

Safety of drug therapy in latex-allergic patients

Segurança na terapia medicamentosa em pacientes alérgicos ao látex

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ABSTRACT

Objective: This study consisted of collecting information on the composition of rubber stoppers for injectable drug vials used at the Hospital Israelita Albert Einstein. **Methods:** Manufacturers were consulted for information on composition of rubber stoppers, since this piece of information is absent on drug packages. **Results:** Information about the composition of rubber stoppers for the vials of 178 drugs included in the hospital formulary was listed in hard copies and electronic files; they were grouped under pharmacological classification for easy access by Healthcare professionals. Information was absent in 6% (11 drug products) of the items listed, because the manufacturer was unable to provide information about rubber stopper composition. Three out of 47 drug classes did not offer the choice of latex-free stoppers. **Conclusions:** Information collected helped Healthcare teams working at this institution to use alternatives to minimize allergen exposure and to ensure lower risk drug therapy for latex-allergic patients.

Keywords: Safety management; Latex hypersensitivity; Drug utilization

RESUMO

Objetivo: Este trabalho consistiu na coleta de informações a respeito da composição da tampa de borracha de medicamentos injetáveis, disponíveis no Hospital Israelita Albert Einstein. **Métodos:** A informação sobre a composição das tampas de borracha foi obtida mediante consulta aos fabricantes, uma vez que não havia referência nas embalagens dos medicamentos envolvidos. **Resultados:** As informações sobre a composição da tampa de borracha de 178 medicamentos padronizados na instituição na apresentação frasco ampola foram relacionadas em arquivos impressos e eletrônicos e agrupadas conforme classificação farmacológica para facilitar a consulta dos profissionais envolvidos na assistência do paciente. Existiu falta de informação para 6% (11 medicamentos) dos itens relacionados, uma vez que o fabricante não soube informar a composição da tampa de borracha. Entre as 47 classes

farmacológicas, três não apresentaram opção de medicamentos com tampa isenta de látex. **Conclusões:** As informações coletadas contribuíram para que as equipes de profissionais atuantes nesta instituição pudessem, quando necessário, utilizar alternativas para minimizar a exposição ao agente alergênico e garantir a terapia medicamentosa com risco reduzido a esses pacientes.

Descritores: Gerenciamento de segurança; Hipersensibilidade ao látex; Uso de medicamentos

INTRODUCTION

The use of latex in hospital devices has decreased in recent years due to adverse reactions occurring both in patients and Healthcare professionals^(1,2). Efforts to replace latex-containing with latex-free products have occurred in various hospitals worldwide⁽¹⁾. However, recent papers have reported cases of hypersensitivity reactions to latex^(2,3).

Latex is found in natural rubber and extracted from the tree *Hevea brasiliensis*⁽¹⁾. Its chemical structure includes proteins that may stimulate antibody production. Individuals that produce antibodies upon a first exposure may develop allergic reactions when re-exposed to latex. A rapid diagnosis is essential for the correct treatment of hypersensitive or anaphylactic reactions. Allergic reactions may range from skin rash to cardiovascular collapse^(1,3-7).

Latex is widely used and exposure may occur both in domestic and in hospital settings⁽⁶⁾. Given its elastic properties, latex is used in manufacturing a variety of Healthcare products. It may be found in injectable drug containers, specifically in rubber stoppers and in plungers of prefilled syringes⁽⁸⁻¹⁰⁾.

Study carried out at Hospital Israelita Albert Einstein – HIAE, São Paulo (SP), Brazil.

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The number of latex sensitization cases has risen constantly, and is currently considered the second cause of anaphylactic reactions in anesthesia and surgery^(3,7). The incidence of reactions to latex in the general population is 1:100^(3,6-8).

Certain high-risk groups were identified: patients with “spina bifida” and/or urogenital abnormalities, individuals with history of multiple surgeries, allergy to fruits and Healthcare professionals. There is also a sex-related risk factor: latex reactions occur more frequently in women^(3,6).

The safest measure for an allergic individual is to avoid exposure to latex. It is thus important to learn which objects within hospital settings contain latex (equipment, Healthcare products and drugs)⁽⁸⁻¹¹⁾.

