Introduction:

Tracheostomy is a lifesaving emergency procedure and it was first practiced by Egyptians in 3600 BC (1) . For a considerable duration of time, tracheostomy (PT) was initially performed to relieve upper airway obstruction. Percutaneous tracheostomy is recently the most common and frequently performed bed side procedure in ICU with minutest morbidity (2,3) . Commonly carried out PT are Griggs method and Ciaglia Blue Rhinos PT.

The commonly encountered difficulties during percutaneous tracheostomy are – kinking of guidewire and injury to posterior wall of trachea (4) guidewire stabilization. So to negotiate all there issue we have introduced a technical modification and use of bougie in the final step of percutaneous dilatational tracheostomy . This bougie modification will help to mitigate all the above mentioned issues and less time consuming and the ease of inserting the tracheostomy tube in the final step is countable. Bougie is an established airway adjuncts & it is used for difficult airway over the world. The bougie modification will be helpful for reusable guidewire, for narrow incision and if the dilation is not adequate.

Aim and objective:

The aim of this study is to prove that by modifying the final step of percutaneous dilatational tracheostomy (PDT) with introduction of bougie (fenestrated/ frova bougie) will significantly improve the easeness of insertion of tracheostomy tube & will take lesser time in comparision to standard PDT technique. This innovation is quite necessary and we postulate that this will help in overall procedural satisfaction and less time consuming for operator.

Material and methods:

We have done a prospective and comparative analysis os two groups of patient requiring PDT. We have taken 104 patient & make two groups consisting of 51 and 53 respectively. One group (53) underwent standard PDT and in other group (51) bougie modification aws done.

A neutral third person is assigned the task of measuring the time taken from incision to securing the tracheostomy tube. The subjective analysis for ease of doing the procedure is done with a questionnaire which is done as rating points

from 0 to 5, where 0 is unsatisfactory and 5 is complete satisfactory. Questionnaire are distributed by a third person to the operator in a sealed envelope and after registering his response he/she will deliver the envelope to the investigator. The questionnaire will be rechecked by a neutral observer and any change in response should be discarded.

A stop watch is required for measurement of time. No extra material is used for procedure as fenestrated bougie is available in PDT set. Consent for PDT taken for each patient and approval from institutional ethics committee also taken.

Results:

In group A by standard Griggs PDT time taken from incision to fixation of tracheostomy tube is 20-25 min (5). Interestingly group B with bougie modification in final step was done in 7-12 min of time

Discussion:

In the final step of Griggs percutaneous tracheostomy we insert the tracheostomy tube over the guidewire into the trachea . The modification in the final step that we have introduced is as followed—

We cut the bougie at 30 cm length and rail road over the guidewire and remove the guidewire. Then we insert the tracheostomy tube over the bougie and fix the tracheostomy tube to skin.

In group A patient, there are complication like expansion of initial incision (14 no), kinking of guidewire (17 no), requirement of interuption and re-oxygenation (21 no), call for help (senior) (24no). Bronchoscopy guidance used in all patient.

Fig 1 – insertion of bougie over guidewire

Fig 2 – insertion of tracheostomy tube over bougie

Conclusion:

Bougie modification of final step of PDT makes the procedure is very convenient and user friendly. So this short duration leads to prevention of lots of procedure related complication and procedure related satisfaction. So we strongly recommend the use of this modification to all the intensivist around the world

References:

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