

World Journal of *Clinical Cases*

World J Clin Cases 2020 October 26; 8(20): 4688-5069



MINIREVIEWS

- 4688 Relationship between non-alcoholic fatty liver disease and coronary heart disease
Arslan U, Yenercağ M

ORIGINAL ARTICLE**Retrospective Cohort Study**

- 4700 Remission of hepatotoxicity in chronic pulmonary aspergillosis patients after lowering trough concentration of voriconazole
Teng GJ, Bai XR, Zhang L, Liu HJ, Nie XH

Retrospective Study

- 4708 Endoscopic submucosal dissection as alternative to surgery for complicated gastric heterotopic pancreas
Noh JH, Kim DH, Kim SW, Park YS, Na HK, Ahn JY, Jung KW, Lee JH, Choi KD, Song HJ, Lee GH, Jung HY
- 4719 Observation of the effects of three methods for reducing perineal swelling in children with developmental hip dislocation
Wang L, Wang N, He M, Liu H, Wang XQ
- 4726 Predictive value of serum cystatin C for risk of mortality in severe and critically ill patients with COVID-19
Li Y, Yang S, Peng D, Zhu HM, Li BY, Yang X, Sun XL, Zhang M
- 4735 Sleep quality of patients with postoperative glioma at home
Huang Y, Jiang ZJ, Deng J, Qi YJ
- 4743 Early complications of preoperative external traction fixation in the staged treatment of tibial fractures: A series of 402 cases
Yang JZ, Zhu WB, Li LB, Dong QR
- 4753 Retroperitoneal vs transperitoneal laparoscopic lithotripsy of 20-40 mm renal stones within horseshoe kidneys
Chen X, Wang Y, Gao L, Song J, Wang JY, Wang DD, Ma JX, Zhang ZQ, Bi LK, Xie DD, Yu DX
- 4763 Undifferentiated embryonal sarcoma of the liver: Clinical characteristics and outcomes
Zhang C, Jia CJ, Xu C, Sheng QJ, Dou XG, Ding Y
- 4773 Cerebral infarct secondary to traumatic internal carotid artery dissection
Wang GM, Xue H, Guo ZJ, Yu JL
- 4785 Home-based nursing for improvement of quality of life and depression in patients with postpartum depression
Zhuang CY, Lin SY, Cheng CJ, Chen XJ, Shi HL, Sun H, Zhang HY, Fu MA

Observational Study

- 4793** Cost-effectiveness of lutetium (¹⁷⁷Lu) oxodotreotide *vs* everolimus in gastroenteropancreatic neuroendocrine tumors in Norway and Sweden
Palmer J, Leeuwenkamp OR
- 4807** Factors related to improved American Spinal Injury Association grade of acute traumatic spinal cord injury
Tian C, Lv Y, Li S, Wang DD, Bai Y, Zhou F, Ma QB
- 4816** Intraoperative systemic vascular resistance is associated with postoperative nausea and vomiting after laparoscopic hysterectomy
Qu MD, Zhang MY, Wang GM, Wang Z, Wang X

META-ANALYSIS

- 4826** Underwater *vs* conventional endoscopic mucosal resection in treatment of colorectal polyps: A meta-analysis
Ni DQ, Lu YP, Liu XQ, Gao LY, Huang X

CASE REPORT

- 4838** Dehydrated patient without clinically evident cause: A case report
Palladino F, Fedele MC, Casertano M, Liguori L, Esposito T, Guarino S, Miraglia del Giudice E, Marzuillo P
- 4844** Intracranial malignant solitary fibrous tumor metastasized to the chest wall: A case report and review of literature
Usuda D, Yamada S, Izumida T, Sangen R, Higashikawa T, Nakagawa K, Iguchi M, Kasamaki Y
- 4853** End-of-life home care of an interstitial pneumonia patient supported by high-flow nasal cannula therapy: A case report
Goda K, Kenzaka T, Kuriyama K, Hoshijima M, Akita H
- 4858** Rupture of carotid artery pseudoaneurysm in the modern era of definitive chemoradiation for head and neck cancer: Two case reports
Kim M, Hong JH, Park SK, Kim SJ, Lee JH, Byun J, Ko YH
- 4866** Unremitting diarrhoea in a girl diagnosed anti-N-methyl-D-aspartate-receptor encephalitis: A case report
Onpoaree N, Veeravigrom M, Sanpavat A, Suratannon N, Sintusek P
- 4876** Paliperidone palmitate-induced facial angioedema: A case report
Srifuengfung M, Sukakul T, Liangcheep C, Viravan N
- 4883** Improvement of lenvatinib-induced nephrotic syndrome after adaptation to sorafenib in thyroid cancer: A case report
Yang CH, Chen KT, Lin YS, Hsu CY, Ou YC, Tung MC
- 4895** Adult metaplastic hutch diverticulum with robotic-assisted diverticulectomy and reconstruction: A case report
Yang CH, Lin YS, Ou YC, Weng WC, Huang LH, Lu CH, Hsu CY, Tung MC