OBJECTIVE

The purpose of this study was to classify standardized injectable drugs according to the presence or absence of latex in their rubber stoppers.

METHODS

Information about the composition of injectable drug rubber stoppers available in the Hospital Israelita Albert Einstein (HIAE) was obtained from the manufacturers of drugs and pharmaceutical rubber stoppers, since this piece of information was not available on the packages of these drugs.

RESULTS

The consolidated information was listed in hard copies and electronic files, and grouped according to pharmacological classification (Chart 1). Out of 178 formulary drugs in vials, 45 (25%) included latex in their rubber stoppers and 122 (69%) contained no latex; manufacturer information was unavailable for 11 (6%) drugs (Figure 1). Grouping the items in a pharmacological classification system revealed that three of 47 classes did not offer the option of latex-free stoppers.

Chart 1. Composition of rubber stoppers for injectable drugs included on the formulary of the Hospital Israelita Albert Einstein

Active ingredient	Commercial presentation	Manufacturer	Latex
Amino acid			
Amino acid solution with glutamine	Dipeptiven® 20% fl	Fresenius Kabi Brasil Ltda.	No
Amino acid solution	Aminosteril® 10% fl 500 ml	Fresenius Kabi Brasil Ltda.	No
	Aminoplasma® L fl 500 ml	Laboratórios B. Braun S/A	No
Analgesic, antipyretic, non-steroidal anti-inflammatory			
Ketoprofen	Profenid® IV 100 mg amp	Aventis Pharma Ltda.	No
Tenoxicam	Tilatil® 20 mg amp	Produtos Roche Químicos e Farmacêuticos S/A	No
Local anesthetic			
Bupivacaine	Neocaína® 0.5% with vasoconstrictor amp	Cristália Produtos Químicos Farmacêuticos Ltda.	No
	Neocaína® 0.5% without vasoconstrictor amp	Cristália Produtos Químicos Farmacêuticos Ltda.	No
Lidocaine	Xylestesin® 2% with vasoconstrictor amp 20 ml	Cristália Produtos Químicos Farmacêuticos Ltda.	No
Ropivacaine	Naropin® 2 mg/ml amp 100 ml	AstraZeneca do Brasil Ltda.	Yes
Venous non-opioid anesthetic			
Ketamine	Ketamin® S 50 mg/ml amp 10 ml	Cristália Produtos Químicos Farmacêuticos Ltda.	No
Propofol	Diprivan® PFS 10 mg/ml syringe	AstraZeneca do Brasil Ltda.	No
	Fresofol® 10 mg/ml amp	Fresenius Kabi Brasil Ltda.	No
Thiopental	Thionembutal® 0.5 g amp	Abbott Laboratórios do Brasil Ltda.	Yes
Antiplatelet agent			
Abciximab	Reopro® 10 mg amp 5 ml	Eli Lilly do Brasil Ltda.	Yes
Tirofiban	Agrastat® 12.5 mg amp	Merck Sharp & Dohme Farmacêutica Ltda.	No
Antiarrhythmic agent			
Esmolol	Breviloc® 10 mg/ml amp	Cristália Produtos Químicos Farmacêuticos Ltda.	No
Lidocaine	Xylestesin® 2% without vasoconstrictor amp 20 ml	Cristália Produtos Químicos Farmacêuticos Ltda.	No
Anticoagulant			
Heparin	Heptar® 5000 IU/ml amp 5 ml	Eurofarma laboratórios Ltda.	Not informed
Heparin	Liquemine® 5000 IU/ml amp 5 ml	Produtos Roche Químicos e Farmacêuticos S/A	No
Antidote			
Calcium folinate	Prevax® 50 mg amp	Laboratórios Biosintética Ltda.	No
Deferoxamine mesylate	Desferal® 500 mg amp	Novartis Biociências S/A	Yes
Pralidoxim	Contrathion® 200 mg amp	Aventis Pharma Ltda.	No

