



ORIGINAL RESEARCH PAPER

General Surgery

EFFECTIVENESS OF SINGLE DOSE VITAMIN K AMONG PATIENTS WITH SURGICAL JAUNDICE

KEY WORDS: Injection and oral Vitamin K, Prothrombin time, International normalized ratio, Similar outcome.

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ABSTRACT **Background:** The risk of disordered coagulation in surgical jaundice is well recognized with the most frequently observed abnormality being prolongation of the prothrombin time (PT). In this study we have to find out the effectiveness of single dose vitamin k in surgical jaundice patient. **Methods:** IN all 122 patients were selected from May 2018 to October 2019 in B S Medical College and Hospital, Bankura, and were divided in two groups. One group was treated with single dose intra muscular vitamin K and other group was treated with intra muscular Vitamin K once daily for 3 days. **Result:** Average age of the participants was 58.60±11.06 years. In PT & INR report, the mean was 19.23±1.71 & 1.82±0.19 before intervention. Both types of interventions showed similar efficacy. **Conclusion :** Both modes of vitamin k therapy were proved to be useful for treating of surgical jaundice patient with deranged coagulation profile.

INTRODUCTION

The risk of deranged coagulation profile in surgical jaundice is well recognized with the most frequently observed abnormality being prolongation of the prothrombin time (PT). As there is vitamin k deficiency^[1], prophylactic appropriate use of vitamin k in these group of patients can overcome hemostasis. Vitamin K (as phyloquinone and menaquinones) is an essential co-factor for the conversion of peptide bound glutamate to carboxy-glutamic acid (G1a) residues in a number of specialized G1a containing proteins^[2]. The only unequivocal deficiency outcome is a bleeding syndrome caused by an inability to synthesize active coagulation factors II, VII, IX, X, although there is growing evidence for roles for vitamin K in bone and vascular health^[3]. An adult daily intake of about 100 µg of phyloquinone is recommended for the maintenance of hemostasis. The only pathway, that is the extrinsic pathway in which vitamin K has role, because the factors II, VII, IX, X are dependent on vitamin K^[4]. Traditional screening tests for vitamin K deficiency are based on global coagulation assays that include prothrombin time (PT), activated partial thromboplastin time, International normalized ratio (INR). These tests are simple to perform and the most useful confirmatory test is restoration of normal PT by vitamin K administration^[5].

AIM

In this study we aimed to find out the effectiveness of single dose vitamin-k in surgical jaundice patient.

OBJECTIVES

- To find out the effectiveness of single dose vitamin K in reverting coagulation abnormality seen in patients with surgical jaundice with comparison to conventional therapy.
- To ascertain the hospital stay of patients belonging to the single dose group and multiple dose group.
- To compare pre, intra and post-operative bleeding complications between two groups of patients.
- To determine the appropriate preoperative prophylactic mode of vitamin K administration.

METHODS

This prospective observational study was conducted at Bankura Sammilani Medical College and Hospital (BSMCH), Bankura among patients admitted in the department of General Surgery with features of surgical jaundice with abnormal coagulation profile during the period from May

2018 to October 2019. In all, 122 patients with surgical jaundice were included and divided in two groups (n1-61 and n2-61). One group was treated with single dose of intramuscular injection Vit K i.m. (10mg) and other group was treated with conventional method i.e. injection Vit-K(10mg) daily for three days. Patient with congenital coagulation disorder, patient with inoperable stage, patient on long term warfarin therapy and hemolytic anemia, lactating and pregnant woman, and children less than twelve years of age were excluded from this study. In this study group, single dose intra muscular vitamin K (10 mg) given was followed by prothrombin time and INR estimation the following day. In the control group conventional dose intra muscular vitamin K 10 mg daily for 3 days and followed by the estimation of prothrombin time and INR on admission xxx days later. The patients who underwent surgery in both study and control group, repeat PT and INR tests were done at post operative day 2 and at discharge. Data obtained from the 122 participants (61 in each arm) were analyzed using suitable statistical methods. Chi-square test, independent 't' test, Odds ratio (OR) with its confidence interval (CI) were used for drawing inference. P value of <0.05 was considered as significant.

RESULTS

This study showed that 70(y%) patients of the participants belonged to the age group < 60 years. Among the study population, total 61(x%) patients were female. PT value was 19.19±1.81 in the study group and 19.28±1.62 in the control arm on admission. The INR value of the study group was 1.85±0.19 and INR value of control group was 1.80±0.198 on admission (Table-1). In PT report the mean was 19.23 ±1.71 and in INR report mean was 1.82 ±0.19 (Table-2). The PT and INR value of the study group was 12.61±1.36 and 1.12±0.09 after intervention. The PT and INR value of control group was 12.51±1.21 and 1.09±0.09 after intervention (Table-2). Length of hospital stay in case study group was 8.03 ± 0.79 days and in the control group it was 8.18 ± 1.04 (Table-3). In 68.86% patient of the study group and 59.02% patient of the control group showed mild blood loss during surgery. Severe blood loss was in 3.28% of study group and 1.64% of control group (Table-4).