- 4902** Thrombus straddling a patent foramen ovale and pulmonary embolism: A case report
Huang YX, Chen Y, Cao Y, Qiu YG, Zheng JY, Li TC
- 4908** Therapeutic experience of an 89-year-old high-risk patient with incarcerated cholecystolithiasis: A case report and literature review
Zhang ZM, Zhang C, Liu Z, Liu LM, Zhu MW, Zhao Y, Wan BJ, Deng H, Yang HY, Liao JH, Zhu HY, Wen X, Liu LL, Wang M, Ma XT, Zhang MM, Liu JJ, Liu TT, Huang NN, Yuan PY, Gao YJ, Zhao J, Guo XA, Liao F, Li FY, Wang XT, Yuan RJ, Wu F
- 4917** Woven coronary artery: A case report
Wei W, Zhang Q, Gao LM
- 4922** Idiopathic multicentric Castleman disease with pulmonary and cutaneous lesions treated with tocilizumab: A case report
Han PY, Chi HH, Su YT
- 4930** Perianorectal abscesses and fistula due to ingested jujube pit in infant: Two case reports
Liu YH, Lv ZB, Liu JB, Sheng QF
- 4938** Forniceal deep brain stimulation in severe Alzheimer's disease: A case report
Lin W, Bao WQ, Ge JJ, Yang LK, Ling ZP, Xu X, Jiang JH, Zuo CT, Wang YH
- 4946** Systemic autoimmune abnormalities complicated by cytomegalovirus-induced hemophagocytic lymphohistiocytosis: A case report
Miao SX, Wu ZQ, Xu HG
- 4953** Nasal mucosa pyoderma vegetans associated with ulcerative colitis: A case report
Yu SX, Cheng XK, Li B, Hao JH
- 4958** Amiodarone-induced hepatotoxicity – quantitative measurement of iodine density in the liver using dual-energy computed tomography: Three case reports
Lv HJ, Zhao HW
- 4966** Multisystem involvement Langerhans cell histiocytosis in an adult: A case report
Wang BB, Ye JR, Li YL, Jin Y, Chen ZW, Li JM, Li YP
- 4975** New mutation in EPCAM for congenital tufting enteropathy: A case report
Zhou YQ, Wu GS, Kong YM, Zhang XY, Wang CL
- 4981** Catastrophic vertebral artery and subclavian artery pseudoaneurysms caused by a fishbone: A case report
Huang W, Zhang GQ, Wu JJ, Li B, Han SG, Chao M, Jin K
- 4986** Anastomosing hemangioma arising from the left renal vein: A case report
Zheng LP, Shen WA, Wang CH, Hu CD, Chen XJ, Shen YY, Wang J
- 4993** Bladder perforation caused by long-term catheterization misdiagnosed as digestive tract perforation: A case report
Wu B, Wang J, Chen XJ, Zhou ZC, Zhu MY, Shen YY, Zhong ZX

- 4999** Primary pulmonary plasmacytoma accompanied by overlap syndrome: A case report and review of the literature
Zhou Y, Wang XH, Meng SS, Wang HC, Li YX, Xu R, Lin XH
- 5007** Gastrointestinal stromal tumor metastasis at the site of a totally implantable venous access port insertion: A rare case report
Yin XN, Yin Y, Wang J, Shen CY, Chen X, Zhao Z, Cai ZL, Zhang B
- 5013** Massive gastrointestinal bleeding caused by a Dieulafoy's lesion in a duodenal diverticulum: A case report
He ZW, Zhong L, Xu H, Shi H, Wang YM, Liu XC
- 5019** Plastic bronchitis associated with *Botrytis cinerea* infection in a child: A case report
Liu YR, Ai T
- 5025** Chest, pericardium, abdomen, and thigh penetrating injury by a steel rebar: A case report
Yang XW, Wang WT
- 5030** Monocular posterior scleritis presenting as acute conjunctivitis: A case report
Li YZ, Qin XH, Lu JM, Wang YP
- 5036** Choriocarcinoma with lumbar muscle metastases: A case report
Pang L, Ma XX
- 5042** Primary chondrosarcoma of the liver: A case report
Liu ZY, Jin XM, Yan GH, Jin GY
- 5049** Successful management of a tooth with endodontic-periodontal lesion: A case report
Alshawwa H, Wang JF, Liu M, Sun SF
- 5057** Rare imaging findings of hypersensitivity pneumonitis: A case report
Wang HJ, Chen XJ, Fan LX, Qi QL, Chen QZ
- 5062** Effective administration of cranial drilling therapy in the treatment of fourth degree temporal, facial and upper limb burns at high altitude: A case report
Shen CM, Li Y, Liu Z, Qi YZ

