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A Clinical study–Physiological Jaundice in Neonates

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Physiological jaundice in the newborn is a passing phase in the early days of the neonate. It is said to be due to the destruction of the excess R.B.Cs. in its blood. The products of destruction are slowly passed out of the system; and hence, produce a temporary jaundice. The other form of icterus called gravis is due to other causes and is not under consideration at this time.

The present study was undertaken because, this passing phase of jaundice produces in the newborn, quite a few troublesome episodes. Firstly, it produces loss of appetite and as it appears about the 3rd day, just about the beginning of lactation, feeding becomes a problem. If the milk is not sucked and the breast not evacuated, further formation of milk is grossly hindered, so much so, that complete cessation can occur. Secondly as the fluid intake drops, the baby gets dehydrated and this alone is a sufficiently serious problem; besides which, the dehydration causes prolongation of jaundice, thus establishing a vicious circle. Thirdly, due to these two causes and the contributing factors of bile salts in circulation, the child becomes irritable, listless and later on drowsy if this stage is allowed to continue. Lastly, during this time, the child is particularly susceptible to candida infection of the mouth, probably due to the poor resistance of the oral mucosa.

In some severe cases, there can be excessive vomiting, petechial haemorrhages, or frank bleeding from the cord, or the orifices of the body.

The drug compound known as Liv.52 (The Himalaya Drug Co.) was tried in this condition, to find out if it would be of use in either preventing, or greatly reducing the troublesome episode by its well-known protective action on the hepatic cells. The liver being the principal partner in excreting bilirubin in the form of cholebilirubin, any hindrance in its function due to prematurity of cells, toxic circulating products, or dehydration, would greatly increase the duration of jaundice. Dehydration or deficient feeding may have an influence on the disappearance of the jaundice.

I, therefore, analysed this point by checking babies who had lost more than 4 ounces in weight of the expected weight at discharge (it is expected that babies should regain their birth weight at discharge on the tenth day). Those babies who had not regained the birth weight and were short by more than 4 ounces were included. There were 38 such cases, but in 32 cases jaundice had disappeared within four days. Thus, it was apparent, that deficient feeding was not an important factor in the disappearance of jaundice.

There were 17 premature babies in this series. They were considered premature as their weight was below 5 lbs. These babies were given Liv.52 drops for a longer period, sometimes up to 8 days. Their jaundice, however, disappeared as usual in 3 to 5 days. I have included some babies with respiratory and gastrointestinal infections. The number, however, is too small to arrive at any conclusions.

For all purposes, the premature and diseased babies have been taken with the healthy ones for this study.

I **Effect of Liv.52 Drops on Neonatal Jaundice in Normal Mature Babies**					
Regd. No.	Jaundice appeared	Jaundice	Liv.52 drops	Birth Weight	Weight on

	on day after birth	disappeared on day after birth	given for days	lbs.ozs.	discharge lbs.ozs.
16	3	8	4	5–3	5–1
24	6	8	2	5–4	5–12
40	3	5	3	5–4	4–14
46	3	5	1	7–5	7–0
50	3	5	2	5–2	5–0
53	3	5	2	5–0	4–3
58	3	8	3	5–7	5–6
61	4	8	4	5–0	5–0
76	3	9	6	6–8	5–14
84	3	9	3	6–3	6–4
94	6	9	3	6–11	6–7
101	3	7	6	5–2	4–7
111	2	6	4	5–½	5–4
112	6	8	2	6–4	6–9
113	3	7	4	5–7	4–7
124	5	8	3	6–8	5–14
127	3	7	4	5–5	5–5
138	3	6	3	6–0	5–12
139	3	6	3	8–7	8–6
147	4	7	3	6–7	6–8
150	3	6	3	7–6	7–6
152	4	7	3	6–4	5–14
155	3	5	2	5–5	5–8
159	4	6	2	5–10	5–6
168	3	5	3	6–0	5–13
171	3	6	3	6–0	6–0
181	3	5	3	7–8	6–12
220	7	10	3	6–8	5–14
236	3	5	2	5–7	5–9
240	4	6	2	5–0	5–3
244	3	5	2	5–10	5–6
254	3	8	3	6–9	6–6
276	4	7	3	5–8	5–8
281	6	9	3	7–0	7–6
290	3	7	4	5–3	4–12
293	2	7	5	6–10	6–11
294	4	6	2	6–8	6–2
295	2	5	3	6–13	7–0
296	4	6	2	5–7	5–2
299	3	7	4	5–5	4–8
322	4	6	2	6–1	6–11
323	3	5	2	5–3	5–10
326	3	7	4	5–0	5–7
336	4	7	3	5–0	5–0
337	4	5	1	5–0	5–0
341	3	6	3	5–12	5–1
348	2	4	2	10–0	9–6
356	3	5	2	6–3	7–0
320	7	8	1	7–13	7–3
385	3	5	2	6–10	6–12
392	4	6	2	5–0	5–0
396	3	4	1	6–6	5–14
399	3	4	1	6–0	5–11
400	5	6	2	5–15	5–13
401	2	6	4	5–4	5–2
404	3	6	3	7–8	7–8
416	3	7	4	6–4	6–1
420	3	4	1	7–11	6–11
423	3	6	3	6–7	6–14

