

**A STUDY ON RISK OF PRE-EXISTING ANTIPLATELET THERAPY IN  
INTRACRANIAL HEMORRHAGE AND ASSESSING IMPACT OF PATIENT  
COUNSELLING IN HEALTH RELATED QUALITY OF LIFE****Dr. Malini Gopinath\*, Krishnaja R. J.<sup>1</sup>, Lekshmi Johnson Maithyli<sup>1</sup>**\*Senior Consultant (MD), Neurology (DM), Department of Neurology, Cosmopolitan Hospital, TVM,  
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**ABSTRACT**

**Background:** Intra-cerebral hemorrhage (ICH) is defined as bleeding into the parenchyma of the brain. **Aim & Objective:** The purpose of the study was to evaluate the risk of pre-existing anti-platelet therapy in causing and worsening of intracranial hemorrhagic patients and to assess the impact of patient counselling in improving their health related quality of life with the aid of a knowledge-attitude questionnaire. **Materials and Methods:** A total of 72 ICH patients into 2 groups such as group A patients without pre existing antiplatelet therapy and group B patients with prior antiplatelet therapy and the relationship of preexisting antiplatelet usage in worsening of ICH is determined by comparative analysis of proportions of several standardised scores. All the participants were interviewed and then an effective counseling was given and evaluates their improvement in health related quality of life by using EQ-5D questionnaire. All statistical analysis was performed with SPSS and Minitab software. **Result:** By statistical comparison of proportions, after analysing the severity at the admission time, ICH risk score, unfavourable functional outcome and mortality rate were found to be higher in patients on pre-treatment with anti-platelets. Participants had some knowledge about prominent symptoms of ICH (loss of consciousness and paralysis) but they are confused it with stroke. **Conclusions:** Based on the study, pre-treatment with anti-platelet agents is found to play a role in worsening or unfavourable outcome in patients with Intra-cranial hemorrhage. This study also showed improvement in knowledge and attitude of participants will significantly assists in improving their health related quality of life.

**KEYWORDS:** Intracranial hemorrhage, GCS, mRS, S2TOP BLEED score, GOS, antiplatelets.**INTRODUCTION**

Intra-cerebral hemorrhage (ICH) is defined as bleeding into the parenchyma of the brain which may further extend into ventricles. Intra-cerebral haemorrhage (ICH) is the most devastating and least treatable form of stroke causing severe disability among survivors. ICH is primarily intracerebral and less frequently subdural and subarachnoid and is associated as a lethal complication of anti-thrombotic therapy. Among the antithrombotic therapeutic regimens, anti-platelet therapy either single or dual anti-platelet agents may influence the risk of ICH. ICH occurs in 15 to 20% of all strokes. Compared to ischemic stroke, it more often results in death and increased disability.

Spontaneous non-traumatic intra-cerebral hemorrhage (ICH) is the second most prevalent subtype of stroke and is associated with high mortality and morbidity. Various clinical trials related to the medical and surgical management of ICH have been conducted to overcome its

devastating clinical course. ICH can be localized in the different parts of the brain and large hematoma is accompanied with spreading of blood into ventricles. While traumatic ICH is by far the most common type of ICH, implying bleeding that occurs due to a known bleeding causes such as an arterio-venous malformation, cerebral aneurysm or tumor.

The most important risk factor is hypertension, which increases the risk of ICH by approximately four times. Improved hypertension control, reduces the incidence of intra-cerebral haemorrhage.

Many patients with Intracranial hemorrhage may either suffer from history of ischemic events or ischemic pathologies which frequently requires antithrombotic therapy. This is not surprising as intracranial hemorrhage (ICH), ischemic stroke and myocardial infarction (MI) have some shared risk factors, particularly increasing age and hypertension. Antithrombotic therapy is a

cornerstone in secondary stroke prevention or in patients with a cardioembolic stroke, cardiovascular disorders etc.

Patients who experience an intra-cerebral hemorrhage (ICH) while taking oral anticoagulants or anti-platelets tend to have larger hematomas and a worse prognosis compared with patients who are not on antithrombotic therapy. Recent investigations suggests that pretreatment with anti-platelet agents could also be associated with hematoma expansion, an increased mortality rate, and a poor functional outcome. However, those studies were hampered by relatively small numbers of patients, making it difficult to control for the effects of potential confounders. For instance, patients taking anti-platelet drugs were shown to be significantly older and to have a worse pre-hospital status than those without such medication. Antiplatelet therapy successfully reduces the number of serious vascular events. Despite its proven benefit, antiplatelet therapy may increase the risk of bleeding. More potent treatment strategies such as dual antiplatelet therapy increase this risk even further.

Therefore the use of antiplatelet medications following intracerebral hemorrhage (ICH) is usually perceived as being contraindicated because of the possibility of increased risk of further bleeding. Clinicians therefore are presented with a therapeutic dilemma whereby treating infers an increased risk of recurrent intracerebral haemorrhage, whereas not treating infers an increase of thrombotic complications. Despite the importance of this dilemma, there is very little guidance for prescribers as there is a lack of randomized and observational data addressing this issue. Prediction of bleeding risk based on patient characteristics may help physicians to balance benefits and risks of antiplatelet therapy for individual patients. Also, risk stratification may guide treatment decisions for other preventive strategies. Here we present data showing the apparent effects of antiplatelet pretreatment on mortality and unfavorable functional outcome in patients on Intra-cranial hemorrhage.

## MATERIALS AND METHODS

This study was conducted in a population of 72 patients. This study was designed to investigate the effect of preexisting antiplatelet therapy on severity, bleeding risk, ICH risk and functional outcome in patients with intracerebral hemorrhage (ICH). and was conducted in Neurology Department of Cosmopolitan Hospital, Pattom, TVM, Kerala. A written informed consent will be taken from the parents or caregiver of patients with ICH satisfying the inclusion and exclusion criteria.

