Format: Abstract

Full text links

Int J Pharm. 2001 Jul 3;222(1):57-64.

Effect of phosphatidylcholine on skin permeation of indomethacin from gel prepared with liquid paraffin and hydrogenated phospholipid.

Fujii M[1], Shiozawa K, Watanabe Y, Matsumoto M.

Author information

Abstract

The effects of hydrogenated and unhydrogenated phosphatidylcholine (HPC, PC) on the permeation of indomethacin (IM) through hairless rat skin were investigated using liquid paraffin (LP) and a gel prepared with LP and hydrogenated soybean phospholipid (HSL). IM solubility at 95 degrees C increased in proportion to the concentration of HPC or PC, whereas solubility at 37 degrees C did not increase with HPC. IM showed no permeation until 10 h from LP without HPC/PC, but permeated at rates of approximately 5 and 10 microg/cm2 within 10 h from LP with HPC and PC, respectively. The permeation from the gel with various formulations (HSL, 15%; PC/HPC, 0-5%; IM, 0.5-2%) was determined. Permeation rates were 1.7-4.8 microg/cm2 per h and were proportional to the skin concentration. Skin concentration was correlated to the release rate from the gel. We concluded that IM was solubilized by phospholipids, high activity in the vehicle led to high partition of IM in skin, and permeation increased due to a high skin concentration.

PMID: 11404032

[PubMed - indexed for MEDLINE]

MeSH Terms, Substances

LinkOut - more resources

PubMed Commons

PubMed Commons home

0 comments

How to join PubMed Commons

PubMed ▼ Kim C, Shim J, Han S, Chang I. "The skin-permeation-enhancing effect

Format: Abstract

The following term was not found in PubMed: Nov-Dec;53.

Quoted phrase not found.

J Cosmet Sci. **2002** Nov-Dec;53(**6**):**363-74**.

The skin-permeation-enhancing effect of phosphatidylcholine: caffeine as a model active ingredient.

Kim C[1], Shim J, Han S, Chang I.

Author information

Abstract

Phospholipids or liposomes are recognized to have **skin permeation enhancing** ability, although their mechanisms are still controversial. The aim of this study was to establish a method of increasing the skin permeation of **active** ingredients, using **phosphatidylcholine** as a permeation enhancer. **Caffeine** was used as a **model active ingredient** and in vitro skin penetration experiments were performed using Franz-type diffusion cells to determine the amount of absorbed **caffeine**. Lipid vesicles were prepared by the microfluidization process. The encapsulation efficiency of **caffeine** was found to be very low due to the instability of the liposome structure and the water solubility of **caffeine**. However, the amount of absorbed **caffeine** was nearly independent of the encapsulation efficiency and the vesicle size, but increased with the increase of **phosphatidylcholine** concentration. These results indicated that **phosphatidylcholine** could act as a penetration enhancer, irrespective of its presence in vesicular form or solubilized form.

PMID: 12512013

[PubMed - indexed for MEDLINE]

MeSH Terms, Substances

LinkOut - more resources

PubMed Commons

PubMed Commons home

0 comments

How to join PubMed Commons

Format: Abstract

Full text links

See 1 citation found using an alternative search:

J Wound Care. 2008 Jun;17(6):268-70, 272, 274-5.

RCT on gentian violet versus a hydrogel dressing for radiotherapy-induced moist skin desquamation.

Gollins S[1], Gaffney C, Slade S, Swindell R.

Author information

Abstract

OBJECTIVE: Radiotherapy-induced moist desquamation is a significant problem but there is a paucity of randomised data on which to base treatment decisions. The current prospective randomised trial compared gentian violet (GV) to a hydrogel dressing in this context.

METHOD: Thirty patients undergoing radiotherapy to the head and neck region or breast who had developed moist desquamation in the radiotherapy field were randomised to treatment with 0.5% aqueous gentian violet (GV) (n=16) or a hydrogel dressing (n=14). The area of desquamation was regularly measured until healing or withdrawal from the study.

RESULTS: The likelihood of healing with the hydrogel was greater than GV with a hazard ratio for healing of 7.95 (95% CI 2.20-28.68; p=0.002). The median time to healing for hydrogel was 12 days but had not been reached for GV by 30 days. Over the first 14 days the median'area under curve' of moist desquamation for GV was 82.6 cm2 (range 31.8-320.7 cm2) and that for hydrogel 20.0 cm2 (range 3.8-301.0 cm2) (difference significant at p=0.003). Ten of 16 patients treated with GV withdrew from the study (due to stinging in five and failure to heal in five) compared with two of the 14 treated with hydrogel (difference significant at p=0.021).