426	2	5	3	5–6	5–2
430	3	5	2	6–13	6–4
434	3	4	1	5–2	4–9
441	5	7	2	8–4	8–0
446	5	6	2	5–12	6–0
447	4	6	3	5–0	5–0
478	4	7	2	6–2	6–4
479	3	7	4	5–0	4–15
481	4	8	4	7–5	7–6
484	2	6	4	8–0	7–12
486	1	3	3	5–0	4–14
490	3	5	2	5–8	5–15
494	4	7	3	6–11	6–9
498	3	6	3	6–4	6–4
503	2	7	5	6–0	5–10
506	4	8	4	6–6	4–13
508	3	8	3	6–9	6–4
511	3	4	1	5–0	5–3
515	6	9	3	5–10	4–12
516	3	7	4	7–5	6–8
517	3	4	2	6–2	6–3
522	3	5	2	7–7	7–13
523	2	4	2	6–6	5–11
526	2	6	2	6–8	5–7

II
Effect of Liv.52 Drops on Neonatal Jaundice in premature babies

Regd. Number	Jaundice appeared on day after birth	Jaundice disappeared on day after birth	Liv.52 Drops given for days	Birth weight lbs. ozs.	Weight on discharges lbs. ozs
4 (66)	3	6	3	4-13	4-12
12 "	3	6	4	4-14	4-6
15 "	3	7	4	4-3	3-10
62 "	3	8	8	3-9	3-9
62 "	3	8	8	4-15	4-9
96	2	6	4	3-10	3-0
108	4	9	5	4-14	4-10
128	3	6	3	4-14	4-11
225	3	7	4	4-8	4-0
226	3	7	4	4-10	4-5
235	4	8	4	3-15	4-0
239	4	8	4	4-13	5-4
275	4	7	4	4-1	3-14
338	3	6	3	3-6	3-3
377	3	5	2	4-12	4-12
449	3	7	4	4-14	5-0
504	2	8	6	3-8	3-5

III
Effect of Liv.52 Drops on Normal, Mature Babies with Neonatal Jaundice and Respiratory Infection

Regd. Number	Jaundice appeared on day after birth	Jaundice disappeared on day after birth	Liv.52 Drops given for days	Birth weight lbs. ozs.	Weight on discharge lbs. ozs
133	3	12	11	6-8	6-0
340	5	9	4	6-8	6-4
370	3	6	3	5-0	6-0
386	3	8	5	6-0	5-14
487	3	6	3	5-9	4-10

IV
Effect of Liv.52 Drops on Normal, Mature Babies with Neonatal Jaundice and Gastrointestinal infection

Regd. Number	Jaundice appeared on day after birth	Jaundice disappeared on day after birth	Liv.52 Drops given for days	Birth weight lbs. ozs.	Weight on discharge lbs. Ozs
11 (66)	3	8	5	5-4	4-12
18 "	3	6	3	5-6	5-8
23 "	5	8	3	6-3	5-15
44 "	3	7	4	5-8	5-4
97	5	7	2	6-1	5-10
137	5	8	3	3-5	3-3
183	4	6	3	6-10	6-4
188	4	5	1	6-8	6-4

DISCUSSION

The combination drug known as Liv.52 has been proved to have a protective action on the liver parenchyma against hepatotoxic agents like carbon tetrachloride and *Ficus bengalensis*. Further, it is said to improve hepatic function by accelerating cellular activity. There are other effects like anabolic effect and it plays some part in haemopoiesis.

In the present study the effect of Liv.52 on elimination of bile pigments has been studied. There are several factors which may influence its effect. The most important being, in my opinion, the ability of liver cells to excrete bile pigments. Other factors which are of importance are: dehydration, generalised disease, toxic drugs given for other conditions, etc. Deficient feeding (i.e. deficient lactation and not deficient fluid intake) does not have any effect on the elimination of bile pigments. The effect on premature babies was the improvement noted when given Liv.52.

MATERIAL AND METHODS

New-born babies in the author's maternity home were selected at random and were given Liv.52 drops in the dose of 8 drops three times a day, irrespective of the birth weight, or any other condition. The babies chosen had only one condition in common, that being the presence of clinical jaundice. Symptoms were observed and the response was compared mainly with the previous impression of this condition. There were no controls used. The disappearance of jaundice was watched and marked. The birth weight and weight on discharge were carefully noted. At the end of the trial, we tried to find out the significant points of the treatment. Clinically, the effects noted were as follows:

(a) Babies had a better appetite, and took their feeds well,

(b) The vomiting associated with jaundice was almost absent in these babies,

(c) The orange hue and yellow conjunctiva changed early to the normal colours.

(d) There was no constipation; in fact, on the 2nd or 3rd day after starting the Liv.52 drops, there were loose motions which were green and sticky, signifying a rapid excretion of bile pigments,

(e) These babies were less restless and slept better.

From the records it appears that out of a total of 500 cases, jaundice was detected in 113 cases in the year April, 1966 to March, 1967. All these cases were given Liv.52 in the above-mentioned dose, occasionally with modifications. After analysing the various aspects, it was found that the jaundice appeared within three days in 75 cases, and in 38 cases it was detected after three days, sometimes as late as seven days. It had disappeared in one day in nine cases, in two days in 29 cases, in three days in 38 cases and in four days in 26 cases. In 11 cases only, it had taken more than four days to disappear.

In other words, 102 cases were free of this condition within 4 days and 74 were free within 3 days, of the accumulated bile pigments.

Babies with respiratory and gastrointestinal infections need further study for evaluation.

SUMMARY AND CONCLUSION

From the present study it is apparent that Liv.52 is a very good additive to the management of the newborn in its episode of jaundice. Even though this is a self-limiting condition, it definitely helps to prevent morbidity associated with icterus neonatorum. There is a quicker elimination of bile pigments, better appetite, less feeding problems and hence a better baby on the day of discharge.

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