### Inclusion Criteria

- ICH Patients of either sex more than 18 years of age.
- ICH patients with a measurable focal deficit.
- Patients on ICH with prior antiplatelet therapy (both single and dual APT).

- Patients on ICH but without prior antiplatelet therapy.
- All the patients were ambulatory and functionally independent before stroke.

### Exclusion Criteria

- Patients with coma.
- Patients with severe co-existing terminal systemic illness.
- Radiological evidence of brain tumour.
- Patients who require surgery within 24 hours.
- Patients who had drug addiction related disorder.

### Evaluation of role of pre-existing antiplatelet therapy in ICH

All parameters relevant to this analysis including age, International Classification of Diseases–based diagnosis, pretreatment with antiplatelet agents, severity at the time of admission (according to the Glasgow coma scale GCS, MRS), bleeding risk associated with antiplatelets (according to S2TOP BLEED), ICH risk score assessment and main outcome measures were mortality rate, functional status after discharge (GOS) were determined from case records and direct interview with the patients or caregivers. Data was collected by using a specially designed proforma and was analysed.

Analysis is done by comparing the scores of patients with and without pre existing antiplatelets to establish the role of antiplatelet use and occurrence of ICH through a standardised risk scoring method.

### Evaluation of knowledge and attitude of patient / caregivers towards ICH

With the help of the designed questionnaire we evaluated the knowledge and attitude of patient or caregivers. It was done in two stages includes obtaining of primary knowledge and attitude of participants at the time of admission (precounselling) and it is repeated at the time of discharge (postcounselling) for assessing their improvement of knowledge and attitude after counseling.

Individuals above 18 years of age, who consented, were interviewed personally. The interviewer intervened to clarify a questions, if required and revealed informations about warning signs and risk factors of ICH during the counseling session. No attempt was made to prompt the respondents by suggesting answers directly.

### Evaluation of health related quality of life

In order to evaluate the impact of patient counseling in health related quality of life, an EQ-5D questionnaire was administered to all participants for assessing their health related quality of life at before and after counselling. patient is then educated about the disease using a patient information leaflet. Clinical neurological examination was performed to all patients and impairment was measured with the Barthel index score. The severity of ICH was classified into mild, moderate and severe.

The data thus gathered was statistically analyzed by using SPSS (Statistical Package for Social Sciences). The study employed chi square test, correlations. P value indicate probability value.

## RESULTS

Out of 72 participants 66.6% were male and 33.4% were females in patients without anti-platelets and about 55.5% male and 44.5% females in patients with prior anti-platelet therapy with a mean age of  $53.4 \pm 8.2$  years and the severity status according to the Glassgow coma scale was 63.8% in patients with prior antiplatelets which shows severe disability while only 47.2% of patients without prior antiplatelets shows severe disability at the time of admission. Another scale for assessing the severity index used here was modified rankin scale which shows 88.8% severe disability in patients with prior antiplatelets and only 44.4% severity shown by patients without prior antiplatelets. After comparing the ICH risk score, about 72.2% patients with prior antiplatelets shows high risk and only 44.4% of patients without prior antiplatelets showed high risk for ICH. The bleeding risk associated with antiplatelets defined by S2TOP BLEED score in patients with prior antiplatelets was found to be 55.5% and without prior antiplatelets was 41.6%. The unfavorable functional outcome with prior antiplatelets defined by mortality was 16.6% in patients with prior antiplatelets and 5.5% in patients without prior antiplatelets and the recovery rate defined by GOS after hospital discharge was 52.7% in patients without prior antiplatelets and only 11.1% in patients with prior antiplatelets indicating higher recovery rate in patients who are not on anti-platelet therapy.

By descriptive statistical analysis of comparison of proportion of two sample of ICH patients (with and without prior antiplatelet therapy), pretreatment with antiplatelet agents was found to be significantly affecting the severity index, bleeding risk as well as unfavourable functional outcome and mortality rate.

Evaluation of the knowledge-attitude questionnaire filled up by the participants, we found a significant improvement in both knowledge and attitude in post counseling session. Before counseling only 7% of the population showed a good knowledge regarding the disease and after the post counseling session analysis a 72.4% higher improvement was shown by the population (95% confidence interval 51.4009 to 75.2246). In the case of evaluation of attitude of the participants, 35.4% of them have positive attitude and 64.6% shows negative attitude regarding the disease. And they showed a significant higher value of 77.8% improvement in positive attitude in participants after counseling. The significant difference in improvement was 42.4% (within 95% confidence interval 26.5581 to 55.2756).

Assessment of impact of patient counseling in health related quality of life by using EQ-5D questionnaire, before counseling, 84.9% of them have mobility

severity, 87.5% had self care severity, 78.6% were unable to do daily activities, 61.2% shows pain / discomfort, and 58.4% shows severe anxiety regarding the disease at the time of admission. The participants then showed a significant difference in improvement of 52.4% in mobility severity, 63.9% in self care severity, 51.4% in daily activities severity, 43.2% in pain/discomfort severity, 39.4% in anxiety severity respectively in post counseling at the time of discharge.

## DISCUSSION

Many patients with Intracranial hemorrhage may either suffer from history of ischemic events or ischemic pathologies which frequently requires antithrombotic therapy. Long term use of such blood thinners may increase the bleeding risk and in some cases this will result in producing intracranial haemorrhage (ICH). In this study we mainly aims to identify the role of pretreatment with antiplatelets in disease prognosis, severity index and unfavourable outcome / mortality in ICH patients. For that purpose we compared the two group of ICH patients dividing equally with those on pretreatment with antiplatelets and another sample without pretreatment with antiplatelets.

