# Evaluation of Non-Selective Beta-Blocker Use for Prophylaxis of Variceal Haemorrhage in Decompensated Cirrhosis

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## BACKGROUND

Variceal haemorrhage (VH) is a severe complication of decompensated cirrhosis (DC), occurring at a rate of 10-15% per year and associated with a 6-week mortality of 15-25%.[1] Local and international best practice guidelines recommend non-selective beta-blockers (NSBB – propranolol or carvedilol) and/or endoscopic variceal ligation (EVL) for prophylaxis of VH. In summary, Guidance Statements[1-3] recommend:

- Primary prophylaxis without varices: *NSBB not recommended;*
- Primary prophylaxis of grade 1 varices: *NSBB may be used for patients at higher risk of VH (stigmata of bleeding / Child-Pugh C cirrhosis);*
- Primary prophylaxis of grade 2/3 varices: *NSBB* or *EVL*;
- Secondary prophylaxis: *NSBB* and *EVL if tolerated*.

## AIM

To examine use of NSBB among ambulatory adults with DC who were enrolled in a randomised-controlled trial, to evaluate concordance with best practice guidelines.

## METHODS

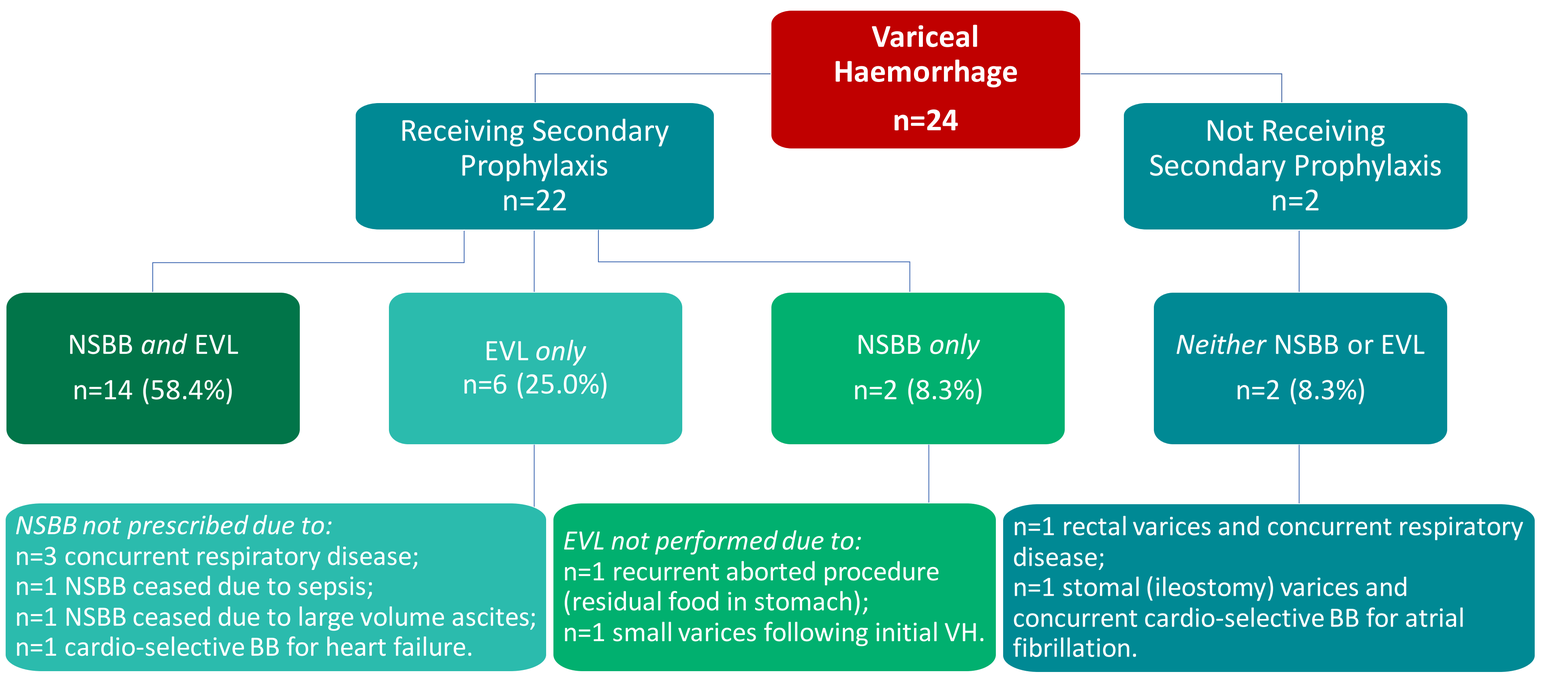
Patients with clinical or biochemical decompensation who were receiving ambulatory hepatology follow-up at the Princess Alexandra Hospital were invited to participate. The study protocol is described elsewhere.[4] Current medications, medical history, clinical and demographic variables were obtained via patient interview and medical records. Histology, Fibroscan®, ultrasound and endoscopy reports were used to determine presence of cirrhosis and varices. Documentation of existing relative contraindications (i.e. concurrent respiratory disease, prescription of cardio-selective beta-blockers (BB), significant ascites or systemic infection) were also examined.

