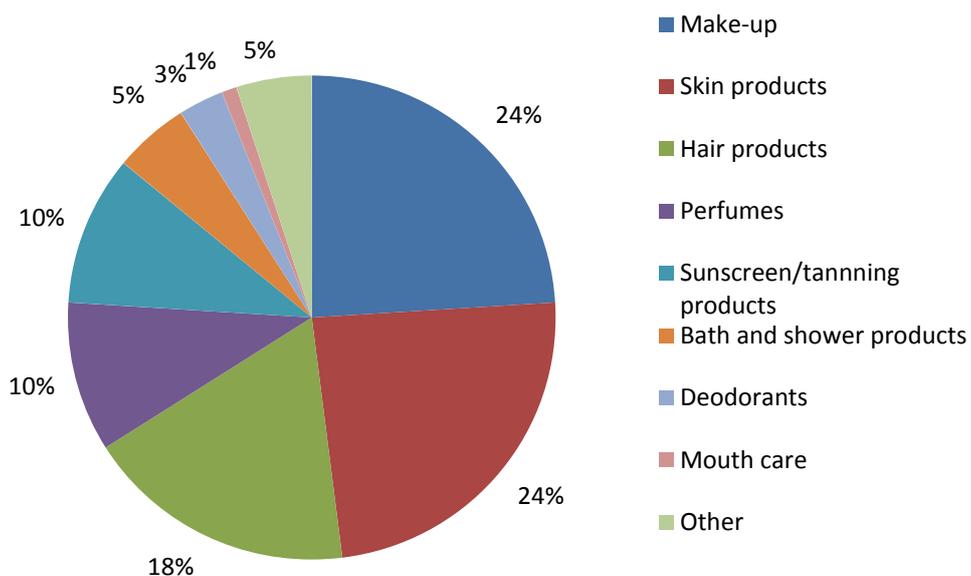


Figure 4: Categories of reported products that probably caused an undesirable reaction in % (n=62).

3.4 Factors possibly related to the undesirable reaction

In 15% of the cases (n=8) a causal relationship was reported between the reaction and occupation (four nail stylists, a pedicure, a make-up artist ('visagiste'), physiotherapist, and owner of a pet pension) and in three cases this relationship was likely, but not confirmed. Eleven patients (18%) also suffered from other skin problems than those reported, such as eczema or urticaria, and 18 patients (31%) suffered from a previously diagnosed allergy for either cosmetics or non-cosmetics.

3.5 Diagnosis and treatment

Based on the medical history, physical examination and the results of diagnostic patch testing, 85% of these patients (n=45) were diagnosed with only allergic contact dermatitis. The other 8 patients were diagnosed with a combination of allergic contact dermatitis and other allergies or skin conditions.

A new treatment was described for 43 patients and in most cases consisted of avoiding the allergen. In addition, a cooling crème without rose oil was prescribed or in more severe cases, local corticosteroids were used.

3.6 Patch tests

All 53 patients were patch tested with the European baseline series and all patients had a positive response to one or more allergens. This gives an indication of the occurrence of allergies in the population. However, it does not necessarily mean that these allergens were the causative agents, as they are not always present in the cosmetic products that gave the complaints. For example, nickel sulphate tested positive relatively often (23%, n=12), but the use of nickel sulphate in cosmetics products is prohibited, meaning that these reactions were likely not the result of using cosmetics. Paragraph 3.7 gives the analyses of the causal agents in the products involved in the notified cases.

Positive responses were mainly to fragrance mix I (32%, n=17) and isothiazolinones MCI/MI, MI, and/or OIT (octylisothiazolinone) (26%, n=13, counting patients reacting to both substances as one positive). It should be noted that in most cases, the product did not contain MCI/MI or MI, which means the isothiazolinones were not considered the causative agent.

Other substances that tested positive relatively often were fragrance mix II (21%, n=11), cocamidopropylbetaine (15%, n=8) and myroxylon pereirae (Peru balsam, 13%, n=7) (see Table 1).