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Continuation

Active ingredient	Commercial presentation	Manufacturer	Latex
Antimigraine drug			
Sumatriptan	Sumax® 6 mg amp	Libbs Farmacêutica Ltda.	No
Antifungal agent			
Amphotericin B	Anforicin® 50 mg EV amp	Cristália Produtos Químicos Farmacêuticos Ltda.	No
	Ambisome® 50 mg amp	United Medical Ltda.	No
Fluconazole	Zoltec® 200 mg amp	Laboratórios Pfizer Ltda.	Yes
Voriconazole	Vfend® 200 mg amp	Laboratórios Pfizer Ltda.	Not informed
Antihypertensive			
Phentolamine	Regitine® 10 mg amp 1 ml	Novartis Biociências S/A	Yes
Steroidal anti-inflammatory agent			
Dexamethasone	Decadron® 4 mg/ml amp 2.5 ml	Aché Laboratórios Farmacêuticos Ltda.	No
Hydrocortisone	Cortisonal 100 mg and 500 mg amp	União Química Farmacêutica Nacional S/A	No
	Hidrocortisona 100 mg and 500 mg amp	EMS Indústria Farmacêutica Ltda.	No
Methylprednisolone (acetate)	Depo-Medrol® 40 mg amp 2 ml	Laboratórios Pfizer Ltda.	Yes
Methylprednisolone (sodium succinate)	Solu-Medrol® 125 mg and 500 mg amp	Laboratórios Pfizer Ltda.	Yes
Antimicrobial – miscellaneous			
Aztreonam	Azactam® 0.5 g and 1.0g amp	Bristol-Myers Squibb Brasil S/A	Not informed
Chloramphenicol	Vixmicina® 1 g amp	União Química Farmacêutica Nacional S/A	No
Teicoplanin	Targocid® 200 mg amp	Aventis Pharma Ltda	No
Vancomycin	Vancocina® 500 mg amp	ABL Antibióticos do Brasil Ltda.	No
Antiparasite			
Metronidazole	Flagyl® 500 mg	Aventis Pharma Ltda.	No
Antiviral			
Acyclovir	Zovirax® 250 mg amp	GlaxoSmithkline Ltda.	No
Ganciclovir	Cymevir® 500 mg	Halex Istar Indústria Farmacêutica Ltda.	Not informed
	Cymevene® 500 mg amp	Produtos Roche Químicos e Farmacêuticos S/A	No
Interferon	Roferon-A® 3 million UI amp	Produtos Roche Químicos e Farmacêuticos S/A	No
	Roferon-A® 9 million UI amp	Produtos Roche Químicos e Farmacêuticos S/A	No
Neuromuscular blocker			
Rocuronium	Esmeron® 50 mg amp 5 ml	Organon do Brasil Indústria e Comércio Ltda.	No
Succinylcholine	Succinrat® 100 mg amp	Ariston Indústrias Químicas e Farmacêuticas Ltda.	No
	Quelicin® 100 mg amp	Abbott Laboratórios do Brasil Ltda.	Yes
Vecuronium	Vecuron® 10 mg amp	Cristália Produtos Químicos Farmacêuticos Ltda.	No
	Norcuron® 10 mg amp	Organon do Brasil Indústria e Comércio Ltda.	Not informed
Carbapenem			
Imipenem/cilastatin	Tienam® Monovial 500 mg EV amp	Merck Sharp & Dohme Farmacêutica Ltda.	Yes
Meropenem	Meronem® 1 g amp	AstraZeneca do Brasil Ltda.	No
Cardiotonic agent			
Levosimendan	Simdax® 2.5 mg/ml amp	Abbott Laboratórios do Brasil Ltda.	Not informed
Milrinone	Primacor 1 mg/ml amp	Sanofi-Synthelabo Ltda.	Not informed
First generation cephalosporin			
Cephalothin	Keflin® 1 g amp	ABL Antibióticos do Brasil Ltda.	No
Cephazolin	Kefazol® 1 g amp	ABL Antibióticos do Brasil Ltda.	No
Second generation cephalosporin			
Cephoxitin	Kefox® 1 g amp	ABL Antibióticos do Brasil Ltda.	No
Cefuroxime	Zinacef® 750 mg amp	GlaxoSmithkline Ltda.	No
Third generation cephalosporin			
Cephotaxime	Claforan® 1 g amp	Aventis Pharma Ltda.	No
Ceftazidime	Fortaz® 1 g amp	GlaxoSmithkline Ltda.	No
Ceftriaxone	Rocefin® 500 mg IM/IV, 1 g IM/IV amp	Produtos Roche Químicos e Farmacêuticos S/A	No
Fourth generation cephalosporin			
Cefepime	Maxcef® 1 g amp	Bristol-Myers Squibb Brasil S/A	No