ABOUT COVER

Peer-reviewer of *World Journal of Clinical Cases*, Dr. Aleem Ahmed Khan is a Distinguished Scientist and Head of The Central Laboratory for Stem Cell Research and Translational Medicine, Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad (India). Dr. Aleem completed his Doctorate from Osmania University, Hyderabad in 1998 and has since performed pioneering work in the treatment of acute liver failure and decompensated cirrhosis using hepatic stem cell transplantation. During his extensive research career he supervised 10 PhD students and published > 150 research articles, 7 book chapters, and 2 patents. His ongoing research involves developing innovative technologies for organ regeneration and management of advanced cancers. (L-Editor: Filipodia)

AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (*WJCC*, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The *WJCC* is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, PubMed, and PubMed Central. The 2020 Edition of Journal Citation Reports® cites the 2019 impact factor (IF) for *WJCC* as 1.013; IF without journal self cites: 0.991; Ranking: 120 among 165 journals in medicine, general and internal; and Quartile category: Q3.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: *Ji-Hong Liu*; Production Department Director: *Xiang Li*; Editorial Office Director: *Jin-Lai Wang*.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Semimonthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

October 26, 2020

COPYRIGHT

© 2020 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>

Retrospective Study

Observation of the effects of three methods for reducing perineal swelling in children with developmental hip dislocation

Ling Wang, Ning Wang, Mei-Ying He, Hai-Lun Liu, Xian-Qiang Wang

ORCID number: Ling Wang 0000-0002-6657-7633; Ning Wang 0000-0002-8911-6100; Mei-Ying He 0000-0002-8993-7590; Hai-Lun Liu 0000-0002-7950-1291; Xian-Qiang Wang 0000-0002-8914-6545.

Author contributions: Wang L and Wang N contributed equally to this manuscript and are considered co-first authors; Wang L and Wang XQ designed the article and performed the statistical analysis; Wang N designed this case report; He MY wrote the paper; Liu HL was responsible for sorting the data.

Institutional review board

statement: This study was approved by the Ethics Committee of PLA General Hospital.

Informed consent statement:

Patients were not required to give informed consent for this study because the analysis used anonymous clinical data that were obtained after each patient agreed to treatment by written consent.

Conflict-of-interest statement: All authors declare no conflicts of interest related to this article.

Data sharing statement: No additional data are available.

Open-Access: This article is an

Ling Wang, Ning Wang, Mei-Ying He, Hai-Lun Liu, Xian-Qiang Wang, Department of Pediatric Surgery, Chinese PLA General Hospital, Beijing 100853, China

Corresponding author: Xian-Qiang Wang, MD, PhD, Attending Doctor, Surgeon, Department of Pediatric Surgery, Chinese PLA General Hospital, No. 28 Fuxing Road, Haidian District, Beijing 100853, China. wxq301@gmail.com

Abstract

BACKGROUND

Developmental dysplasia of the hip is a developmental abnormality of the hip joint that results from hypoplasia during birth and continues to deteriorate after birth.

AIM

To observe the effects of magnesium sulfate wet compress, iodophor wet compress, and ice compress on reducing postoperative perineal swelling in children with developmental hip dislocation to provide effective nursing interventions in the clinic.

METHODS

A total of 120 children with hip dislocation after surgery in a third-class A hospital from January 2018 to January 2020 were randomly divided into four groups, the magnesium sulfate wet compress group, iodophor wet compress group, ice compress group and the control group. Data such as height, weight, age, duration of surgery, intraoperative blood loss, postoperative body temperature, swelling duration, pain score, and incidence of blisters were collected and analyzed.

RESULTS

There were no significant differences in height, weight, age, duration of surgery, intraoperative blood loss, and postoperative body temperature among the four groups of children. Statistical differences were observed between the intervention groups and the control group ($P < 0.05$).

CONCLUSION

All three methods significantly reduced postoperative perineal swelling in children with developmental hip dislocation, reduced the duration of postoperative perineal swelling, reduced pain, and improved the quality of care.

open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

Manuscript source: Unsolicited manuscript

Received: July 21, 2020

Peer-review started: July 21, 2020

First decision: August 8, 2020

Revised: August 15, 2020

Accepted: September 11, 2020

Article in press: September 11, 2020

Published online: October 26, 2020

P-Reviewer: Georgescu EF, Johansen S, Sharma M

S-Editor: Wang JL

L-Editor: Webster JR

P-Editor: Ma YJ



Key Words: Pediatric surgery; Developmental hip dislocation; Pediatric care; Postoperative complications; Perineal swelling

©The Author(s) 2020. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: The effects of a magnesium sulfate wet compress, iodophor wet compress, and an ice compress for reducing postoperative perineal swelling in children with developmental hip dislocation were determined in order to provide effective nursing interventions in the clinic. We selected 120 children with hip dislocation, randomly divided them into four groups and collected data for analysis. All three methods reduced the duration of postoperative perineal swelling, reduced pain, and improved the quality of care.