### 1. Gender Distribution

Out of 72 participants 66.6% were male and 33.4% were females in patients without anti-platelets and about 55.5% male and 44.5% females in patients with prior anti-platelet therapy with a mean age of  $53.4 \pm 8.2$  years this may be because life style factors like alcoholism, smoking etc, contributing to the disease is more likely seen in male population.

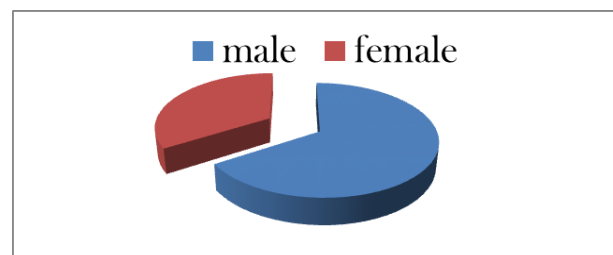


Figure 1: Percentage distribution of gender in group A.

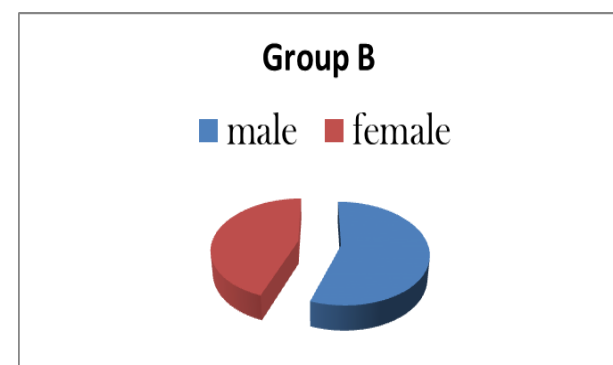


Figure 2: percentage distribution of gender in group B.

**2. Age Distribution**

Out of 72 participants 58% were greater than 75 years of age and only 42% were less than 75 years of age in patients without anti-platelets and about 61% were >75 and 39% were <75 years of age in patients with prior anti-platelet therapy with a mean age of 53.4±8.2 years this indicates higher incidence of abnormal blood vessel proteins and increased incidence of comorbidities in increasing age particularly elderly patients. Thus patients with age group >75 in found to be at high risk for ICH.

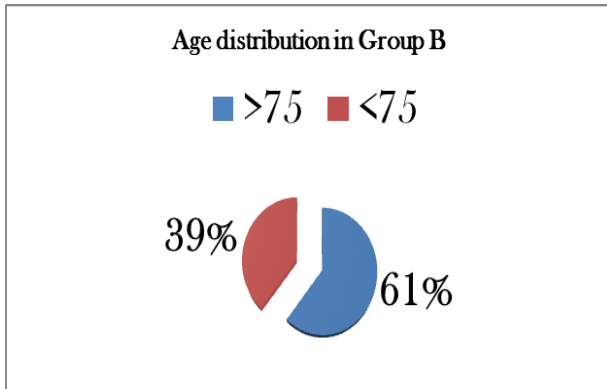


Figure 3: percentage distribution of age in group A.

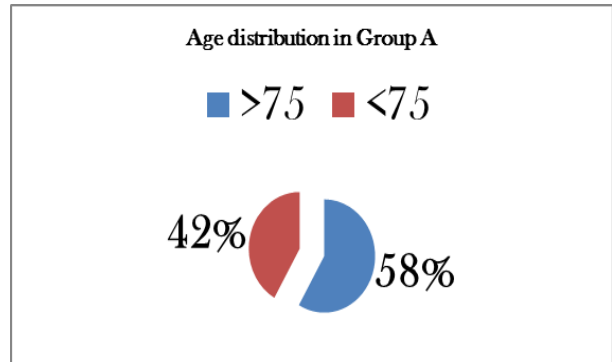


Figure 4: percentage distribution of age in group B.

**3. Risk Stratification in Intra-Cranial Hemorrhage**

After analyzing the lifestyle patterns of patients without pre-existing antiplatelet therapy we found that, the major factor that contributed to the disease was found to be trauma (47.2%) followed by alcohol(36.1%) obesity (27.7%) smoking (25%) were as in patients with prior anti-platelet therapy the major life style factor contributing to the disease was found to be alcohol consumption (47.2%) followed by obesity (44.4%) trauma (41.6%) and smoking (33.3%).

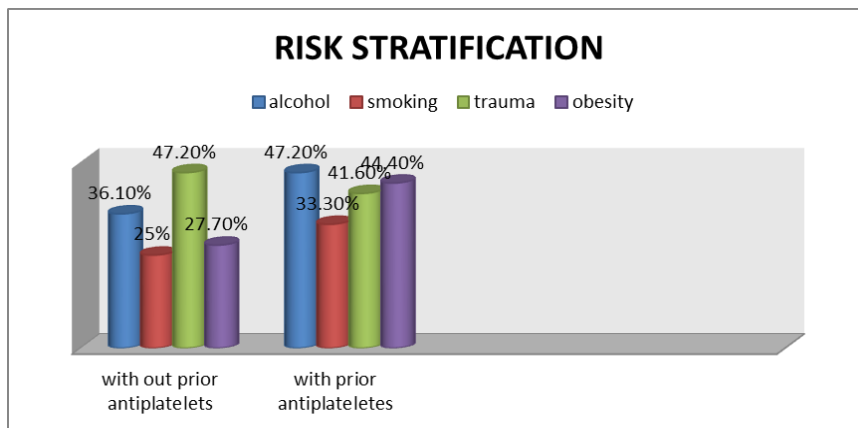


Figure 5: percentage distribution of risk factors in group A and B.

