The decreased glucose-6-phosphate dehydrogenase deficiency in the propositus has probably no bearing on her haemoglobinopathy. It is found in about 20% of Iraqi Jews, and its presence in this patient can be presumed to be a coincidence.

Summary

Haemoglobin H disease in a Jewish woman from Bagdad is described. This is the first record of a haemoglobinopathy other than thalassaemia in a person of Jewish descent. In addition to haemoglobin H the abnormal foetal haemoglobin Bart's was found, and the significance of this association is discussed. One of the woman's four children also had haemoglobin H disease in association with haemoglobin Bart's.

We wish to acknowledge the helpful interest in this investigation shown by Dr. Helen Ranney, Columbia University, New York.

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COMPARISON OF TWO ANALGESICS IN THE PROPHYLAXIS OF POST-EXTRACTION PAIN

BY

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A new synthetic, benzmethoxazone (Boehringer, Ingleheim), was presented to us as a mild analgesic of the aspirin type. Reported work showed that it had a relatively slow clearance rate and that adequate blood levels were maintained for more than half as long again as with acetylsalicylic acid (Beisenherz *et al.*, 1957).

Pain after extraction of teeth is a common complaint, and such a compound appeared to offer advantages for its relief, provided its pain-killing potency was at least as good as that of other analgesics in common use.

In this department it has been routine practice to give patients a small supply of codeine compound tablets following a difficult extraction, so a blind trial was set up to compare the new substance with this preparation.

The benzmethoxazone was made available under the name Ap. 674 as standard tablets of the same size, shape, and colour as the codeine compound tablets but containing 250 mg. of benzamethoxazone, 300 mg. of phenacetin, and 50 mg. of caffeine.

The analysis depends on the post-operative pain which some patients have been found to experience during the first 48 hours following the extraction of teeth.

The comparative trial reported here was made on 1,000 patients: 500 were given codeine compound tablets and 500 were given Ap. 674.

Method

A record of each patient was kept on a punched card. The patients involved were routine adult cases attending the local anaesthetic department requiring extraction of teeth.

Each patient involved in the series had two tablets just before the operation; further tablets for the post-operative period were given in an envelope with written instructions and a printed and stamped postcard on which to record the post-operative symptoms. The patients were asked to place a cross opposite the amount of pain experienced—none, mild, or severe. Those patients attending in the morning were to take 2 tablets at 4 p.m. and 2 at 10 p.m. The afternoon patients were to take two tablets at 9 p.m. In other words, each patient had two tablets between five and seven hours after their extraction. Cards posted more than 48 hours post-operatively were analysed separately, and the results are not included in this article.

In any one group of three consecutive patients one had no tablets, one had codeine compound tablets, and one had Ap. 674. The cards and appropriate tablet packets were numbered in series as the patients entered the clinic. The operator punched the index card while the local anaesthetic was given time to act, and at the same time gave the patient routine instructions.

Results

The postcard was returned adequately completed by 90.1% of the patients within 48 hours of the extraction. A further 6.3% returned the card at a later date. No account was taken of the latter group in this report, as it was felt that post-operative infection could confuse the issue after 48 hours had elapsed.

Table I shows a simple analysis of all patients. In the series of 500 patients taking no analgesic or placebo only 336 (67.2%) returned the postcard. Though the default of one-third of these patients is likely to make the "severe" group appear larger, the figures are included for the sake of completeness. Table II is a percentage analysis of cards returned derived from Table I. Though it would appear that the codeine compound was more effective, analysing the 3 × 2 table of codeine compound against Ap. 674 by a chi-square test it is found that $\chi^2=3.73$ with two degrees of

TABLE I.—Analysis of All Patients

	Pain			No Return Made	Total
	None	Mild	Severe		
Codeine compound tablets	268	156	19	57	500
Ap. 674	258	168	32	42	500
No tablets	137	160	39	164	500

freedom, $P=0.155$. Thus on the basis of this analysis there was no significant difference between the properties of the two tablets.

More detailed analysis necessarily limits the number falling into each group. Figures for pain suffered immediately after the anaesthetic wore off compared with that occurring later in the day, and presence against absence of pre-operative pain, showed a remarkable similarity of properties in the two tablets in the series. A possible sex difference in perception of pain is demonstrated in Table III, where it can be seen that 62.5% of the females complained of pain compared with 48.3% of the males.