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Active ingredient	Commercial presentation	Manufacturer	Latex
Volume expansion			
Human albumin	Albumina humana 20% solution amp 50 ml	Grifols Brasil Ltda.	No
	Albumina humana 20% solution amp 50 ml	Baxter Hospitalar Ltda.	Not informed
	Albumina humana 20% solution amp 50 ml	Blausiegel Indústria e Comércio Ltda.	Yes
	Commercial presentation	Manufacturer	Latex
Hematopoietic growth factor ematopoiético			
Human erythropoietin	Eporex® 4000 U syringe 0.4 ml; 10000 U syringe 1 ml	Janssen-Cilag Farmacêutica Ltda.	No
Hemostatic agent			
Aminocaproic acid	Ipsilon® 1 g amp 20 ml	Química e Farmacêutica Nikkho do Brasil Ltda.	No
Aprotinin	Trasylol® 50.0000 UIC amp 50 ml	Bayer S.A	No
Factor II + factor VII + factor IX + factor X	Beriplex® amp	ZBL Behring Comércio e Produções Farmacêutica Ltda.	No
	Prothromplex® T 600 UI amp	Immuno-Baxter Produtos Biológicos e Químicos Ltda.	No
Factor IX	Haemate® P amp	ZBL Behring Comércio e Produções Farmacêutica Ltda.	No
Factor VIII	Immunate® 250 UI amp	Immuno Produtos Biológicos e Químicos Ltda.	No
Insulin counterregulatory hormone			
Glucagon	Glucagen® 1 mg amp	Novo Nordisk Farmacêutica Ltda.	No
Pituitary hormone			
Somatropin	Saizen® 4 UI amp	Serono Produtos Farmacêuticos Ltda.	No
Hypothalamic hormone			
Buserelin	Suprefact Depot® 3.3 mg amp	Aventis Pharma Ltda.	No
Goserelin	Zoladex Depot® 3.6 mg e 10.8 mg syringe	AstraZeneca do Brasil Ltda.	Yes
Leuprolide	Lupron Depot® 3.75 mg amp 2 ml	Abbott Laboratórios do Brasil Ltda.	No Sexual hormone
Estriol	Styptanon® amp	Organon do Brasil Indústria e Comércio Ltda.	Not informed
Immune stimulation agent			
Filgrastim	Granulokine® 300 mcg amp 1 ml	Produtos Roche Químicos e Farmacêuticos S/A	No
Immunosuppressive			
Daclizumab	Zenapax® 25 mg/5 ml amp	Produtos Roche Químicos e Farmacêuticos S/A	No
Immunotherapeutic agent			
Human immunoglobulin	Sandoglobulina® 1 g, 6 g amp	Meizler Comércio Internacional S/A	No
	Endobulin® 0.5 e 5 g	Baxter Hospitalar Ltda.	Not informed
Antithymocyte immunoglobulin	Thymoglobulina® 25 mg amp	Genzyme do Brasil	Not informed
Human anti-hepatitis B immunoglobulin	Hepatect® 2000 UI amp	Marcos Pedrilson Produtos Hospitalares Ltda.	Not informed
Anti-RhO immunoglobulin	Partogama® 300 mcg syringe	Immuno-Baxter Produtos Biológicos e Químicos Ltda.	No
Active ingredient	Commercial presentation	Manufacturer	Latex
Bone resorption inhibitor			
Pamidronate disodium	Aredia® 30 mg amp	Novartis Biociências S/A	Yes
Insulin			
Human insulin – lispro	Humalog® 100 IU amp 10 ml	Eli Lilly do Brasil Ltda.	Yes
NPH human insulin – monocompetent	Humulin® N 100 IU amp 10 ml	Eli Lilly do Brasil Ltda.	Yes
	Novolin® N 100 IU amp 10 ml	Novo Nordisk Farmacêutica Ltda.	No
Human rapid acting insulin – monocompetent	Humulin® R 100 IU fl-ap 10 ml	Eli Lilly do Brasil Ltda.	Yes
	Novolin® R 100 IU amp 10 ml	Novo Nordisk Farmacêutica Ltda.	No
Macrolide			
Clarithromycin	Klaricid® IV 500 mg amp	Abbott Laboratórios do Brasil Ltda.	Yes
Erythromycin	Tromaxil® 1000 mg/ml amp	Opem Pharmaceuticals Ltda.	No
Ophthalmic agent			
Hyaluronate sodium	Provisc® syringe 0.85 ml	Alcon Laboratórios do Brasil Ltda.	Yes
Hyaluronidase	Hyalozima® 2000 UTR	Apssen Farmacêutica S/A	No
Oncology drugs			
Amifostine	Ethylol® 500 mg amp 10 ml	Schering Plough S/A	No
Asparaginase	Elspar® 1000 IU amp 10 ml	Merck Sharp & Dohme Farmacêutica Ltda.	No
Carboplatin	Platamine® 50 mg; 150 mg; 450 mg amp	Laboratórios Pfizer Ltda.	Yes