**4. Co-morbidity incidence rate results in ich patients**

While among the co-morbidities showed by the patients without pre-existing anti-platelets the major risk was contributed by hypertension (58.3%) followed by diabetes mellitus (41.6%), dyslipidemia (38.8%), seizure (19.44%) cardio vascular diseases(11.1%) and stroke (0%).

In the case of patients with anti-platelet therapy the major risk was contributed by hypertension (86.1%) followed by stroke (72.2%) Dyslipidemia (61.1%), diabetes mellitus (55.5%) and seizure (27.7%).

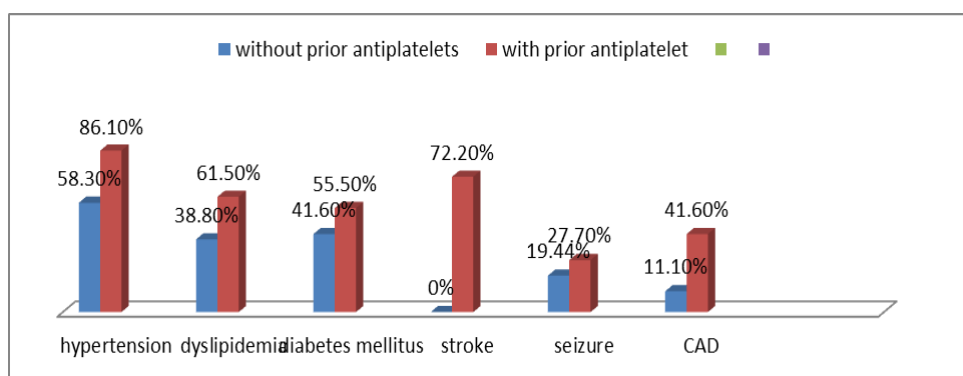
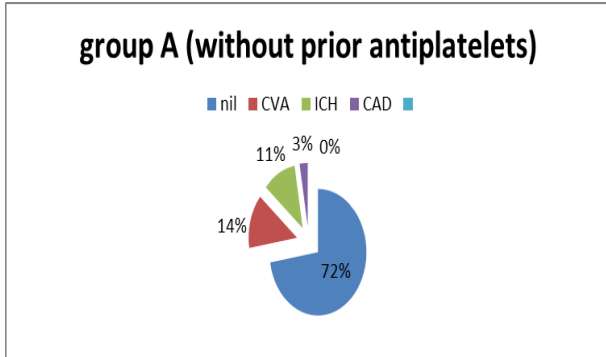


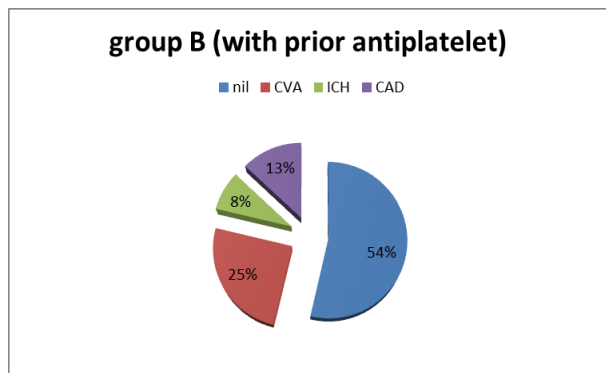
Figure 6: percentage distribution of co-morbidities in group A and B.

**5. Family History Analysis Results In Two Samples**

We analysed the family history of two samples of patients with and without pre-existing antiplatelet therapy and found that 11.1% of group A and 8.3% of group B patients had a family history of intra cranial hemorrhage. The mostly observed family history related comorbidity was CVA (13.8% in group A and 25% in group B) followed by CAD (2.7% in group A and 13% in group B).



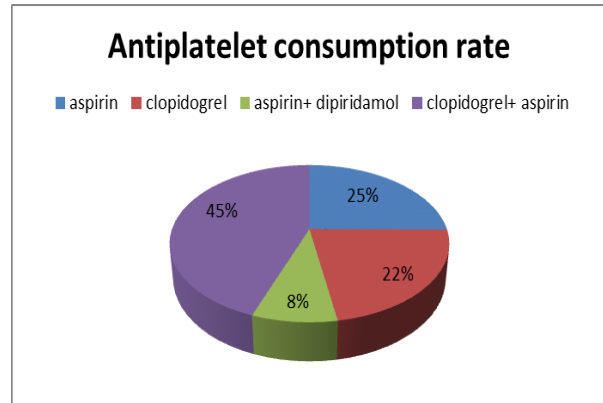
**Figure 7: percentage distribution of family medical history in group A.**



**Figure 8: percentage distribution of family medical history in group B.**

**6. Antiplatelet Consumption Rate Analysis**

We analysed the antiplatelet consumption rate among the patients of group B who was on pre existing anti-platelet therapy and we found highest consumption rate in clopidogrel - aspirin combinations (44.4%) followed by clopidogrel and aspirin alone (22.2% and 25.1% respectively), aspirin - dipiramidole combination (8.3%). the major co morbidity which demanding antiplatelets among ICH patients was found to be prior history of stroke (72.2%) followed by cardiac disorders (41.6%).