Citation: Wang L, Wang N, He M, Liu H, Wang XQ. Observation of the effects of three methods for reducing perineal swelling in children with developmental hip dislocation. *World J Clin Cases* 2020; 8(20): 4719-4725

URL: <https://www.wjnet.com/2307-8960/full/v8/i20/4719.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v8.i20.4719>

INTRODUCTION

Developmental dysplasia of the hip (DDH) is a developmental abnormality of the hip joint that results from hypoplasia during birth and continues to deteriorate after birth^[1-3]. With a prevalence as high as 1.0% to 2.9%, DDH affects more girls than boys^[4] (approximately 5- to 9-fold more girls). The clinical manifestations include shortened limbs, external rotation of the nodules, and lateral bulging of the hip bone, resulting in limited mobility. Statistics show that there are more unilateral lesions and the incidence of hip delivery is higher with DDH, which may improve or become more aggravated as the child develops. Some studies have reported that 70% of children with developmental hip dislocation have a family history^[7]. Children with developmental hip dislocation will have perineal swelling after surgery, and the swelling will be more obvious at a younger age^[8]. There have been no reports on reducing the perineal swelling of children after routine care. In this study, to further examine effective nursing interventions to reduce postoperative perineal swelling in children with developmental hip dislocation, to reduce postoperative pain, and to improve the level of care, three types of nursing interventions, namely, magnesium sulfate wet compress, iodophor wet compress and ice compress, were compared. The results of this comparison are reported below.

MATERIALS AND METHODS

Patients

Following clinical observation, female patients aged 1.5 to 4 years with a high swelling rate were enrolled in this study after surgery for developmental hip dislocation in a third-class A hospital from January 2018 to January 2020. One hundred and twenty 1.5-4-year-old female patients were selected. Inclusion criteria were as follows: Children diagnosed with developmental hip dislocation and open reduction and internal fixation, hip osteotomy, and plate screw internal fixation in our hospital; female patients aged 1.5 to 4 years. Exclusion criteria: Children who did not undergo surgical treatment for various reasons; children with delayed operation time due to fever before surgery; children whose family members refused to participate in the study.

Research methods

Children in the control group were given routine care, including basic care, perineal irrigation, vital signs monitoring, and health education. The remaining three groups underwent wet compresses on the basis of routine care as follows: (1) From the 1st day

after operation, 8 layers of 3 cm × 5 cm gauze were immersed in 50% magnesium sulfate solution, preferably soaked with no drips, which was used to gently cover the perineum from top to bottom at the site of edema, the gauze was always kept moist during treatment, and the local reaction was observed. Each wet compress was applied for 30 min, twice/d; (2) In the iodophor wet compress group, from the first day after surgery, 8 layers of sterile gauze soaked in 0.3% iodophor was applied for perineal edema, the gauze was kept moist during application, which was tightly attached and the local reaction was observed. Each wet compress remained in place for 30 min, was changed twice/d, and the perineum was kept clean during treatment; and (3) A 1 cm thick sponge was made into a 2 cm × 5 cm ice pack, which was soaked in water and then frozen. From the first day after surgery, the ice pack was wrapped with sterile gauze and placed on the perineum to cover the swelling. Each ice compress was applied for 15 min, 3 times/d. During this period, the skin was regularly checked to prevent frostbite.

Grading of edema (Level IV method): (1) Class I: The perineum is slightly swollen and has dermatoglyphs; (2) Grade II: The perineum swells until the skin is shiny and the skin lines disappear; (3) Grade III: The perineum is swollen until the skin is translucent, and the surrounding labia majora is also swollen; and (4) Grade IV: Extreme swelling and blisters on the skin.

Evaluation of perineal edema: (1) Invalid: The child's symptoms did not improve, and the edema did not resolve or worsen; (2) Effective: The child's symptoms improved, and the edema symptoms resolved by 30% to 70%; (3) Significant effect: The symptoms basically disappeared, and the edema symptoms resolved by more than 70%; and (4) Healed: The child's symptoms disappeared, and the edema symptoms subsided.

Quality control: Using the randomization principle, the patients were randomly divided into four groups using the digital random method; the inclusion and exclusion criteria were strictly followed; the researchers used uniform guidance and consistent interpretation when collecting data, thereby reducing the risk of family members misunderstandings and reducing information deviation; survey content, measurement indicators, and judgment standards were clearly unified; the participants in this study were uniformly trained to ensure standard uniform data collection.

Statistical analysis

The data were processed using the SPSS 13.0 statistical software package. The measurement data were expressed as ($x \pm s$) and the *F* test was used. The count data were expressed as a percentage, using the χ^2 test. $P < 0.05$ indicated that the difference was statistically significant.

RESULTS

The four groups were compared in terms of age, height, weight, duration of surgery, blood loss, and postoperative body temperature, and analysis showed that all values were not statistically different ($P > 0.05$), but were comparable (Table 1).

The baseline data of the four groups including age, height, and weight were not statistically different ($P > 0.05$), indicating that the data in the four groups were comparable; the duration of surgery and the amount of intraoperative bleeding were not statistically different ($P > 0.05$), indicating that surgical trauma was similar in all groups, and the results were not biased due to differences in these factors; postoperative body temperature was comparable in the four groups of patients ($P > 0.05$), indicating that the degree of swelling did affect body temperature, and was not the reason for swelling.