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Active ingredient	Commercial presentation	Manufacturer	Latex
Carmustin	Paraplatin® 50 mg e 450 mg amp	Bristol-Myers Squibb Brasil S/A	No
Cyclophosphamide	Becenun® 100 mg amp	Bristol-Myers Squibb Brasil S/A	No
Cisplatina	Genuxal® 200 mg; 1 g amp	Asta Médica Oncologia	Yes
Cytarabin	Platiran® 10 mg amp 20 ml	Bristol-Myers Squibb Brasil S/A	No
	Fauldcita® 100 mg; 500 mg; 1 g; 2 g amp	Libbs Farmacêutica Ltda.	No
	Aracytin® 100 mg; 500mg; 1g amp	Laboratórios Pfizer Ltda.	Yes
Cladribine	Leustatin® 10 mg amp 10 ml	Janssen-Cilag Farmacêutica Ltda.	No
Dacarbazine	Fauldacar® 100 mg amp	Libbs Farmacêutica Ltda.	No
	Dacarb® 100 mg amp	Eurofarma Laboratórios Ltda.	Yes
Daunorubicin	Daunoblastina® 20 mg amp	Laboratórios Pfizer Ltda.	Yes
Doxorubicin	Fauldoxo® 10 mg/5 ml ; 50 mg/25 ml amp	Libbs Farmacêutica Ltda.	No
	Adriblastina® RD 10 mg; 50 mg amp	Laboratórios Pfizer Ltda.	Yes
Docetaxel	Taxotere® 20 mg; 80 mg amp	Aventis Pharma Ltda.	No
Epirubicin	Farmorubicina® 10 mg; 50 mg amp	Laboratórios Pfizer Ltda.	Yes
Oncology drugs			
Etoposide	Etoposido® 100 mg amp 5 ml	Asta Médica Oncologia	No
	Vepesid® 100 mg amp 5 ml	Bristol-Myers Squibb Brasil S/A	No
Fludarabin	Fludara® 50 mg amp	Schering do Brasil, Química Farmacêutica Ltda.	No
Fluorouracil	Fauldfluor® 2.5 mg; 500 mg amp	Libbs Farmacêutica Ltda.	No
	Fluoro-Uracil 250 mg; 500mg amp	Valeant Pharmaceuticals International	No
Fotemustine	Muphoran amp	Servier do Brasil	No
Gemcitabine	Gemzar® 1 g; 200 mg amp	Eli Lilly do Brasil Ltda.	No
Idarubicin	Zavedos® 5 mg amp	Laboratórios Pfizer Ltda.	Yes
Ifosfamide	Holoxane® 0.5 mg amp	Asta Médica Oncologia	No
Interleukin	Proleukin® 1 mg amp	Zodiac Produtos Farmacêuticos S/A	Yes
Irinotecan	Irenax® 20 mg/ml amp	Novartis Biociências S/A	Not informed
	Camtosar® 20 mg/ml amp 5 ml	Laboratórios Pfizer Ltda.	Yes
Methotrexate	Fauldmetro® amp	Libbs Farmacêutica Ltda.	No
	Miantrex® amp	Laboratórios Pfizer Ltda.	No
	Metotrexato® 50 mg ; 500mg amp	Baxter /Asta divisão oncologica Ltda.	No
	Metrotex® 50 mg ; 500 mg amp	Aventis Pharma Ltda.	No
Mitomycin	Mitocin® 50 mg; 500 mg amp	Bristol-Myers Squibb Brasil S/A	No
Mitoxantrone	Mitoxantrona® 20 mg amp	Baxter /Asta divisão oncologica Ltda.	No
Oxaliplatin	Eloxatin® 50 mg; 100 mg amp	Sanofi-Synthelabo Ltda.	No
Paclitaxel	Tarvexol® 30 mg amp	Novartis Biociências S/A	Not informed
	Taxol® 30 mg/5 ml amp	Bristol-Myers Squibb Brasil S/A	No
Raltitrexate	Tomudex® 2 mg amp	AstraZeneca do Brasil Ltda.	Yes
Rituximab	Mabthera® 100 mg; 500 mg amp	Produtos Roche Químicos e Farmacêuticos	No
Topotecan	Hycamtin® 4 mg amp	GlaxoSmithkline Ltda.	No
Trastuzumab	Herceptin® 440 mg amp	Produtos Roche Químicos e Farmacêuticos	No
Vinblastine	Velban® 10 mg	ABL Antibióticos do Brasil Ltda.	No
	Fauldblastina 10 mg amp	Libbs Farmacêutica Ltda.	No
Vincristine	Vincizina® 1 mg amp	Laboratórios Pfizer Ltda.	Yes
	Fauldvincir® 1 mg amp	Libbs Farmacêutica Ltda.	No
Vinorelbine	Eunades® 50 mg amp	Laboratórios Pfizer Ltda.	Yes
	Navelbine® 50 mg amp	Asta Médica Oncologia	No
Sodium zoledronate	Zometa® 4 mg amp amp	Novartis Biociências S/A	Yes
Penicillin			
Clavulanic acid + amoxicillin	Clavulin® 500 mg amp	GlaxoSmithkline Ltda.	No
Ampicillin	Uniampicilin® 500 mg e 1000 mg amp	União Química Farmacêutica Nacional S/A	No
Benzylpenicillin	Longacilin® 600.000 UI e 1.200.000 UI amp	Biolab Sanus Farmacêutica Ltda.	No
	Benzetacil® 1.200.000 UI e 600.000UI amp I	Eurofarma Laboratórios Ltda.	No
Potassium benzylpenicillin + procaine benzylpenicillin	Wycillin® 400.000 UI amp	Eurofarma Laboratórios Ltda.	No