**Figure 9: percentage distribution of anti-platelet consumption rate in group B**

**7. Comparison of Severity Index**

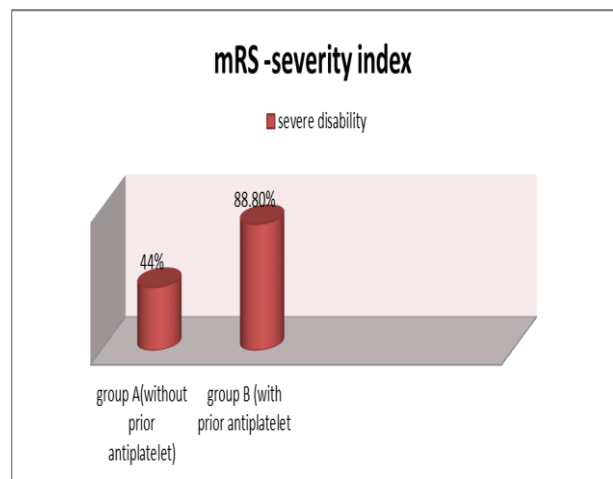
For comparing the severity index of two sample of ICH patients we used modified rankin scale (MRS) and glassgow coma scale (GCS) at the time of admission.

**> mRS At Admission**

After analysing the statistical data of comparative proportions, the modified rankin scale (MRS) shows 88.8% severe disability in patients with prior anti-platelets and only 44.4% shows severe disability in patients without prior anti-platelets. This data is suggestive of an increased severity index in intra-cranial hemorrhagic patients who are on pre-existing anti-platelet therapy. The result is significant at p value <0.05.

**Table 1: Statistical analysis of percentage variation of severity index according to mRS between group A and group B.**

<b>Difference</b>	<b>44.8%</b>
<b>95% CI</b>	30.0071 to 56.9388
<b>Chi-squared</b>	32.161
<b>DF</b>	1
<b>Significance level</b>	P<0.0001
<b>Z value</b>	3.71902

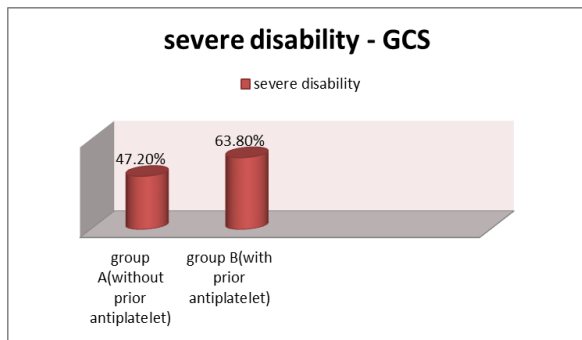


**Figure 10: percentage variation of severity index according to mRS between group A and group B.**



**➤ GCS At Admission**

After analysing the statistical data of comparative proportions, the glassgow coma scale(GCS) shows 63.8% severe disability in patients with prior anti-platelets and only 47.2% shows severe disability in patients without prior anti-platelets. This data is also suggesting of an increased severity index in intra-cranial hemorrhagic patients who are on pre-existing anti-platelet therapy. The result is significant at p value <0.05.



**Figure 11: percentage variation of severity index according to GCS between group A and group B.**

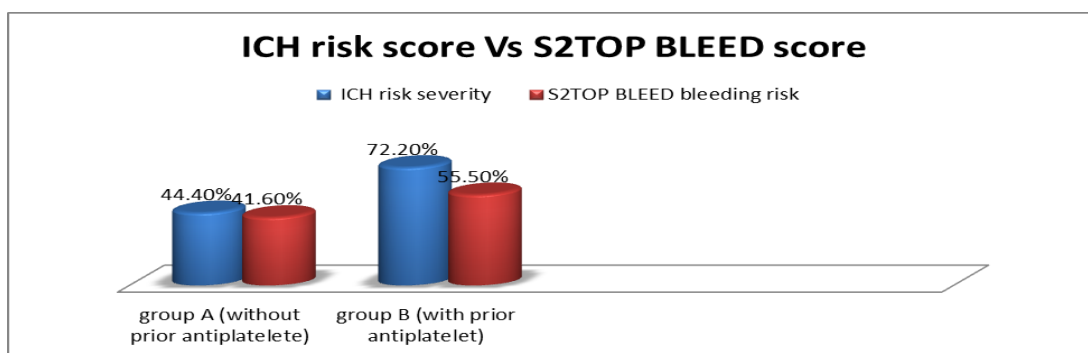
**Table 2: Statistical analysis of percentage variation of severity index according to GCS between group A and group B.**

<b>Difference</b>	<b>16.6%</b>
<b>95% CI</b>	0.3960 to 31.6297
<b>Chi-squared</b>	3.989
<b>DF</b>	1
<b>Significance level</b>	P=0.0458
<b>Z value</b>	1.68702

**Risk Score Statistics**

**Table 3: Statistical analysis of percentage variation in ICH risk score Vs S2TOP BLEED score between group A and group B.**

ICH RISK SCORE		STOP BLEED SCORE	
<b>Difference</b>	27.8%	<b>Difference</b>	13.9%
<b>95% CI</b>	11.7203 to 41.9504	<b>95% CI</b>	-2.3588 to 29.1639
<b>Chi-squared</b>	11.365	<b>Chi-squared</b>	2765
<b>DF</b>	1	<b>DF</b>	1
<b>Significance level</b>	P= 0.0007	<b>Significance level</b>	P= 0.0963
<b>Z value</b>	3.19465	<b>Z value</b>	1.30293



**Figure 12: percentage variation in ICH risk score Vs S2TOP BLEED score between group A and group B.**

**8. Comparison of Ich Risk and Bleeding Risk**

For comparing the risk of ICH as well as the bleeding risk of two samples of ICH patients we used ICH risk score and S2TOP BLEED score at the time of admission.

