

**Quinine-Urea-Hydrochloride as a local anaesthetic and as a dressing for infected wounds.**

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Allen & Hanburys

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ALLEN & HANBURY LTD., LONDON.

# Quinine-Urea-Hydrochloride

As a Local Anæsthetic and as a  
Dressing for Infected Wounds.

QUININE-UREA-HYDROCHLORIDE, or QUININE HYDRO-  
CHLORO-CARBAMIDE  $C_{20}H_{24}N_2O_2 \cdot HCl \cdot CO(NH_2)_2$   
 $HCl \cdot 5H_2O$ , is in white crystals, soluble in their own weight  
of water, to a neutral solution. It is formed by the union of a mole-  
cule of quinine hydrochloride with a molecule of urea hydrochloride,  
the compound containing 59.2 per cent. of anhydrous quinine.  
Quinine-Urea-Hydrochloride is allied to the urethanes; its mode of  
action as a local anæsthetic is not well understood.

The local anæsthetic action of salts of quinine was first recorded  
by Griswold in 1896. On account of its ready solubility, the com-  
pound of quinine with urea was used hypodermically in **Malaria**,  
and its marked anæsthetic action suggested its use as a substitute for  
cocaine. Thibault, in 1907, used a 1 or 2 per cent. solution for several  
small operations, and found that anæsthesia lasted from one to six  
hours. Hertzler, Rogers and Brewster, in 1909, described their  
experience of the anæsthetic during six months of its use. They  
found that a 1 per cent. solution produced perfect anæsthesia almost  
immediately, which lasted from four to six hours. They noticed,  
however, that healing of the external wound was somewhat delayed  
owing to fibrinous exudation; this was avoided by the use of a  
weaker solution (0.25 or 0.5 per cent.) when the anæsthesia, though  
delayed, was equally complete. The fibrinous exudate was absorbed  
in time, and its hæmostatic effect in preventing post-operative oozing  
was of value.

Hirschman speaks highly of Quinine-Urea-Hydrochloride in all cases where cocaine is indicated. He has used it in a large number of cases of **Hæmorrhoids, Anal Fistula, Abscess**, etc. He finds the best strength to be 1 per cent. ; its anæsthetic power is equal to cocaine, it has a pronounced hæmostatic action, and anæsthesia lasts from four hours to several days. For rectal use the drug may also be applied in the form of a suppository, or as an ointment. Green has found Quinine-Urea-Hydrochloride useful in **Operations on the Nose, Throat and Ear**. Anæsthesia may be obtained in from three to forty-five minutes (average ten minutes) and lasts, on the average, for ten days. The bleeding is not wholly controlled, though much lessened. Where primary union is required, weak solutions should be employed ; where wounds are to heal by granulation and are not in vascular areas the medium percentages should be employed, or if in vascular areas the higher strengths, because of their hæmostatic effect. Earle draws attention to the occurrence of sloughing if too strong solutions be used. He used a 2 per cent. solution on a case of mixed **Hæmorrhoids** ; the wound did well at first, but on the third day the patient's temperature rose, and on the fifth day a slough had formed beneath the mucous membrane, and above the external sphincter. Kahn uses a 1 per cent. solution in **Tonsillectomy** ; not less than 45 minims of solution are injected into each tonsil and its surroundings, and a wait of ten, or preferably fifteen minutes is essential before the operation is begun.

Cables injects a 4 per cent. solution into the subcutaneous tissue over the course of the nerve in **Sciatica**. Seven patients received six injections each, and one received eight, given daily for four doses, then every other day, until entire relief was obtained. Cohen employs a 10 per cent. solution for topical application in acute **Tonsillitis** and in **Tuberculosis of the Larynx** ; this strength is usually sufficient, but may be increased to 20 or 50 per cent., if necessary. It may be applied by spray or brush ; used ten minutes before taking food it will often permit nourishment to be swallowed in **Painful Affections of the Throat**.

Forbes Ross claims that it is possible by the infiltration of the area of an operation wound with 5 to 10 c.c. of 1 per cent. solution,

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to produce a total absence of any reactionary pain in the area of operation after the patient has recovered from the effects of the general anæsthetic. The loss of sensation in the parts lasts from twenty-four hours to six days with absolutely no return or vestige of post-operative pain until healing is complete, and a minimum of operative and post-operative shock. The method should prove most useful in **Diseases of the Rectum** and associated parts, and in **Compound Fractures** and **Crushed Limbs**. There is no local ischæmia.

Crile, whose kinetic theory of shock has attracted much attention, employs a  $\frac{1}{2}$  per cent. solution of Quinine-Urea-Hydrochloride to infiltrate the peritoneum, etc. to produce a complete nerve block, and so prevent post-operative shock and pain. Quinine-Urea-Hydrochloride wholly prevents pain if it is injected into the entire wound, but it causes some œdema; hence one would limit the wound infiltration to cases needing it, *e.g.*, **Exophthalmic Goitre** cases, bad risks generally.

Kenneth Taylor has shewn that Quinine Chloride applied to infected wounds is a powerful **Bactericide** and **Anti-Fermentative**, even in 1-10th per cent. solutions. The Urea compound has the great advantage of ready solubility, and Urea is itself a bactericide. As an **Antiseptic Dressing** a 2 per cent. solution of Quinine-Urea-Hydrochloride should be continuously applied.

Quinine-Urea-Hydrochloride is the best **Local Anæsthetic** for use in the **Dressing of Large Wounds and Raw Surfaces**. For this purpose the 5 per cent. solution should be used in a spray apparatus giving a moderately coarse spray; the solution should be applied warm and a few minutes allowed for analgesia to be established.

Other uses of this local anæsthetic are in **Dental Operations**, in which the anæsthesia is produced slowly and is very prolonged. A combination of Quinine-Urea-Hydrochloride with eucain is employed successfully in dental surgery when anæsthesia is required to be rapid and prolonged; the eucain produces rapid insensitiveness, and the action of the quinine-urea is exerted as that of the eucain wears off. The 1 per cent. solution dropped into the eye produces a satisfactory and lasting anæsthesia for the removal of foreign bodies, etc.

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## Preparations.

### FOR LOCAL ANÆSTHESIA—

$\frac{1}{2}$  or 1% Solution for Subcutaneous Injection—

					Per doz. nett
* "Azoule"					1 c.c. 4/-
,,					2 c.c. 5/-
,,					5 c.c. 6/-
,,					10 c.c. 9/-
"Azoule"	Quinine-Urea-Hydrochlor., gr. $\frac{1}{3}$	} in 20 mimins			Per doz. nett.
	Eucaïn Lactat. gr. $\frac{1}{3}$				4/-
5% Solution for Local Application, ... ..					Each nett.
					4 oz. bottles 3/-
					8 oz. ,, 5/6
					16 oz. ,, 10/-
10%	,,	,,	,,	... ..	1 oz. ,, 2/-
20%	,,	,,	,,	... ..	1 oz. ,, 3/-
Suppositories, "A. & H.," ... ..					Per doz. nett.
					5 grains 2/6
Ointment, "A. & H.," ... ..					Each nett.
					... 20%, 1 oz. tubes 3/-
					(with rectal nozzle).

### FOR MALARIA, etc.—

					Per doz. nett.
"Azoule"	...	Quinine-Urea-Hydrochloride,	2 grains in 15 m.		5/-
"Azoule"	...	"	"	5 grains in 20 m.	6/-

\* A leaflet describing "Azoule" Solutions  
will be sent on request.

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