The group 'others' was remarkably large (79%, n=42), which was caused mainly by a high number of positive responses to (meth)acrylates (26%, n=13). Individual fragrances were reported often for the same patients that reacted to fragrance mix I and/or II. These include cinnamon compounds, oak/tree moss, and citral.

Also the wool-alcohols were reported often (15%, n=8), which in most cases overlap with lanolin and/or amerchol L101.

Table 1: Patch test results with European baseline series and additional substances in patients seen by participating dermatologists reported in the period 2017–2018 (top 10)

Allergen	% positive
Fragrance mix I	32%
MI, OIT and/or MCI/MI (Kathon CG ®)	26%*
Nickel sulphate	23%
Fragrance mix II	21%
PPD (Paraphenylenediamine)	19%
Amerchol L101	15%
Cocamidopropylbetaine (CAPB)	15%
Myroxylon pereirae	13%
Colophonium	9%
Others	79%

* Five patients (14%) were sensitised to both MI and MCI/MI, one (2%) to MCI/MI, 9 (17%) to MI, and two (4%) to OIT only.

In one case where the causative agent could not be found with the baseline series, an additional patch test was performed with the batch-specific ingredients of the cosmetics product. Unfortunately, also this test did not find a causal relationship between the product and the reaction.

In one particular case regarding tin fluoride in toothpaste, the dermatologists acquired the test compound (tin) themselves, which gave a weak positive reaction. Considering that the symptoms ceased after switching to different toothpaste and that the toothpaste contained tin fluoride, it was reasonably probable that tin fluoride was indeed the allergen.

3.7 Causality assessment

A senior dermatologist assessed the likelihood that an ingredient in the product caused the undesirable effect(s). This assessment was based on the outcomes of the European Baseline patch test series, information on the ingredients of the cosmetic product(s) and, when performed, the patch test with batch-specific ingredients of the cosmetic product.

Regarding the outcomes of the European Baseline patch test series, only relevant cosmetic allergens (i.e. allergens used in cosmetics) were taken into account for causality assessment. Of the 53 patients, a causal relationship between the undesirable reaction and the reported cosmetic product could be established for 52 (98%) patients. For 41 patients (77%) this causality was likely and for 11 patients (21%) very likely. The causality was unlikely or questionable for 1 patient (2%); in this case it was not possible to determine what ingredient caused the reaction.

Five cases were excluded from analyses, three because no link with an allergen could be established and two because it was no longer possible to test the ingredients.

Table 2 gives an overview of the final diagnosis of the causative agent if the causality of the reaction was likely or very likely. The differences from Table 1 are caused mainly by substances that tested positive in the patch test, but were not present in the cosmetics product that supposedly caused the complaint.

All fragrances have been taken together, as these are not always specified in the ingredients list, which means that it is often unclear exactly which substance is responsible for the reaction. In addition, related fragrances often display cross-sensitisation to each other. Myroxylon pereirae (Peru balsam), tea tree oil and propolis are also indicative for fragrance allergy and have been included in this group.

Table 2: All ingredients for which a causal relationship was reported in the period 2017–2018

Allergen	N positive (out of 50)	% positive
Fragrances*	17	34%
(Meth)acrylates	13	26%
Lanoline/Amerchol L101/wool-alcohols	7	14%
PPD	5	10%
MI	3	6%
Cocamidopropylbetaine (CAPB)	2	4%
Dibutyl phthalate	2	4%
Tin fluoride	1	2%
Parabens	1	2%
Chromate	1	2%
Benzophenone-3	1	2%
Octocrylene	1	2%
p-toluenediamine	1	2%
2-methoxymethyl-p-phenylenediamine	1	2%
Peppermint oil	1	2%

* Including fragrance mix I & II, individual fragrances and fragrance indicators (Myroxylon pereirae (Peru balsam), tea tree oil and propolis)

3.8 Reactions on tattoos

Three cases have been reported in 2018 concerning reactions to tattoos. In all three cases a red tattoo caused the reaction. However, no positive response was found for either the ink or any (possible) ingredients. Thus, the cause of the reactions remained unclear.