**➤ Ich Risk Score Interpretation**

After analysing the statistical data of comparative proportions, the ICH risk score shows 72.2% severe disability in patients with prior anti-platelets and only 44.4% shows severe disability in patients without prior anti-platelets. This data is indicative of an increased mortality risk in intra-cranial hemorrhagic patients who are on pre-existing anti-platelet therapy.

**➤ S2top Bleed Score Interpretation**

After analysing the statistical data of comparative proportions, the STOP BLEED risk score for assessing bleeding risk shows 55.5% severe disability in patients with prior anti-platelets and only 41.6% shows severe disability in patients without prior anti-platelets. This data is suggestive of an increased bleeding risk in intra-cranial hemorrhagic patients who are on pre-existing anti-platelet therapy.

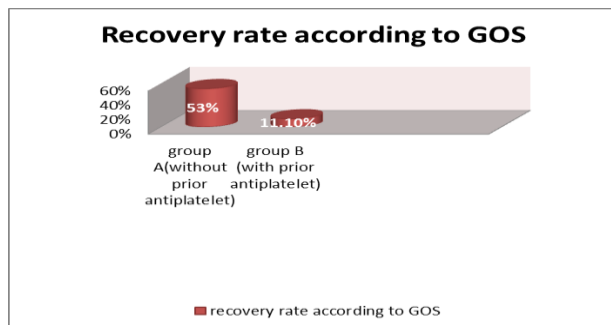
## 9. Comparison of outcome in two samples

### ➤ Glasgow outcome scale interpretation

After analysing the statistical data of comparative proportions, the GOS for assessing recovery rate shows 52.7% recovery rate in patients without prior anti-platelets and only 11.1% recovery is shown by patients with prior anti-platelets. This data is indicative of an increased recovery rate in sample population without prior anti-platelets when compared to intra-cranial hemorrhagic patients who are on pre-existing anti-platelet therapy.

**Table 4: Statistical analysis of percentage variation in recovery rate according to GOS between group A and group B.**

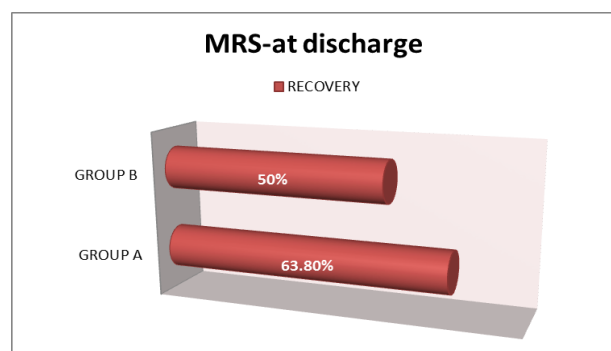
<b>Difference</b>	<b>41.6%</b>
<b>95% CI</b>	26.9018 to 53.9308
<b>Chi-squared</b>	28.479
<b>DF</b>	1
<b>Significance level</b>	P<0.0001
<b>Z value</b>	3.71902



**Figure 13: Percentage variation in recovery rate according to GOS between group A and group B.**

## 10. Recovery analysis at the time of discharge using mrs score

After analysing the statistical data of comparative proportions, the modified rankin scale (MRS) shows 50% recovery seen in patients with prior anti-platelets and 63.8% of recovery seen in patients without prior anti-platelets at the time of discharge. This data is suggestive of an increased recovery rate in intra-cranial hemorrhagic patients who are not on pre-existing anti-platelet therapy (group A).



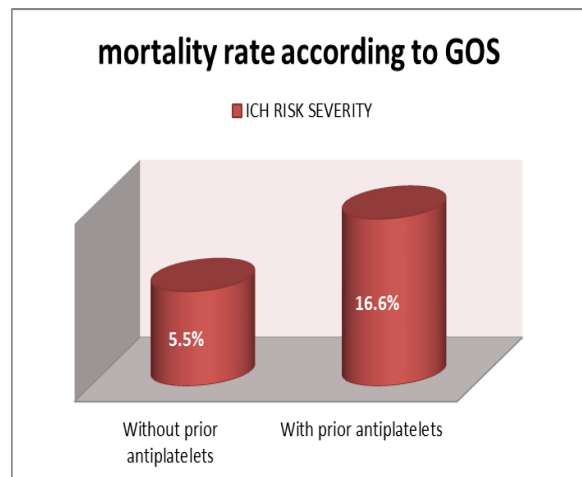
**Figure 14: Percentage variation in recovery rate according to mRS between group A and group B.**

**Table 5: Statistical analysis of percentage variation in recovery rate according to mRS between group A and group B.**

<b>Difference</b>	<b>13.8%</b>
<b>95% CI</b>	-2.3164 to 28.9471
<b>Chi-squared</b>	2776
<b>DF</b>	1
<b>Significance level</b>	P=0.0957
<b>Z value</b>	1.30645

## 11. Mortality Rate According To Gos Interpretation

After analysing the statistical data of comparative proportions, the GOS for assessing mortality rate shows 16.6% mortality is shown in patients with prior anti-platelets and only 5.5% mortality is shown by patients without prior anti-platelets. This data illustrates an increased mortality risk in intra-cranial hemorrhagic patients who are on pre-existing anti-platelet therapy.



**Figure 15: percentage distribution in mortality rate according to GOS between group A and group B.**

## 12. Comparison Of Case Progression From The Day Of Admission To Discharge – An Overview

We compared two samples of intra-cranial hemorrhagic patients with and without prior anti-platelet therapy by analysing their severity index, intra-cranial hemorrhagic risk, bleeding risk along with the nature of functional outcome shown by them. We simply illustrate below the nature of the disease progression shown by both samples from the time of admission till discharge. We comprehensively conclude the result obtained from various scores for assessing the severity, risk as well as functional outcome and identified that there is a role for pre-existing anti-platelet therapy in producing intra-cranial hemorrhage or in the worsening of functional outcome and the mortality risk.