CONCLUSION: Hydrogel dressings are more likely to heal radiotherapy-induced moist desquamation and are better tolerated than GV.

PMID: **18666721** DOI: 10.12968/jowc.2008.17.6.29589

[PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

LinkOut - more resources

PubMed Commons

PubMed Commons home

0 comments

Int J Pharm. 2011 Nov 25;420(1):84-92. doi: 10.1016/j.ijpharm.2011.08.031. Epub 2011 Aug 22.

Evaluation of the physical and biological properties of hyaluronan and hyaluronan fragments.

Ferguson EL[1], Roberts JL, Moseley R, Griffiths PC, Thomas DW.

Author information

Abstract

Hyaluronan (HA) has been extensively used for various medical applications, including osteoarthritis, tissue augmentation and ocular surgery. More recently, it has been investigated for use in polymer therapeutics as a carrier for drugs and biologically active proteins, thanks to its biodegradability, biocompatibility and inherent **biological properties**. Such **biological** functions are strongly dependent on HA's chain length, yet the molecular weight of HAs used in polymer conjugates varies widely and is inconsistent with its intended application. Therefore, this study aimed to determine the ideal chain length of HA to be used in polymer conjugates for enhanced tissue repair. HA **fragments** (M(w) 45,000-900,000g/mol) were prepared by **acid** hydrolysis of rooster comb HA and their physicochemical and **biological properties** were characterized. Such HA **fragments** had a highly extended, almost rod-like solution conformation and demonstrated chain length- and concentration-dependent viscosity, while exposure to HAase caused a rapid reduction in HA viscosity, which was most significant for the native HA. Initial HA hydrolysis rate by HAase varied strongly with HA chain length and was dependent on the formation of a stable enzyme-substrate complex. When normal human dermal fibroblasts were exposed to the different HA **fragments** for 72h, only native (900,000g/mol) HA reduced proliferation at 1000μg/mL. Conversely, only the smallest HA fragment (70,000g/mol) reduced the proliferation of chronic wound fibroblasts, at 1000μg/mL. The 70,000g/mol HA fragment also promoted the greatest cell attachment. These observations demonstrate that low molecular weight (70,000-120,000g/mol) HA **fragments** would be best suited for the delivery of proteins and peptides with applications in chronic wound healing and paves the way for the rationalized development of novel HA conjugates.

PMID: 21884772 DOI: 10.1016/j.ijpharm.2011.08.031

[PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

LinkOut - more resources

J Cosmet Dermatol. 2016 Dec;15(4):520-526. doi: 10.1111/jocd.12237. Epub 2016 Jun 21.

Physiochemical properties and application of hyaluronic acid: a systematic review.

Salwowska NM[1], Bebenek KA[2], Żądło DA[3], Wcisło-Dziadecka DL[4].

Author information

Abstract

BACKGROUND: Hyaluronic acid is a widely available, biocompatible, polysaccharide with distinguishing physiochemical **properties** which inspire its **application** throughout several fields of medicine.

OBJECTIVE: We aim to investigate the **application** of **hyaluronic acid** and its effectiveness throughout several fields of medicine, including several therapies administered and prescribed by general health practitioners.

METHODS: We conducted a **systematic review** on randomized controlled trials about the physiochemical **properties** of **hyaluronic acid** and its **application** through primary care. Studies included in this **review** were peer reviewed and met our inclusion criteria.

FINDINGS: Factors were clustered into the following: uses throughout several fields of medicine, physiochemical **properties**, bioavailability, tolerance, effectiveness, and adverse effects. Therapies with **hyaluronic acid** provided long-lasting, pain relieving, moisturizing, lubricating, and dermal filling effect. Tissue hydration, elasticity, and durability improved.

CONCLUSIONS: Adjunct therapy with **hyaluronic acid** provides longer-lasting therapeutic effect when compared to the use of glucocorticosteroids and NSAIDs in osteoarthritic chronic diseases, is well-established in ophthalmology due to its lubricating **properties** for the corneal endothelium, and improves tissue hydration and cellular resistance to mechanical damage in aesthetic dermatology, and has marginal adverse effects. Several trials indicated its role in tumor markers, liver diseases, and in pharmaceuticals, but further research would be necessary to draw conclusive results in those fields.