The pain duration and pain score of perineal swelling in the four groups of patients were compared. The pain duration in the three treatment groups was significantly lower than that in the control group ($P < 0.05$).

The data on swelling elimination in the three groups were compared with the data in the control group, and a statistically significant difference ($P < 0.05$) was observed (Table 2). Swelling elimination was faster in the magnesium sulfate wet compress group, followed by the ice compress group, and the iodophor wet compress group. However, swelling duration in the three groups was shorter than that in the control group, indicating that the interventions in the three groups all had significant effects. The pain score in the three treatment groups were compared with that in the control group and it was found that the ice compress group resulted in the lowest pain score

Table 1 Comparison of general data of four groups of children

| | Magnesium sulfate wet pack group | Iodophor wet compress group | Ice pack group | Control group | P value |
|------------------------------|----------------------------------|-----------------------------|---------------------------|---------------|---------|
| Age (mo) | 32.40 ± 8.89 ^a | 31.03 ± 8.72 ^a | 30.03 ± 9.08 ^a | 31.33 ± 9.13 | 0.759 |
| Height (cm) | 95.90 ± 7.02 ^a | 95.40 ± 6.03 ^a | 94.20 ± 5.40 ^a | 94.83 ± 6.77 | 0.941 |
| Weight (kg) | 14.50 ± 1.66 ^a | 14.25 ± 1.53 ^a | 13.91 ± 1.40 ^a | 14.15 ± 1.60 | 0.781 |
| Operation duration (h) | 3.53 ± 0.39 ^a | 3.55 ± 0.38 ^a | 3.38 ± 0.36 ^a | 3.46 ± 0.41 | 0.599 |
| Intraoperative bleeding (mL) | 90.20 ± 4.99 ^a | 86.63 ± 6.37 ^a | 88.33 ± 4.18 ^a | 89.70 ± 6.11 | 0.211 |
| Temperature (°C) | 2.03 ± 0.61 ^a | 2.07 ± 0.69 ^a | 1.80 ± 0.61 ^a | 3.53 ± 0.57 | 0.132 |

^a*P* < 0.05 vs controls. Body temperature in the table (0: < 37.5°C; 1: 37.5–38°C; 2: 38.1–38.5°C; 3: 38.5–39°C; 4: > 39°C).

Table 2 Time to regression of perineum swelling and the pain score in the four groups

| | Magnesium sulfate wet pack group | Iodophor wet compress group | Ice pack group | Control group | P value |
|-------------------------|----------------------------------|-----------------------------|--------------------------|---------------|---------|
| Swelling to subside (d) | 2.98 ± 0.33 ^a | 3.90 ± 0.33 ^a | 3.11 ± 0.41 ^a | 5.91 ± 0.63 | 0.001 |
| Pain score | 4.07 ± 0.98 ^a | 4.00 ± 1.05 ^a | 3.93 ± 0.11 ^a | 6.53 ± 1.28 | 0.025 |

^a*P* < 0.05 vs controls.

followed by the iodophor wet compress group and the magnesium sulfate wet compress group, indicating that these interventions relieved postoperative pain to a certain extent.

The incidence of blisters around the swelling of the perineum in the four groups of patients was compared. The χ^2 test was used to compare the data which are shown in Table 3. Five cases of blisters were observed in the control group, and none were noted in the other three groups, indicating the obvious effects of these three interventions, which had a positive effect on clinical work and greatly reduced the children's blisters. The pain and risk of infection due to blister rupture also reduced staff workload in terms of difficult nursing procedures.

DISCUSSION

At present, there are not many interventions in clinical practice for swelling of the perineum after developmental hip dislocation surgery. Essentially, swelling resolves spontaneously and keeping the perineum clean and dry to prevent stool from polluting the incision is emphasized and studies do not mention how to reduce the swelling of the perineum in children. There are many methods to reduce swelling of the perineum in adults. Infrared irradiation combined with a magnesium sulfate wet heat compress has a significant effect on removing postpartum hemorrhoids and edema. We believe that an ice compress applied to the perineum postpartum will achieve good results. Ethanol has a very good effect on swelling, but is volatile, and should not be used in allergic patients. 10% sodium chloride solution applied externally reduces swelling and has an analgesic effect. Metronidazole can eliminate perineal edema and a 654-2 wet compress has a significant effect on eliminating perineal edema. It takes a long time for swelling to resolve spontaneously, which greatly aggravates postoperative pain in children. Patients with severe swelling will also develop tension blisters^[9]. If the blisters rupture, this will increase the risk of infection. Therefore, determining how to reduce perineal swelling in children after surgery is imperative.

The scientific basis for choosing a magnesium sulfate wet compress, an iodophor wet compress or an ice compress is discussed below.