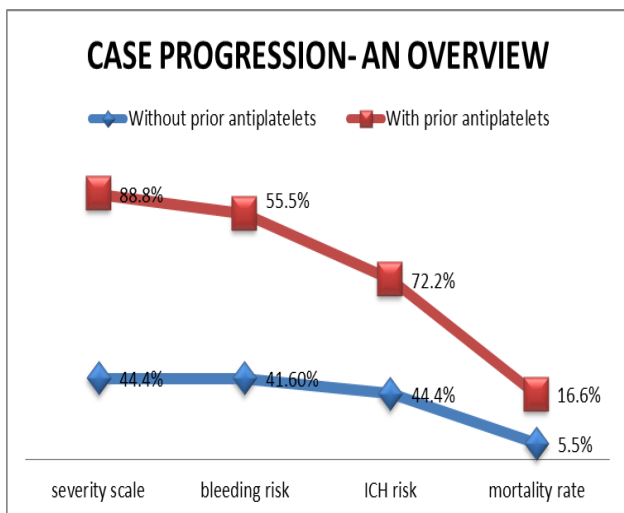


Figure 16: percentage variation of case progression – an overview between group A and group B.

Analysis of knowledge – attitude and eq-5d questionnaires

13. Knowledge - evaluation results

➤ Pre-Counseling And Post Counseling Results

After the analysis, out of 72 participants, 57.9% of them have poor knowledge 35.1% shows average knowledge and 7% shows good knowledge regarding the disease. We found a significant improvement between pre counseling and post counseling in the evaluation of knowledge in participants. Before counseling only 7% of the population showed a good knowledge regarding the disease and after the post counseling session analysis a 65.4% higher improvement was shown by the population. Within 95% confidence interval (51.4009 to 75.2246). After the chi-square analysis, the result was 63.874 and data showed a significant level of  $p < 0.0001$ .

Table 6: Statistical analysis of percentage variation in knowledge between group A and group B.

Parameters	Pre counseling	Post counseling	Statistical interpretation of data
Knowledge evaluation results			<b>Difference:</b> 65.4%
• Poor	57.9%	18.2%	<b>95% CI:</b> 51.4009 to 75.2246
• Average	35.1%	9.4%	<b>Chi-squared:</b> 63.874 <b>DF:</b> 1
• Good	7%	72.4%	<b>Significance level:</b> $p < 0.0001$ .

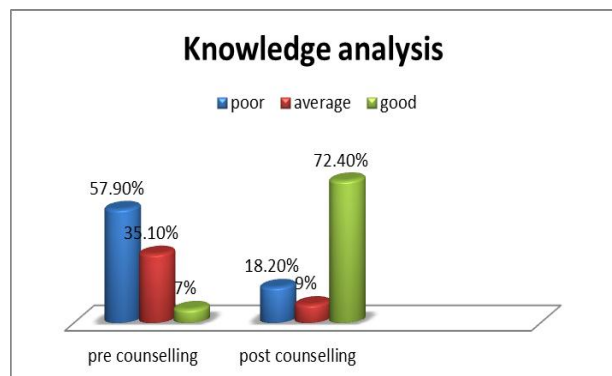


Figure 17: Percentage variation in knowledge between group A and group B.

14. Attitude Evaluation Results

➤ Precounseling and Post Counseling Results

Out of 72 participants before counseling, 35.4% of them have positive attitude and 64.6% shows negative attitude regarding the disease. We found a significant value of 77.8% improvement in positive attitude was shown in participants after counseling. The significant difference in improvement was 42.4% within 95% confidence interval (26.5581 to 55.2756). After the chi-square analysis, the result was 26.164 and data showed a significant level of  $p < 0.0001$ .

Table 7: Statistical analysis of percentage variation in attitude between group A and group B.

Attitude evaluation results	Pre counselling	Post counselling	Statistical interpretation of data
• positive	35.4%	77.8%	<b>Difference:</b> 42.4%
• negative	64.6%	23.2%	<b>95% CI:</b> 26.5581 to 55.2756
			<b>Chi-squared:</b> 26.164 <b>DF:</b> 1
			<b>Significance level:</b> $p < 0.0001$ .



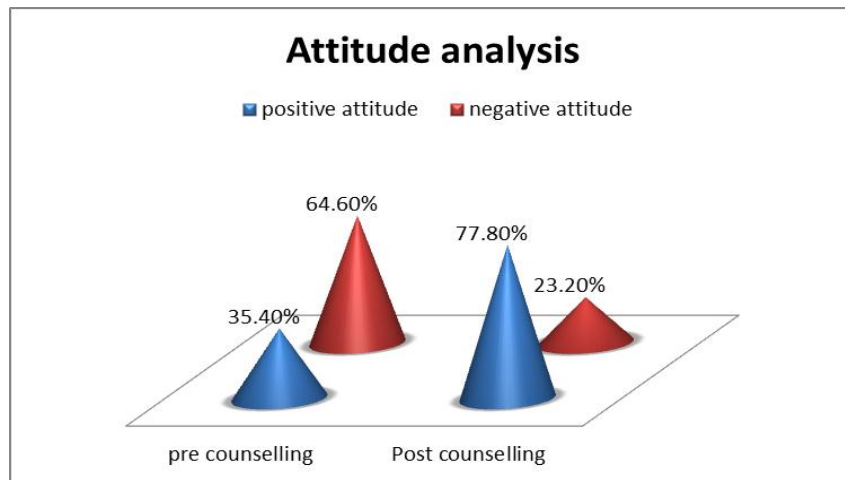


Figure 18: percentage variation in attitude between group A and group B.

