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KEYWORDS:

THE BACTERIOLOGICAL PROFILE OF BURN WOUND INFECTIONS POST TRADITIONAL THERAPY AT A TERTIARY BURNS CENTER IN PALESTINE

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Abstract

Background: In developing country, large number of patient go to traditional therapy to prevent scar . Patient's reports to tertiary center late after infection appear. A total of 50 burn cases were coming to burn unite in 2019 infected burn post traditional therapy the study period.

Method: Retrospective study by review of file of patient admitted to burn unite 2019.

Objective : The objective of study resumption to appear extent prevalence of infection burn post traditional therapy in Hebron government hospitals to provide guidance for burn prevention, and to reduce infection of burns in Hebron and West Bank.

Finding: most of them and male 56%. female 44% Most of them are children, causes of burn 76% scald burn, 20 % of flam burn. With different depth to body surface area (TBSA), 40% from patient TBSA less than 5%, and 40% from patient 5-10 %, and 24.7 TBSA from 16-25 %, and TBSA more than 14% from total population. According to coming to hospital 52% from patient coming with less than 7 days, 42% coming after 7 days. According to treatment 60% from Conservative treatment (dressing, antibiotics). And 40% need operation as (debarment or skin graft). According to type of bacteria 57 % are gram negative, 43 % gram positive, and according pathogen name Acinetobactor, Enterobacter spp. With percent 10 %, and Klebsiella spp. 10% and MRSA 10%, Pseudomonas aeruginosa 20%, Staphylococcus aure 12%us 8% and MRSE . Meropenem and Trimethoprim/ sulfamethoxpxazole showed the highest sensitivity to all the pathogens isolated, most of bacteria resistance Amoxicillin

Conclusion: Pseudomonas aeruginosa , Staphylococcus aure, piperacillin+Tazobactum, Trimethoprim/ sulfamethoxpxazole and Gentamycin. showed the highest sensitivity, most of bacteria resistance Amoxicillin. early treatment of burn with medical team, prevent infection, and complication, need more awareness among people to avoid traditional treatment

1. Introduction and Background

Burn injury is a public concern in the world. The skin large organ with multiple functions to provide homeostasis, temperature control, sensation, protection, and acts as a barrier against infection [1]. Since people learned to make fire, burns and scalds have been one of the most public of his injuries [3]. Throughout pervious history there have been many different treatments given for burns, although they often do not have sufficient evidence to support their use [4]. In some Asian and African countries, more than 80% of the population rely on traditional medicine for their primary health-care needs. When adopted outside of its traditional culture, traditional medicine is often called complementary and alternativ
medicine.

Traditional medicine is any healing practice 'that does not fall within the realm of conventional medicine'. It may be based on historical or cultural traditions, rather than on scientific evidence. The terms 'complementary medicine' or 'alternative medicine' is used inter-changeably with traditional medicine in some countries. They refer to a broad set of health-care practices that are not part of that country's own tradition and are not integrated into the dominant health-care system.

Wound healing is the result of interactions among cytokines, growth factors, blood and cellular elements, and the extracellular matrix. The cytokines promote healing by various pathways, such as stimulating the production of components of the basement membrane, preventing dehydration, increasing inflammation and the formation of granulation tissue.

The World Health Organization (WHO) has estimated that burn injury results in 265,000 deaths in the Palestine Study to describe the epidemiology and outcomes of burn patients in a major burn center in south of west bank between 2016 and 2017. Our findings showed that in the future, children under 14 years old, females, incidents occurring in winter, and scald burns should receive more attention to prevent burn injuries. Furthermore, individualized burn prevention and treatment strategies based on risk factors such as full-thickness burns, burns with a larger TBSA, older age, higher operation number and better outcomes should be adopted . Since most burn injuries are domestic, preventive and educational programs should be set focusing on mothers and housewives to emphasize the importance of safety and carefulness [2].