## RESULTS

Data is available for 114 patients. Mean patient age was 58.8±10.2 years, 65.8% were male and most patients had alcoholic liver disease (47.4%), hepatitis C (33.3%) or non-alcoholic fatty liver disease (12.3%). At review, 22.8% of patients had Child-Pugh A, 59.7% had Child-Pugh B and 17.5% had Child-Pugh C cirrhosis.

Twenty-four patients had a history of VH (Figure 1), 52 had varices that had not bled, 25 had no varices and 13 patients had not undergone screening for varices (Table 1).

**Figure 1. Secondary prophylaxis received by patients with a history of variceal haemorrhage**




Among 29 patients prescribed primary prophylaxis (n=7 grade 1, n=14 grade 2, n=6 grade 3 and n=2 without varices), 12 instances (41.1%) were outside of guideline recommendations. However, evidence of individualised management in the context of patient-specific circumstances was present in 7 instances.

Ten patients with grade 2/3 varices on latest endoscopy were not prescribed primary prophylaxis with NSBB or receiving EVL. Relative contraindications to NSBB therapy were present in 6 patients, and another 2 had NSBB initiated at subsequent hepatology review.

**Table 1. Primary prophylaxis received by patients with varices of known severity**

| | No prophylaxis | NSBB *only* | EVL *only* | NSBB *and* EVL |
|---|---|---|---|---|
| No varices (n=25) | 23 | 2 | 0 | 0 |
| Grade 1 (n=19) | 12 | 7* | 0 | 0 |
| Grade 2/3 (n=30) | 10‡ | 15 | 2 | 3† |

Patients who had varices previously eradicated with no recurrence (n=2), varices without documentation of recent grade (n=1), and those who had not undergone screening (n=13) are not shown.
* Including one patient with previous grade 2 varices and three patients at higher risk of VH (stigmata of bleeding and Child-Pugh C cirrhosis).
† Three patients at higher risk of VH (stigmata of bleeding and Child-Pugh C cirrhosis).
‡ NSBB initiated in two patients following review; NSBB not prescribed in patients with concurrent moderate/large volume ascites (n=3), respiratory disease (n=2), those taking cardio-selective BBs (n=1), and for unknown reasons (n=2).

## CONCLUSION & LIMITATIONS

Variation in patient management compared to international best practice guidelines was observed. Individualised patient treatment (including use of NSBB for severe portal hypertensive gastropathy, data not collected), may account for some variation. In the absence of clinician documentation of individualised patient management, variation was assumed to be intentional if relative contraindications were present. While the small sample size and selection bias may further limit generalisability, the Princess Alexandra Hospital is one of the largest hepatology centres in Australia and the only liver transplant centre in Queensland. Our findings are therefore likely reflective of patient management in south-east Queensland. Follow-up at 12 months and 3 years will be conducted to compare first and subsequent VH among patients taking primary and secondary prophylaxis with outcomes published in the literature and at other centres.

## REFERENCES

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## DISCLOSURES

The authors have no conflicts of interest to declare.