KEYWORDS: adjuvant therapy; bioavailability; **hyaluronic acid**; long-lasting effect; tolerability; wound healing

PMID: 27324942 DOI: 10.1111/jocd.12237

[PubMed - in process]

Phytother Res. 2015 Aug;29(8):1117-22. doi: 10.1002/ptr.5356. Epub 2015 Apr 16.

Comparative Study of the Biological Activity of Allantoin and Aqueous Extract of the Comfrey Root.

Savić VLj[1], Nikolić VD[2], Arsić IA[1], Stanojević LP[2], **Najman SJ**[3], Stojanović S[3], Mladenović-Ranisavljević II[2].

Author information

Abstract

This study investigates the **biological activity** of pure **allantoin** (PA) and **aqueous extract** of the **comfrey** (Symphytum officinale L.) **root** (AECR) standardized to the **allantoin** content. Cell viability and proliferation of epithelial (MDCK) and fibroblastic (L929) cell line were studied by using MTT test. Anti-irritant potential was determined by measuring electrical capacitance, erythema index (EI) and transepidermal water loss of artificially irritated skin of young healthy volunteers, 3 and 7 days after application of creams and gels with PA or AECR. Pure **allantoin** showed mild inhibitory effect on proliferation of both cell lines at concentrations 40 and 100 μg/ml, but more pronounced on MDCK cells. **Aqueous extract** of the **comfrey root** effect on cell proliferation in concentrations higher than 40 μg/ml was significantly stimulatory for L929 but inhibitory for MDCK cells. Pharmaceutical preparations that contained AECR showed better anti-irritant potential compared with PA. Creams showed better effect on hydration and EI compared with the gels that contained the same components. Our results indicate that the **biological activity** of the **comfrey root extract** cannot be attributed only to **allantoin** but is also likely the result of the interaction of different compounds present in AECR. Topical preparations that contain **comfrey extract** may have a great application in the treatment of skin irritation.

KEYWORDS: **allantoin**; anti-irritant potential; **comfrey**; **extract**; proliferation; viability

PMID: 25880800 DOI: 10.1002/ptr.5356

[PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

LinkOut - more resources

PubMed Commons

PubMed Commons home

0 comments

Biol Trace Elem Res. 2016 May;171(1):107-15. doi: 10.1007/s12011-015-0436-y. Epub 2015 Sep 9.

Effect of Acetyl-L-Carnitine on Antioxidant Status, Lipid Peroxidation, and Oxidative Damage of Arsenic in Rat.

Sepand MR[1], Razavi-Azarkhiavi K[2], Omidi A[3], Zirak MR[2], Sabzevari S[1,4], Kazemi AR[1], Sabzevari O[5,6].

Author information

Abstract

Arsenic (As) is a widespread environmental contaminant present around the world in both organic and inorganic forms. **Oxidative** stress is postulated as the main mechanism for As-induced toxicity. This study was planned to examine the protective **effect** of **acetyl-L-carnitine** (ALC) on As-induced **oxidative damage** in male **rats**. Animals were randomly divided into four groups of control (saline), sodium arsenite (NaAsO2, 20 mg/kg), ALC (300 mg/kg), and NaAsO2 plus ALC. Animals were dosed orally for 28 successive days. Blood and tissue samples including kidney, brain, liver, heart, and lung were collected on the 28th day and evaluated for **oxidative damage** and histological changes. NaAsO2 exposure caused a significant **lipid peroxidation** as evidenced by elevation in thiobarbituric acid-reactive substances (TBARS). The activity of **antioxidant** enzymes such as glutathione-S-transferase (GST), catalase (CAT), superoxide dismutase (SOD), as well as sulfhydryl group content (SH group) was significantly suppressed in various organs following NaAsO2 treatment ($P < 0.05$). Furthermore, NaAsO2 administration increased serum values of alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), and bilirubin. Our findings revealed that co-administration of ALC and NaAsO2 significantly suppressed the **oxidative damage** induced by NaAsO2. Tissue histological studies have confirmed the biochemical findings and provided evidence for the beneficial role of ALC. The results concluded that ALC attenuated NaAsO2-induced toxicity, and this protective **effect** may result from the ability of ALC in maintaining oxidant-**antioxidant** balance.

KEYWORDS: Acetyl-L-carnitine; **Antioxidants**; **Arsenic**; **Lipid peroxidation**; **Oxidative** stress

PMID: 26349760 DOI: 10.1007/s12011-015-0436-y

[PubMed - indexed for MEDLINE]