Mg²⁺ and SO₄²⁻ are polar substances that can absorb water, mainly through the entry of magnesium ions, which changes the pressure difference between tissues and tissue gaps and leads to the absorption of extravasated water. The main mechanisms of action of these ions involve a reduction in the generation of oxygen free radicals, protecting vascular tissue, inhibiting vascular inflammation, reducing vascular injury,

Table 3 Comparison of the incidence of perineum blisters in the four groups

| | Total number of cases | Number of cases of blistering | Percentage | P value |
|----------------------------------|-----------------------|-------------------------------|------------|---------|
| Magnesium sulfate wet pack group | 30 | 0 | 0% | 0.021 |
| Iodophor wet compress group | 30 | 0 | 0% | |
| Ice pack group | 30 | 0 | 0% | |
| Control group | 30 | 5 | 16.67% | |

dilation of blood vessels, and restoring blood vessel elasticity. After dissolution of magnesium sulfate powder, the penetration of magnesium ions can improve the tissue gap and intracellular osmotic pressure, which can promote the absorption of exudate from local swollen tissue to promote the reduction of local tissue edema, thereby achieving anti-inflammatory, analgesic, and anti-swelling effects^[10-12].

Iodophor, also known as strong iodine and povidone iodine, is a compound consisting of polyvinylpyrrolidone and iodine. The stock solution is dark brown and tends to foam. Iodophor mainly denatures bacteria by releasing elemental iodine and binding the amino acids of bacterial proteins while oxidizing the active groups of bacterial protoplasmic proteins, leading to the death of microorganisms and the rapid and lasting sterilization of various bacteria, viruses, fungi and spores. Iodophor is a commonly used disinfectant in surgery^[13-15]. It has the functions of sterilization, anti-swelling, convergence, anti-infection, protection of wounds, and promotion of healing. It is used in the clinic for postpartum perineal edema. An iodophor wet compress can kill bacteria, dehydrate local tissues, and reduce tissue edema and incisional bleeding.

Ice compress therapy is a type of physical therapy. It is widely used in clinical practice to reduce swelling and relieve pain caused by local tissue swelling resulting from various physical and chemical causes^[16-19]. Its mechanism of action lies in the application of physical factors, such as a temperature that is lower than that of the human body, to stimulate local rapid cooling and promote local tissue vasoconstriction, reduce tissue metabolism, and inhibit inflammatory exudation and bleeding of blood vessels, all in order to achieve a reduction in swelling. Furthermore, by reducing peripheral nerve sensitivity, this therapy had an analgesic effect^[20].

The experimental results are clear; the three treatment methods are safe, reliable, and effective, without any complications and discomfort. The magnesium sulfate wet compress was more effective than the other methods in eliminating swelling, and pain relief was greater than that with the other two methods. The ice compress was more effective than the other therapies in terms of pain relief, but special attention should be paid to preventing frostbite during use. The effect of the iodophor wet compress had an intermediate effect compared with the other two therapies, although this method was gentler. As a result, postoperative nursing staff can choose appropriate nursing measures according to the different conditions and needs of the child, reduce the duration of perineal swelling in the child, reduce the child's pain to a certain extent, and ease the tension and anxiety of the parents, thereby improving the quality of care. These findings provide a reference for clinical use^[21].

CONCLUSION

Postoperative perineal swelling in children with developmental hip dislocation can be reduced using a magnesium sulfate wet compress, iodophor wet compress, and an ice compress. These findings will broaden the application of magnesium sulfate wet compress, iodophor wet compress and ice compress in the treatment of perineum swelling after surgery for developmental dislocation of the hip joint in children. Postoperative nursing staff can choose appropriate nursing measures according to the different conditions and needs of the child, reduce the duration of perineal swelling, reduce the child's pain to a certain extent, and ease the tension and anxiety of the parents, thereby improving the quality of care. These findings provide a reference for clinical use.

ARTICLE HIGHLIGHTS

Research background

Developmental dysplasia of the hip (DDH) is a developmental abnormality of the hip joint that results from hypoplasia during birth and continues to deteriorate after birth. With a prevalence as high as 1.0% to 2.9%, DDH affects more girls than boys. The clinical manifestations include shortened limbs, external rotation of the nodules, and lateral bulging of the hip bone, resulting in limited mobility. There have been no reports on the reduction of perineal swelling in children after routine care.

Research motivation

In this study, to further explore effective nursing interventions to reduce postoperative perineal swelling in children with developmental hip dislocation, to reduce postoperative pain of these children, and to improve the level of care, three types of nursing interventions, namely, magnesium sulfate wet compress, iodophor wet compress and ice compress, were compared.

Research objectives

This study aimed to observe the effect of reducing postoperative perineal swelling in children with developmental hip dislocation using magnesium sulfate wet compress, iodophor wet compress, and ice compress to provide effective nursing interventions in the clinic.

Research methods

A total of 120 children with surgical hip dislocation after surgery in a third-class A hospital were randomly divided into four groups, the magnesium sulfate wet compress group, iodophor wet compress group, ice compress group and the control group, and data such as height, weight, age, duration of surgery, intraoperative blood loss, postoperative body temperature, swelling duration, pain score, and incidence of blisters were collected and analyzed.

