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POSTNATAL URINARY RETENTION: RETROSPECTIVE ANALYSIS OF 3 TREATMENT GROUPS; INTERMITTENT SELF CATHETERISATION, INDWELLING URETHRAL CATHETERISATION, COMBINATION OF ISC + IUC.

Hypothesis / aims of study

Objectives: To examine whether the method of management influences the outcome for women with PNUR.

Further consideration explored whether the period of time between delivery and bladder drainage with a catheter affects the duration of PNUR. Also whether the volume of urine drained upon diagnosis of PNUR affects the duration of treatment.

Study design, materials and methods

Quantiative study using retrospective analysis of existing database for referrals, duration of PNUR and the treatment received using ISC, IUC or a combination of IUC + ISC.

The department protocol for defining PNUR is post void residual (PVR) >100mls in the absence of voiding at 4 hours, regardless of accompanying symptoms. Resolve of PNUR is considered when the post void residual is < 100mls.

In order to detect a difference the restoration of voiding function was split into two groups; PNUR resolving <7 days, and >7 days to resolve.

Inclusion criteria: Data from the established database of women referred and treated by the department during January 1st 2005 and January 1st 2010. All women delivered at the maternity units within County Acute Hospitals.

Exclusion criteria: Women with a neurological bladder condition, women who received a bladder perforation during delivery, and women already undertaking ISC for a pre-existing urinary condition.

Sample size: Between January 1st 2005 and January 1st 2010, 124 women were referred to the department for PNUR of which 88 attended for treatment. The remaining 36 women failed to attend as assessment. Of those women attending:

21 referrals were made for urinary incontinence postnatally, not PNUR

12 women were found not to have PNUR

7 women were excluded (using the exclusion criteria)

Of the 48 women with PNUR remaining, 3 women were lost to follow-up and documentation remained incomplete, leaving a total of 45 women with PNUR under the inclusion/exclusion criteria.

Results

Section 1: The relationship between days to resolve PNUR between ISC, IUC, ISC + IUC:

A Chi-square test for independence, for distribution, indicating a significant association between resolve of symptoms and treatment arm, X2 (n=45) = .55, p=0.001, phi = .001.

Further analysis using a Kruskal-Wallis explored total number of days (as continuous data) before resolution of PNUR per group found a significant difference between number of days until resolve with the IUC group, Asymp.sig =.001.

For the ISC group; Median 24.5 days (range 9-51 days), IUC group; Median 8 days (range 1-47 days), ISC + IUC group; Median 27 days (range 10-9- days).

Section 2:The relationship between hours after childbirth and first drainage with resolve <7/>7 days:

A Chi-square test for independence indicated no significant association between the hours after childbirth and first drainage with resolve of PNUR <7 days, X2 (n=45), p=.466, phi=.320.

Section 3: The relationship between volume at first drainage and resolve <7/>7 days:

A Chi-square test for independence indicated no significant association between the volume at first drainage and resolve of PNUR < 7 days, X2 (n=45), p=.166, phi=.380.

Correlation between time and volume:

In view of the only study which failed to demonstrate a correlation between time and volume (Foon et al, 2010), further analysis was carried out to test for a possible correlation between the hours between delivery and first volume drained: A Chi-square test for independence did not find any significant correlation between time and volume, X2 (n=45), p=.691, phi=.604 Due to the impaired sensation following epidural administration, further analysis of the epidural group failed to demonstrate any correlation between hours to void and volume at drainage, Chi-square test for independence; p=.614, phi=.672.

Section 4: How do individual variables independently affect resolution of PNUR within 7 days or > 7 days?:

The only individual variables independently to affect resolution of PNUR <7 days were episiotomy and instrument-assisted delivery.

Analysis excluding 'not documented' data entries for episiotomy: A Chi-square test for independence indicated a significant association between epidural and resolve of PNUR <7days, X2 (n=19) p= 0.014, Exact.sig (2-sided) 0.032.

Excluding 'not documented' data entries for instrument-assisted delivery, A Chi-square test for independence indicated a significant association between instrument-assisted delivery and resolve of PNUR <7 days, X2 (n=17), p=0.002, Exact .sig (2-tailed) 0.003.

Does having an episiotomy or instrument-assisted delivery affect what treatment the women received?:

The significant variables of episiotomy and Instrument-assisted delivery were tested to see if having either affects what treatment category the women received. A Chi-square test for independence indicated no significance between which category of treatment women with episiotomy received, p=.244, and no significance between category of treatment women with instrument-assisted delivery. p=.212. In other words not all women having an episiotomy and/or instrument-assisted delivery received IUC.

Interpretation of results

We have studied a cohort of women with PNUR and have observed that retention appears to resolve sooner (<7 days) when treated with IUC, in comparison to ISC or a combination of ISC + IUC. This rejects the hypothesis that ccommencing ISC as first line treatment resolves PNUR sooner than resting the bladder with IUC. We also examined whether patient demographic or delivery variables were factors associated with duration of retention. From the analysis the only individual significant variables were episiotomy and instrument-assisted delivery; both of which were associated with longer resolution times. We wondered whether women who had sustained instrumental deliveries and/or episiotomies were more likely to be managed by either ISC or IUC, but our analysis did not show that these two variables affected which treatment the women were given.

No significant association between time and hours was observed which may have been due to the small sample in this study; however Foon et al (2010) studied 120 women and reached the same conclusion. Given the evidence in Foon's study for lack of sensation following epidural lasting 234 minutes, analysis was undertaken to assess whether the women receiving epidurals in our study had any longer PNUR, or longer time periods before catheterising, or larger volumes when first drained, however we did not observe any significant correlation. This study did not observe any significant delay in resolve of PNUR in the women who were catheterised after a longer period of time without voiding.

Concluding message

This is the first study which compares duration of PNUR by treatments of ISC or IUC. In conclusion, this study appears to show evidence to indicate both episiotomy and instrument-assisted delivery may take >7 days to resolve PNUR. .

These observations help to demonstrate efficacy of IUC as a treatment for PNUR, however given the lack of evidence found, it would be essential to undertake a qualitative study about the impact of PNUR and patient satisfaction after choice of treatment. In addition it would be fundamental to supplement the findings with a costing analysis to explore if the cost of either prolonged hospitalization with an IUC, or a follow-up appointment after 7 days, catheter cost, and any subsequent treatment for UTI or complications is more economically effective than teaching and supplying intermittent catheters and the subsequent follow-up which is required with a patient undertaking such treatment. This could also be undertaken using prospective data collection with better data forms based on our study findings

References

1. Foon.R. Toozs-Hobson.P. Millns.P. Kirby.M. (2010) The impact of anesthesia and mode of delivery on the urinary bladder in the post delivery period. International Journal of Gynaecology and Obstetrics. 110. pp114-117

Specify source of funding or grant	**No Grant funding**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Ethcial disclosures**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**