Hospital re-admission rates related to presence or absence of hearing amplifiers for in-patients with congestive heart failure

Ava M. Karam; Hannah M. Robinson; Samuel R. Barber, MD; Jacob Kahane, MD; Leslie S. Son, PhD; Moises A. Arriaga, MD, MBA, FACS

LSUHSC Otolaryngology; Our Lady of the Lake Hearing and Balance Center

Introduction

- **Hearing loss is a common medical condition that progresses in both incidence and severity with age.**
- **Conductive hearing loss involves disruption of sound wave transmission to the cochlea, while sensorineural hearing loss involves problematic transmission at or after the cochlea (Figure 1).**

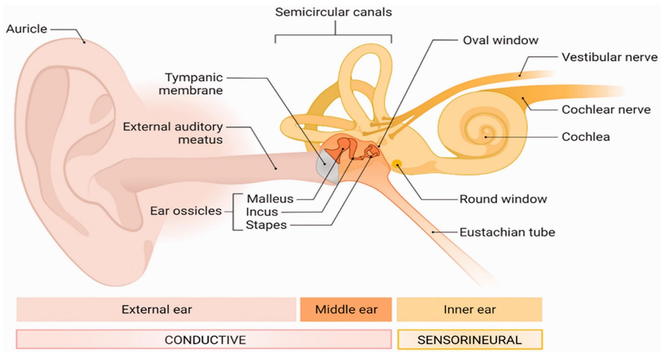

Figure 1: Anatomy of conductive and sensorineural hearing loss.[1]

- **A hearing amplifier is a wearable device that uses a microphone to deliver sound to the ear at a higher volume while removing background noise (Figure 2).**

Figure 2: Pocket talker hearing amplifier.[2]

- **Hospital re-admittance for chronic diseases such as congestive heart failure (CHF) is a significant life and cost burden to both the patient and hospital.**
- **23% of patients with CHF are readmitted to the hospital within 30 days of their initial admission date.[3]**
- **75% of adults 70 years or older with CHF have hearing loss.[4]**
- **This study evaluates if hearing amplification devices provided to patients prior to discharge and utilized during verbal discharge care instructions decrease 30-day readmission rates for patients admitted with CHF who had a hearing deficit.**

Methods

- **This is a prospective, non-blinded interventional study.**
- **Patients admitted for CHF completed a validated 15 item questionnaire to screen for a hearing deficit.**
- **Inclusion criteria comprised questionnaire scores over 10 and impending discharge to all dispositions.**
- **Using an alternating assignment methods, subjects were placed in one group receiving a hearing amplification device or another group without receiving a hearing amplification device.**
- **Patients enrolled in the hearing amplification group were educated on the device and instructed to wear it when receiving verbal discharge care instructions.**
- **Readmission rates within 30 days of discharge were identified and compared across the two groups.**

Results

- **Hearing deficit questionnaires were completed by 43 patients. Only 1 (2.4%) did not meet criteria with a score less than 10. One patient left the study after initial enrollment.**
- **Of enrolled subjects (n=41), 28 (68.3%) were in the hearing amplification group and 13 (31.7%) were in the control group (Table 1).**
- **Mean age was 67 years, 33 (80.5%) were male, 8 (19.5%) were female.**
- **In the hearing amplification group, 6 (21.4%) were readmitted within 30 days, while 3 (23.1%) in the control group were readmitted (Table 2).**

Characteristic	Measure
Mean age in years	67.41
Male	33 (80.5%)
Female	8 (19.5%)
White	28 (68.3%)
Black	12 (29.3%)
Not Hispanic or Latino	1 (2.4%)
Hearing Deficit Questionnaire Score	
≥20	36 (87.8%)
10-19	4 (1%)
<10	1 (2.4%)
Intervention with Pocket Talker	
Yes	28 (68.3%)
No	13 (31.7%)

Table 1: Demographics and clinical characteristics of 41 study subjects

Results

	Readmission
Patients readmitted with a pocket talker (n=28)	6 (21.4%)
Patients readmitted without a pocket talker (n=13)	3 (23.1%)

Table 2: Readmission rates in study subjects

Discussion

- **This is the first study evaluating the potential association between readmission rates and hearing loss.**
- **No statistically significant differences were found in readmission rates between groups.**
- **Hearing loss was exceedingly common in our study population with most patients meeting inclusion criteria.**
- **A readmission rate of 22.0% in our study population is comparable to rates published in the literature[3].**
- **Small sample size is the major limitation of preliminary data, which accounts for the lack of statistical significance.**
- **Further enrollment and data collection will improve the power of this prospective study.**

Conclusion

- **Hearing loss is a common comorbid condition in patients admitted for CHF. An association between readmission rates and hearing loss remains uncertain with a limited data set.**
- **Ongoing data collection with a larger study population will better determine if the presence of absence of hearing amplification devices plays a role in CHF patient readmission.**

References

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Correspondence: Moises A. Arriaga, MD, MBA, FACS. maa@neurtologic.com

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