DISCUSSION

Patients were identified by having a coded diagnosis of obstructive jaundice. The patients with deranged coagulation profile were selected for this study and divided by random

sampling into the study and the control group. We have found in our study that PT value was 19.19±1.81 in the study group and 19.28±1.62 in the control arm on admission. So their abnormal coagulation profile that had been reflected in their baseline PT and INR report. We found in PT report the mean was 19.23 ± 1.71 and in INR report mean was 1.82 ± 0.19. It was found that there was no statistically significant difference across the two arms in regard to the baseline PT and INR levels - a finding supported by other studies^{[7][9]}. All the patients were discharged after restoration of their coagulation profile. It was found that serum levels of both of the coagulation parameters were significantly low in each arm after the intervention - PT & INR values of study group were 12.61±1.36 and 1.12±0.09, whereas the PT and INR values of control group were 12.51±1.21 & 1.09±0.09 after intervention. At discharge, we observed that the PT & INR values of study group were 11.68±0.90 and 1.07±0.08 respectively, whereas the PT and INR values of control group were 11.53±0.73 and 1.06±0.16. So, both types of interventions were shown to be effective; another study also showed similar result^[9]. The average length of stay in hospital of the study group was 8.03 ± 0.79 days and control group 8.18 ± 1.04 days were not found to vary significantly. Our study showed that 68.86% patients of study group showed mild intra-operative bleeding. On the other hand, 59.02% patients of control group showed minimal intra-operative bleeding (<30 ml). In both group the intra operative bleeding was not so much significant after using vitamin K, despite there was a majority of patients with mild bleeding after using single dose vitamin k in the study group. So single dose Vitamin K was as effective as conventional three-day therapy as also showed similar result^[10].

CONCLUSION

In conclusion, single dose therapy of injection vitamin K 10 mg was as efficacious as multiple dose vitamin K therapy in the management of patients with surgical jaundice with deranged coagulation profile which is cost-effective though a large multicentric study would be needed for validation.

Table 1: Distribution Of The Patients And Few Baseline Characteristics

VARIABLES	Attributes	STUDY ARM [n1 = 61] No. 50%	CONTROL ARM [n2=61] No. 50%	STATISTICS, df, p
GENDER	MALE (n1=57)	30	27	0.30, 1, 0.586 *
	FEMALE (n2=65)	31	34	
AGE CATEGORY	<60 yr(70)	36	34	0.13, 1, 0.714 *
	≥60 yr(52)	25	27	
PT ON ADMISSION (Mean ±SD)	PTO	19.19±1.81	19.28±1.62	0.263, 120, 0.793@
INR ON ADMISSION (Mean±SD)	INRO	1.85±0.19	1.80±0.19	1.272, 120, 0.206@

Table -2: Distribution Of Participants According To The Baseline PT & INR

Variables	Mean	SD
PT	19.23	1.71
INR	1.82	0.19

Table 3: PT And INR Of The Patients After Intervention

COAGULATION PROFILE	TEST DAY	STUDY ARM	CONTROL ARM	STATISTICS, P value
PROTHROMBIN TIME (Mean±SD)	After intervention (DAY2vs DAY4) [n1=61 vs n2=61]	12.61±1.36	12.51±1.21	0.198, 24, 0.505

	After surgery (n1 = 61 vs n2 =61)	12.15±0.87	12.08±0.76	0.219, 24, 0.829
	AT DISCHARGE (n1 = 61 vs n2 =61)	11.68±0.90	11.53±0.73	0.467, 24, 0.645
INR (Mean±SD)	After intervention(DA Y2vs DAY4) [n1=61 vs n2=61]	1.12±0.09	1.09±0.09	1.338, 120, 0.183
	After surgery (n1 = 61 vs n2 =61)	1.12±0.08	1.08±0.17	0.293, 7, 0.770
	AT DISCHARGE (n1 = 61 vs n2 =61)	1.07±0.08	1.06±0.16	0.194, 7, 0.847

Table-4: Distribution Of Participants According To Length Of Stay In Hospital After Intervention At Different Level Of Follow Up

GROUPS	LENGTH OF STAY	STATISTICS, df, p value
STUDY ARM [N1=61]	8.03 ± 0.79	0.304, 12, 0.7664
CONTROL ARM [N2=61]	8.18 ± 1.04	

Table 5: Distribution Of Participants According To Intra Operative Bleeding

Bleeding category	STUDY ARM No (%)	CONTROL ARM No (%)	Chi square test
Mild (<100ml)	42(68.86)	36(59.02)	1.674, 2, 0.433
Moderate(100-500ml)	17(27.86)	24(39.34)	
Severe(>500ml)	2(3.28)	1(1.64)	
Total	61(100)	61(100)

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