**15. Health status evaluation results-eq-5d questionnaire**

**➤ Pre counselling and post counselling results**

According to EQ-5D questionnaire, before counseling, 84.9% of them have mobility severity, 87.5% had self care severity, 78.6% were unable to do daily activities, 61.2% shows pain / discomfort, and 58.4% shows severe

anxiety regarding the disease at the time of admission. We found a significant difference in improvement of 32.5% in mobility severity, 23.6% in self care severity, 27.2% in daily activities severity, 18% in pain/discomfort severity, 19% in anxiety severity respectively in participants after counseling.

Table 8: percentage improvement in health related quality of life.

EQ -5D evaluation results	Pre counselling	Post counselling
• Mobility severity	84.9%	<b>52.4%</b>
• self care severity	87.5%	<b>63.9%</b>
• daily activities severity	78.6%	<b>51.4%</b>
• pain/ discomfort severity	61.2%	<b>43.2%</b>
• anxiety / depression severity	58.4%	39.4%

Table 9: Statistical analysis of percentage improvement in health related quality of life.

Mobility	self care severity	daily activities severity	pain/ discomfort severity	anxiety / depression severity
Difference: 32.5% 95% CI:17.5339 to 45.5811 Chi-squared: 17.545 DF:1 Significance level: p< 0.0001.	Difference: 23.6% 95% CI: 9.6581 to 36.5043 Chi-squared: 10.824 DF:1 Significance level: p< 0.0010.	Difference: 27.2% 95% CI: 11.6627 to 41.0007 Chi-squared: 11.626 DF:1 Significance level: p=0.0007.	Difference: 18% 95% CI: 1.7033 to 33.0099 Chi-squared: 4.642 DF:1 Significance level: p= 0.0312.	Difference: 19% 95% CI: 2.6844 to 33.9553 Chi-squared: 5.165 DF:1 Significance level: p=0.0230

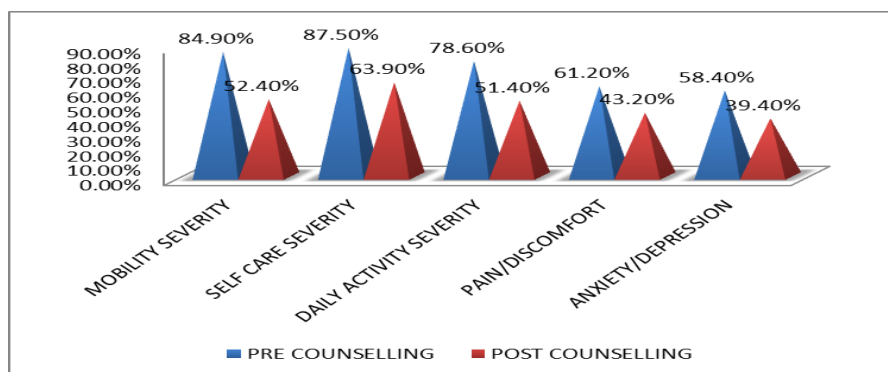
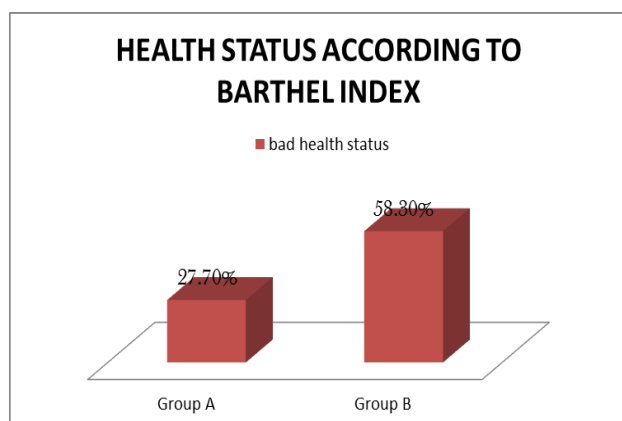


Figure 19: Percentage improvement in health related quality of life showing effectiveness of patient counseling.

### 16. Health Status Assessment During Follow Up Using Barthel Index

The Barthel scale or Barthel ADL index is an ordinal scale used to measure performance in activities of daily living (ADL). Each performance item is rated on this scale with a given number of points assigned to each level or ranking. It uses ten variables describing ADL and mobility. A higher number is associated with a greater likelihood of being able to live at home with a degree of independence following discharge from hospital.

After analysing the statistical data of comparative proportions, the BARTHEL INDEX for assessing health status shows only 27.7% moderate disability (bad health status) is shown in patients without prior anti-platelets and about 58.3% moderate disability (bad health status) is shown by patients with prior anti-platelets. This data is illustrates an decreased health status rate in intra-cranial hemorrhagic patients who are on pre-existing anti-platelet therapy.



**Figure 20: percentage distribution showing health status between group A and B.**

### CONCLUSION

After the analysis we identified an increased bleeding risk along with worsening and producing unfavourable outcome in the group who are on pre-existing anti-platelet therapy. And thus we conclude that there is a role for pre-existing antiplatelet therapy in worsening and producing unfavourable outcome after intra-cranial hemorrhage.

The present study showed a marked improvement in health related quality of life after an effective counseling regarding the disease and its management. There exists a gap between the lifestyle of the population and their knowledge about risk factors as reflected by the necessity of providing proper education to the public for preventing the occurrence and worsening of ICH. This study also proved improvement in knowledge and attitude of participants will significantly assists in improving their health related quality of life.

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### CONFLICT OF INTEREST

None.

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