Research results

There were no significant differences in height, weight, age, duration of surgery, intraoperative blood loss, and postoperative body temperature among the four groups of children.

Research conclusions

Postoperative perineal swelling in children with developmental hip dislocation was reduced using magnesium sulfate wet compress, iodophor wet compress, and ice compress. These findings provide a reference for clinical use.

Research perspectives

The ice compress was more effective than the others in terms of pain relief, but special attention should be paid to the prevention of frostbite during use. The clinical application of magnesium sulfate wet compress, iodophor wet compress and ice compress in the treatment of perineum swelling after surgery for developmental dislocation of hip joint in children should be investigated further.

REFERENCES

- 1 **Cordier W**, Tönnis D, Kalchschmidt K, Storch KJ, Katthagen BD. Long-term results after open reduction of developmental hip dislocation by an anterior approach lateral and medial of the iliopsoas muscle. *J Pediatr Orthop B* 2005; **14**: 79-87 [PMID: 15703515 DOI: 10.1097/01202412-200503000-00004]
- 2 **Schmitt M**, Burgess JK, Larson JE, Dudas Sheehan D, Janicki JA. Late Presentation of Developmental Hip Dislocation: A Case Report. *JBJS Case Connect* 2018; **8**: e88 [PMID: 30431477 DOI: 10.2106/JBJS.CC.18.00065]
- 3 **Terjesen T**, Gunderson RB. Radiographic evaluation of osteoarthritis of the hip: an inter-observer study of 61 hips treated for late-detected developmental hip dislocation. *Acta Orthop* 2012; **83**: 185-189 [PMID: 22329668 DOI: 10.3109/17453674.2012.665331]
- 4 **Ashoor M**, Abdulla N, Elgabaly EA, Aldlyami E, Alshryda S. Evidence based treatment for developmental dysplasia of the hip in children under 6 months of age. *Surgeon* 2020 [PMID: 32249037 DOI: 10.1016/j.surge.2020.02.006]
- 5 **Harsanyi S**, Zamborsky R, Krajciova L, Kokavec M, Danisovic L. Developmental Dysplasia of the Hip: A Review of Etiopathogenesis, Risk Factors, and Genetic Aspects. *Medicina (Kaunas)* 2020; **56**: 153 [PMID: 32249037 DOI: 10.1016/j.surge.2020.02.006]