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Active ingredient	Commercial presentation	Manufacturer	Latex
Oxacillin	Despacilina® 400.000 UI amp	Bristol-Myers Squibb Brasil S/A	No
Penicillin G	Staficilin® N 500 mg amp	Bristol-Myers Squibb Brasil S/A	No
Penicillin G	Cristalpen® 5.000.000 UI amp	Biolab Sanus Farmacêutica Ltda.	No
Sodium piperacillin + tazobactam	Tazocin® 4.5 g amp	Wyeth	Yes
Sulbactam + ampicillin	Unasyn® 1.5 mg amp	Laboratórios Pfizer	Yes
	Timentin® 3.1 g amp	GlaxoSmithkline Ltda.	Not informed
Premature labor prevention			
Atosiban	Tractocile® 7,5 mg/ml amp	Laboratório Ferring Ltda.	No
Quinolone			
Ciprofloxacin	Cipro® 200 mg amp	Bayer S.A	No
	Fresoflox 200 mg/100ml bolsa	Fresenius Kabi Brasil Ltda.	Not informed
Levofloxacin	Levaquin® 500 mg amp	Janssen-Cilag Farmacêutica Ltda.	No
	Tavanic® 500 mg amp	Aventis Pharma Ltda.	No
Gastric acid-reducing agent			
Esomeprazole	Nexium® 40 mg amp	AstraZeneca do Brasil Ltda.	Not informed
Pantoprazole	Pantozol® 40 mg amp	Altana Pharma Byk Química e Farmacêutica	No
Muscle relaxant			
Dantrolene	Dantrolen® 20 mg AMP	Cristália Produtos Químicos Farmacêuticos Ltda.	Yes
Volume replacement and hydroelectrolytic solution			
CaCl + KCl + NaCl	Ringer fisiológico® 500 ml	Fresenius Kabi Brasil Ltda.	Yes
CaCl + KCl + NaCl + sodium lactate	Ringer lactato® 500 ml	Fresenius Kabi Brasil Ltda.	Yes
Surfactant			
Bovine lung phospholipid	Survanta® 25 mg/ml amp 8 ml	Abbott Laboratórios do Brasil Ltda.	No
Thrombolytic			
Alteplase	Actilyse® 50 mg amp	Boehringer Ingelheim do Brasil	No
Streptokinase	Streptase® 250.000 UI e 750.000 UI amp	ZBL Behring Comércio e Produções Farmacêutica Ltda.	No
Cerebral vasodilator			
Nimodipine	Oxigen® 0.2 mg/ml amp 50 ml	Laboratórios Biosintética Ltda.	No
	Nimotop® 0.2 mg/ml amp 50 ml	Bayer S.A	No
Vitamin			
Multivitamin	MVI® 1.5 ml, 3.3 ml, 5 ml amp	ICN Pharma	No
Multivitamin	Cerne® 12 amp	Baxter Hospitalar Ltda.	Yes