4 Discussion

4.1 Identification of cosmetic products and product ingredients

(Meth)acrylates in nail products

A remarkable finding of the study is the relatively high number of reactions to (meth)acrylates, with 13 cases reported in one year. In the previous report, three cases were reported over the last two years. It was noted that (meth)acrylates are rarely mentioned in earlier reports (Woutersen, 2018). About half of these 16 CESES cases concerned professional exposure by nail stylists, often in addition to personal use of nail products.

Acrylates are used as monomers in nail systems, glues (for e.g. eyelashes), and in dentistry. They form a solid layer after polymerisation. In 2014, Sweden raised an alert to the Commission and the Competent Authorities of the Member States because they had noted several severe allergic reactions to (meth)acrylates in gellack (see RAPEX notification A12/1226/14). Gellack is a type of nail product that contains (meth)acrylate monomers, which are cured under a UV lamp. As (meth)acrylate monomers are sensitisers, exposure of the skin poses a risk of skin sensitisation. In response to these concerns, the Scientific Committee for Consumer Safety (SCCS) published an opinion on 2-hydroxyethyl methacrylate (HEMA).

The CESES cases from this and the previous report were submitted to the SCCS in the public consultation. The SCCS published its final report in the summer of 2018. It was concluded that HEMA and di-HEMA-TMHDC, when applied appropriately to the nail plate at concentrations of up to 35% and 99% respectively as part of an artificial nail modelling system, are not likely to pose a risk of sensitisation, provided that their use is restricted to the nail plate only and contact with the adjacent skin is avoided. However, additional concerns were indicated for allergenic impurities, unintended exposure of the skin, for professionals, when filing or sanding the nails, and due to the growing popularity of artificial nail fashion (SCCS, 2017).

Due to the relatively limited number of cases in general, it is difficult to place the rise in incidence in reactions to (meth)acrylates in the last year. Nail products containing (meth)acrylates are becoming more popular, as is noticed by the SCCS as well. There are also several publications in from dermatologists in other countries that indicate an increase in incidence of contact allergy resulting from the use of acrylate nails (Montgomery et al. 2016, Raposo et al. 2017, Rolls et al. 2018, Spencer et al. 2016). Thus, it is probable that the observed rise in incidence in the Netherlands is part of a broader trend.

Dibutylphthalate

Two patients with an adverse reaction to nail products reacted to dibutylphthalate (DBP) in addition to methacrylates. DBP can be used in nail products as a plasticizer, to reduce cracking by making them less brittle (<https://cosmeticsinfo.org/ingredient/dimethyl-phthalate-diethyl-phthalate-and-dibutyl-phthalate>, 4-2-2019).

However, the use of DBP in cosmetics is prohibited in the EU, due to its classification as a reproductive toxicant (Repr. Cat. 1B). In the reported cases, it was not clear whether the nail products really contained DBP, and if so, in what concentration. Hence DBP may be a relevant substance to measure in market surveillance actions of nail products.

Hair colorants

As in previous years, the incidence of reactions caused by the hair colorant PPD (paraphenylenediamine) was around 10% (Woutersen, 2018). PPD is a well-known sensitizer that can give severe reactions after sensitization by hair colorants or black henna tattoos. Interestingly, there are also two cases of reactions to alternative colorants p-toluenediamine and 2-methoxymethyl-p-phenylenediamine. Both substances are closely related to PPD. In the case of 2-methoxymethyl-p-phenylenediamine, the manufacturer claimed it is a less strong sensitizer than PPD, but warned that people already sensitized to PPD should not use the product due to cross-reactions. In the case of p-toluenediamine, the product was explicitly labelled for use on sensitive skin and it was claimed to be safe for people with an allergy for PPD. The latter claim is incorrect; as p-toluenediamine is very closely related to PPD and patients who are sensitized to PPD may react to p-toluenediamine as well (Søsted et al. 2013). It may be worthwhile to monitor this and similar claims on hair dying products, as they are misleading and can harm the consumer.