The bacterial flora of the wound changes with time. Before burn injury the normal flora of the skin contains gram-positive as Staphylococcus sp. The mechanism of burn initially causes entry of microorganism due to damage of the skin. In the first 5 days after burn, the surrounding microbes from the skin, hair follicles, sebaceous glands, and the environment colonize and are usually gram-positive staphylococci or streptococci. After around day six, these gram-positive organisms are often replaced with gram-negative organisms such as Pseudomonas aeruginosa and Escherichia coli [5].

The diagnosis of infection, depending on resource availability, relies on objective and subjective criteria. Erythema, pain, early separation of burn Escher, malodor, and pus wound point toward wound infection. Biopsy, swabs, or tissue histology can give substantial information regarding organism and sensitivities [6].

This study is first study done in this area of burn in Palestine and in Hebron hospitals in specific. The aim study resumption to appear extent prevalence of infection burn post traditional therapy in Hebron government hospitals to provide guidance for burn prevention, and to reduce infection of burns in Hebron and West Bank.

2. Objective of the study

The objective of study resumption to appear extent prevalence of

infection burn post traditional therapy in Hebron government hospitals to provide guidance for burn prevention, and to reduce infection of burns in Hebron and West Bank

3. Method of study

The medical records (computers file) in Hebron Hospital, from 1 January 2019, to 31 December 2019 were reviewed. All the records with a final diagnosis of definite burn infected related to use traditional therapy were selected and collected for the analysis. Conducted a retrospective review of the clinical charts of 270 file burn patient coming and admission to burn unite. The date and time of visit was recorded together with the patient's age and sex, and cause of burn, TBSA, site of burn, wound swab culture. isolation, Identification, and Antimicrobial Susceptibility Testing Standard microbiological techniques were used to culture samples. Gram staining, colony morphology, and biochemical tests were used for identification type of bacteria.

3.1 Study Setting: This study was conducted in the West burn unite in Hebron government hospital south of West Bank.

3.2 Ethical consideration and accessibility: Permission obtained to access the MOH(Ministry of health) hospitals report when approval by the director of hospital services. Not use the name or taken the name of participant. See in annex

3.4 Data analysis procedure: After data collection, from file filled in the table and entered and analysed using the Statistical Package for Social Science program (computer soft ware SPSS V.22) for descriptive and inferential statistics. Frequencies were used to present the distribution of study variables.

4. Result

Table 1 show distribution of patients according to burn characteristics.

Item		No	Percent %
Gender	Male	28	56%
	Female	22	44%
Age	0 – 3	5	8%
	4- 10	17	34%
	11- 20	11	22%
	21- 30	3	6%
	31- 40	11	22%
	41- 50	2	4%
	51 and more	2	4%
Area of burn	Rural	23	46%
	Urban	27	44%
Place of burn	Indoor	36	72%
	Outside	14	28%
Seasonal burn happened	Winter	20	40%
	Spring	6	12%
	Summer	14	28%
	Autumn	10	20%
Material status	Single	34	68%
	Married	16	32
	Other	0	
Occupation	Child	10	20%
	Student	27	54%
	Housewife	6	12%
	Employee	4	8%
	Worker	3	6%

According to table 1 the result appear. a total of 50 burn cases were coming to burn unite in 2019 infected burn post traditional therapy the study period. most of them and male 56%. female with percent 44 %, martial statues 68% single, 32married. According to occupation 20% child, 27% student, 6 % housewife, 6% worker. According to age 42% burn patient less than 10 years , and 22% from 11 -20 years, and 36% age more than 21 year. According to area of place the same 46% live in rural area, 54% live urban. According to burn happen 72% happen in door, 28% out side. Time 40% in winter, 12 % in spring, 28% in summer, 20% in autumn

Table 2 show distribution of patients according to burn characteristics.