TABLE II.—Percentage Analysis of Pain Indicated on Cards Returned

	None	Mild	Severe
Codeine compound ..	60.5	35.2	4.3
Ap. 674	56.3	36.7	7.0
No tablets	40.8	47.6	11.6

TABLE III.—Percentage Analysis of Pain Groups Against Sex

	None	Mild	Severe
729 males	51.7	41.6	6.7
361 females	37.5	50	12.5

Discussion

Because of the difficulty of estimating critically the amount of pain a patient suffers, it is possible to make a useful comparison of analgesics only by recourse to a large number of patients and by limiting the choice of description by a suitably designed return card. It was found that less than 1% of the patients indicated that their pain fell outside the choice of "mild" or "severe."

The thanks of many patients written on their postcard in the space available for comment and the high return achieved in this series suggests that the method used forms a useful contribution to the estimation of prophylactic properties of analgesics. The large number of patients attending for extractions also allows a rapid survey to be made. This clinical trial, involving 1,500 patients (including the 500 who had no tablets), was completed in less than eight weeks.

It is hoped that a complete analysis of the details recorded (sex, age, teeth extracted, operative difficulties, indication for extraction, antibiotic cover, etc.) will indicate which patients suffer the most pain. This is to be the subject of another paper.

Though there is no significant difference in pain-killing potency shown between the two tablets in this series, Ap. 674 may be recommended because, unlike the codeine compound, it has not been shown to cause constipation, gastric bleeding, or other undesirable side-effects.

Summary

In a double-blind trial covering 1,000 patients 901 returned a questionnaire. Compound benzmethoxazone tablets and codeine compound tablets were found to be of equal value in the prophylaxis of post-extraction pain.

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TOXIC CATARACT

BY

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A man aged 42 complained of blurred vision and double vision for a week. Both lenses showed uneven opacities throughout, the best corrected vision being 6/6 and 6/9. He was a fit and energetic games-player, and his doctor reported his health to be perfectly normal. Surprisingly, the blood-sugar tolerance was normal, and so were the blood count and E.S.R.

It later transpired that the patient had been taking a whole or half capsule of "carbital"—pentobarbitone, $\frac{1}{2}$ –1½ gr. (50–100 mg.), and carbromal, 2–4 gr. (130–260 mg.)—every night for five years. He himself decided to see whether this was causing his symptoms, stopped it for three nights, and noticed an immediate improvement, which ceased when he took carbital again. He then informed his doctor of his experiment, was given butobarbitone instead, and has taken no more carbital. His eyes were examined after a further two weeks, and the lenses were practically clear; the vision was 6/5 with each eye, and a small change in his weak hypermetropic astigmatism was noted. After a further 10 days there was no lenticular opacity and he has been free of symptoms in the eight weeks since.

Toxic cataracts are, of course, well known: Duke-Elder (1940) discusses those due to dinitrophenol, ergot, thallium, naphthalene, lactose, galactose, and paradichlorobenzene. It has been shown (Fitzhugh and Buschke, 1949) that various naphthalene compounds are more effective in producing cataracts than is naphthalene itself. Elaborate biochemical studies (Ogino and Ichihara, 1957; Ogino, Tojo, Fujishige, and Katumori, 1957; Ogino and Yasukuru, 1957) have been carried out to try to determine the effective agents in both experimental and human cataracts.

2:4-Dinitrophenol was first used in the U.S.A. in 1933 as a slimming agent; it accelerates metabolism. By 1938 150 cases of permanent bilateral cataract resulting from its use had been reported. Only 0.86% of patients taking the drug develop cataract (Horner, 1942), and there is no correlation between dosage or duration. One pair of identical twins were both affected, and two people in the same family were also affected. Some species of animals are susceptible and others not; there must be some genetic susceptibility. Efforts to produce cataracts experimentally with 2:4-dinitrophenol were unsuccessful for some time; later work with ducklings and chickens (Rigdon *et al.*, 1959; Buschke, 1947) gave acute and reversible cataracts, unlike the insidious, delayed, and irreversible type seen in man.

Work with rabbits and guinea-pigs shows that lethal amounts of 2:4-dinitrophenol can readily be absorbed through the skin (Spencer *et al.*, 1948). During the first world war, 2:4-dinitrophenol, in use as an explosive, caused 27 deaths from poisoning in France, 3 in the U.S.A., and 1 in England.

3:5-Dinitro-*o*-cresol is also an accelerator of metabolism and has been used in the treatment of obesity, causing several deaths, and in one case cataract