Isothiazolinones

In previous years, the isothiazolinone preservatives (mainly methylisothiazolinone (MI) and/or its mixture with methylchloroisothiazolinone (MCI/MI)) were among the most frequently reported contact allergens in CESES (Woutersen 2018, Woutersen & Bakker 2016). Due to severe restrictions, the use of MCI/MI had already declined in recent years. In 2018, the preservative methylisothiazolinone (MI) has also been banned in leave-on products. In additions, the use in rinse-off products is limited to a maximum concentration of 0.0015%. These new limits applied for new products from 27 January 2018 and for products already on the market from 27 April 2018.

This is probably the reason that MI was the causative agent in only three cases (6%), one of which concerned wet wipes. For comparison, in 2015 to 2017, MI was the causative agent in 20% of the cases. It is expected that a substituting preservative will replace MI. Dependent on the properties of the substitute this may lead to an increase in reactions to this other preservative. However, so far, no increase in the incidence of reactions to other preservatives has been observed.

4.2 Addition of tattoos and tattoo aftercare products to CESES

In recent years, there has been an increase in the popularity of tattoos and there are indications that they may induce a relatively high number of adverse reactions, including allergic contact dermatitis (Bassi et al. 2014; Brady et al. 2015). Measurements by the NVWA of black tattoo inks shows that these often contain harmful substances, in particular

poly-aromatic hydrocarbons (PAHs) and heavy metals like lead and cobalt (NVWA 2017).

As there is still a high level of uncertainty regarding which substances induce the adverse reactions, it was decided to add tattoos as a product group to the CESES questionnaire, although they are not cosmetic products. In the update of the questionnaire from August 2017, both permanent and temporary tattoos were added as product category in the questionnaire.

The three cases reported in 2018 were all for red inks. Although the responsible ingredient could not be determined, also other studies show that in particular red inks are relatively often the cause of allergic reactions (Wenzel et al. 2013).

4.3 Discontinuation of the CESES project

In order to gain more insight in the incidence and prevalence of undesirable effects caused by cosmetic products, the CESES project was started in July 2009. The knowledge obtained from this project was useful as a check on the effectivity of the regulation of cosmetics, in particular for sensitizers that are restricted in the EU. Input from CESES contributed to the discussion on use limits on EU level, including those on isothiazolinones, octocrylene, and (meth)acrylates (de Groot & Roberts, 2014; SCCS, 2015; SCCS, 2017).

Furthermore, it can also be used to focus the market surveillance actions of the NVWA.

The project started originally as a two year pilot. In 2011, the project has been evaluated, and considering the positive experience, it was decided to continue with CESES (Salverda-Nijhof et al. 2011). At that time, CESES had two routes, one for consumers and one for dermatologists. In 2014, the consumer route was relocated to the NVWA and only the clinical route was continued within CESES.

In the last few years, it proved to be increasingly difficult to maintain sufficiently high reporting rates of clinical cases to be representative for all undesirable effects caused by cosmetics. For this and other reasons, the Ministry of Health decided to discontinue CESES after 2018.

In 2019, dermatologists and RIVM investigate alternative ways to monitor the incidence of undesirable skin effects of substances in the Dutch population. Ideally, this will not be limited to cosmetics but also include ingredients in other consumer products (like cleaning products, paint, etc.).

However, to be feasible, this system should be as efficient as possible. One way this may be achieved is by using an existing registration system. Options for this are currently explored.

5 Acknowledgements

We would like to thank all participating dermatologists, including the senior dermatologist, for their valuable contribution to CESES over the 10-year course of the project. Without their contribution, CESES would not have been possible.

We like to thank the NVWA for their support in acquiring the product specific ingredients, as well as sharing the consumer notifications over the last year.

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