fl = flask; amp = ampoule flask

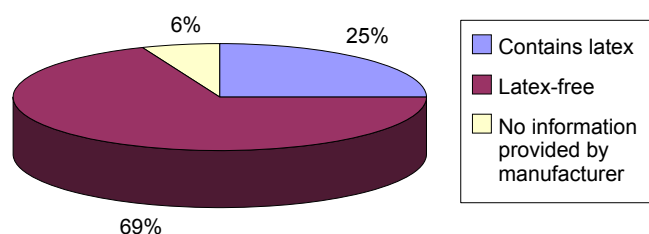


Figure 1. Classification of medications as to the presence or absence of latex

DISCUSSION

Considering that allergic reaction to latex is the second most common allergic reaction in anesthesia and surgery^(3,6-8) and that a variety of drugs – such as corticosteroids, anesthetics and muscle relaxants – are used in any given surgical procedure, the presence of latex in these drugs might initiate an allergic reaction, thereby increasing the risk in anesthetic and surgical

procedures. As an example, the rubber stopper of dantrolene, the first-choice drug to treat malignant hyperthermia, contains latex; there are no substitutes in the Brazilian market for latex-allergic patients requiring this treatment.

A further relevant point to highlight is that manufacturers have not made information about the composition of rubber stoppers used in commercial products readily available. Therefore, accessing and disseminating such information is more complex. During this study, there were some situations such as having to wait for over a month for manufacturers to answer the queries. An explanation given by the manufacturers that owned a license for manufacturing drugs in Brazil was that products were made overseas and that they themselves had to wait for answers from manufacturers abroad. Other manufacturers were unable to provide information about the composition of rubber stoppers. This fact deserves attention from

Health authorities to evaluate whether information about rubber stoppers should be identified and made available on pharmaceutical product packages.

CONCLUSIONS

Data collected led to improvements in the care of latex-allergic patients, helping Healthcare teams at the HIAE evaluate alternatives that might minimize exposure to this allergen, thus reducing the risk of drug therapy for these patients. The importance of extending such efforts to identify the presence of latex in other injectable drugs available in the domestic market must be underlined, given that the items pointed out in this study are a small part of such products sold in Brazil. The existence of official guidelines for labeling and identifying latex-containing products might possibly add benefits by facilitating the prevention of exposure in allergic patients.

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