32244273 DOI: [10.3390/medicina56040153](https://doi.org/10.3390/medicina56040153)]

- 6 **Yu D**, Zhai Z, Zhang J, Zhu Z, Li H, Yan M, Mao Y. Optimal Level of Femoral Neck for Predicting Postoperative Stem Anteversion in Total Hip Arthroplasty for Crowe Type I Dysplastic Hip. *Orthop Surg* 2020; **12**: 480-487 [PMID: [32202054](https://pubmed.ncbi.nlm.nih.gov/32202054/) DOI: [10.1111/os.12647](https://doi.org/10.1111/os.12647)]
- 7 **Zhang L**, Xu X, Chen Y, Li L, Zhang L, Li Q. Mapping of developmental dysplasia of the hip to two novel regions at 8q23-q24 and 12p12. *Exp Ther Med* 2020; **19**: 2799-2803 [PMID: [32256763](https://pubmed.ncbi.nlm.nih.gov/32256763/) DOI: [10.3892/etm.2020.8513](https://doi.org/10.3892/etm.2020.8513)]
- 8 **Huber C**, Oulès B, Bertoli M, Chami M, Fradin M, Alanay Y, Al-Gazali LI, Ausems MG, Bitoun P, Cavalcanti DP, Krebs A, Le Merrer M, Mortier G, Shafeghati Y, Superti-Furga A, Robertson SP, Le Goff C, Muda AO, Paterlini-Bréchet P, Munnich A, Cormier-Daire V. Identification of CANT1 mutations in Desbuquois dysplasia. *Am J Hum Genet* 2009; **85**: 706-710 [PMID: [19853239](https://pubmed.ncbi.nlm.nih.gov/19853239/) DOI: [10.1016/j.ajhg.2009.10.001](https://doi.org/10.1016/j.ajhg.2009.10.001)]
- 9 **Knaus A**, Terjesen T. Proximal femoral resection arthroplasty for patients with cerebral palsy and dislocated hips: 20 patients followed for 1-6 years. *Acta Orthop* 2009; **80**: 32-36 [PMID: [19234884](https://pubmed.ncbi.nlm.nih.gov/19234884/) DOI: [10.1080/17453670902804935](https://doi.org/10.1080/17453670902804935)]
- 10 **Aytuluk HG**, Gultekin A, Saracoglu KT. Comparison of intraarticular bupivacaine-dexmedetomidine and bupivacaine-magnesium sulfate for postoperative analgesia in arthroscopic meniscectomy: a randomized controlled clinical trial. *Hippokratia* 2019; **23**: 51-57 [PMID: [32265584](https://pubmed.ncbi.nlm.nih.gov/32265584/)]
- 11 **Li W**, Wu X, Yu J, Ma C, Zhuang P, Zeng J, Zhang J, Deng G, Wang Y. Magnesium sulfate attenuates lipopolysaccharides-induced acute lung injury in mice. *Chin J Physiol* 2019; **62**: 203-209 [PMID: [31670284](https://pubmed.ncbi.nlm.nih.gov/31670284/) DOI: [10.4103/CJP.CJP_48_19](https://doi.org/10.4103/CJP.CJP_48_19)]
- 12 **Singh NP**, Makkar JK, Wourms V, Zorrilla-Vaca A, Cappellani RB, Singh PM. Role of topical magnesium in post-operative sore throat: A systematic review and meta-analysis of randomised controlled trials. *Indian J Anaesth* 2019; **63**: 520-529 [PMID: [31391614](https://pubmed.ncbi.nlm.nih.gov/31391614/) DOI: [10.4103/ija.IJA_856_18](https://doi.org/10.4103/ija.IJA_856_18)]
- 13 **Bruyère F**, Laine P, Saint-Jalmes G, Malavaud S, Pradere B. Mucosal impact of alcoholic povidone-iodine indicated in preoperative disinfection. *J Hosp Infect* 2020; **104**: 302-304 [PMID: [31743692](https://pubmed.ncbi.nlm.nih.gov/31743692/) DOI: [10.1016/j.jhin.2019.11.008](https://doi.org/10.1016/j.jhin.2019.11.008)]
- 14 **Hitosugi T**, Tsukamoto M, Yokoyama T. Pneumonia due to aspiration of povidine iodine after preoperative disinfection of the oral cavity. *Oral Maxillofac Surg* 2019; **23**: 507-511 [PMID: [31673818](https://pubmed.ncbi.nlm.nih.gov/31673818/) DOI: [10.1007/s10006-019-00800-2](https://doi.org/10.1007/s10006-019-00800-2)]
- 15 **Malalasekera A**, Louie-Johnsun M, Wang A, van Diepen DC, Gottlieb T, Chan L. Is a 10-minute surgical scrub necessary in urologic prosthetic surgery? *Neurourol Urodyn* 2019; **38**: 990-995 [PMID: [30801820](https://pubmed.ncbi.nlm.nih.gov/30801820/) DOI: [10.1002/nau.23945](https://doi.org/10.1002/nau.23945)]
- 16 **Steen M**, Cooper K, Marchant P, Griffiths-Jones M, Walker J. A randomised controlled trial to compare the effectiveness of ice-packs and Epifoam with cooling maternity gel pads at alleviating postnatal perineal trauma. *Midwifery* 2000; **16**: 48-55 [PMID: [11139861](https://pubmed.ncbi.nlm.nih.gov/11139861/) DOI: [10.1054/midw.1999.0188](https://doi.org/10.1054/midw.1999.0188)]
- 17 **Chiarelli P**, Cockburn J. Postpartum perineal management and best practice. *Aust Coll Midwives Inc J* 1999; **12**: 14-18 [PMID: [10222939](https://pubmed.ncbi.nlm.nih.gov/10222939/) DOI: [10.1016/s1031-170x\(99\)80035-x](https://doi.org/10.1016/s1031-170x(99)80035-x)]
- 18 **Ba C**, Yu JL. [External application of No.II prescription on preoperative detumescence for the treatment of calcaneal fracture through tarsal sinus approach]. *Zhongguo Gu Shang* 2019; **32**: 987-990 [PMID: [31870044](https://pubmed.ncbi.nlm.nih.gov/31870044/) DOI: [10.3969/j.issn.1003-0034.2019.11.003](https://doi.org/10.3969/j.issn.1003-0034.2019.11.003)]
- 19 **Li Z**, Wang Q. Ice compresses aid the reduction of swelling and pain after scleral buckling surgery. *J Clin Nurs* 2016; **25**: 3261-3265 [PMID: [27550824](https://pubmed.ncbi.nlm.nih.gov/27550824/) DOI: [10.1111/jocn.13362](https://doi.org/10.1111/jocn.13362)]
- 20 **Xiao Q**, Zhou Z. [Perioperative pain management of total hip arthroplasty]. *Zhongguo Xiu Fu Chong Jian Wai Ke Za Zhi* 2019; **33**: 1190-1195 [PMID: [31512464](https://pubmed.ncbi.nlm.nih.gov/31512464/) DOI: [10.7507/1002-1892.201903026](https://doi.org/10.7507/1002-1892.201903026)]
- 21 **Tsakiridis I**, Mamopoulos A, Athanasiadis A, Dagklis T. Obstetric Anal Sphincter Injuries at Vaginal Delivery: A Review of Recently Published National Guidelines. *Obstet Gynecol Surv* 2018; **73**: 695-702 [PMID: [30572346](https://pubmed.ncbi.nlm.nih.gov/30572346/) DOI: [10.1097/OGX.0000000000000622](https://doi.org/10.1097/OGX.0000000000000622)]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