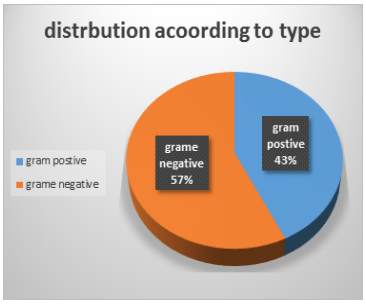
Cause of burn	Scalding	38	76%
	Electrical	0	
	Chemical	2	4%
	Flame	10	20%
Site of burn injury	Face and head, Neck	10	20%
	Chest	10	20%
	Back	8	16%
	Abdomen	12	24%
	Upper limbs	18	36%
	Lower limbs	18	36%
Depth degree of burn	First & second degree	18	36%
	Second & third degree	14	28%
	Different degree	18	36%
Total body surface area	Less than 5	20	40%
	5-10	20	40%
	16-25	7	14%
	26-35	3	6%
	36-45 or more	0	
Burn coming	Less than 7 days	26	52%
	More than 7 days	24	48%
Treatment	Conservative treatment	30	60%
	Operation	20	40%

According to causes of burn 76% scald burn, 20 % of flam burn, less than 4% chemical burn. According to depth 36%% of patient First & second degree, and Second & third degree 28% , Different degree 36%. According to body surface area (TBSA), 40% from patient TBSA less than 5% 40% from patient 5-10 %, and 24.7 TBSA from 16-25 %, and TBSA more than 14% from total population.

According to site of burn limbs were the widely public burn sites, 36%, the second, and chest abdomen with 20%. then head, face and neck site 10% According to coming to hospital 52% from patient coming with less than 7 days, 42% coming after 7 days.

According to treatment 60% from Conservative treatment (dressing, antibiotics). And 40% need operation as (debarment or skin graft).

Figure 1 Swab result



According to type 57 % are gram negative, 43 % gram positive

Table 3 type of bacteria

Organism	Number of patient	Type of bacteria	Percent
Acinetobactor	5	Gram negative	10%
Enterobacter spp.	5	Gram negative	10%
Klebsiella spp.	10	Gram negative	20%
MRSA	10	Gram positive	20%
MRSE	6	Gram positive	12%
Pseudomonas aeruginosa	10	Gram negative	20%
Staphylococcus aureus	4	Gram positive	8%
Total			
Single organism	31		62%
Mix organism	19		38%

According pathogen Acinetobactor, Enterobacter spp. With percent 10 %, and Klebsiella spp. 10% and MRSA 10%, Pseudomonas aeruginosa 20%, Staphylococcus aure 12%us 8% and MRSE .

Table 4 bacterial sensitive

Type of antibiotics	Staphylo coccus aureus	Acinetob actor	Enteroba cter spp	Klebsiell a spp	MRSA	MRSE
ciprofloxacin	4	2	2	2		3
Erythromycin	2					1
Gentamycin		3	4	3	3	1
vancomycine		4	3	2	3	1
Rifampicin	4					4
Clindamycin	2					2
Tetracycline						
Trimethoprim/ sulfamethoxpx azole	4	5	5	5	4	4
Nitrfuration	1					2
Fusdic acid	1				2	
Cefoxition	3	2	1	2	1	2
Meropenem	4	3	3	2	1	2
Ceftazidime		2	2	5		
Piperacline / tazobactam		4	4	5	3	3

According to table bacteria not resistance all antibiotics but Amoxicillin is resistance

Discussion

Research of The Bacteriological Profile of Burn Wound Infections post Traditional therapy at a Tertiary Burns Center in Hebron –Palestine to know the type of infection and know the dangers of use traditional infection.

Gender

A total of 50 burn cases were coming to burn department in 2019 the study period that used traditional therapy and admission to hospital. Female with percent 46 % , and male 54%. Martial statues 68 % single, this percent with pediatric, 32 married, that accept with study [2].

Age

In this study see that more of child burn injuries with percent 42% lower than 10 years . This finding nearly in accordance with the old research, which revealed that most of burn injuries were at house [14]. This is because of in our society pediatric stay more of their times at house more than other location. And the children not take decision to go the traditional therapy. this finding is same to previous studies from Iran [2], and Turkey [15], Pediatric under 5 years old are more risk 31%, especially from birth to 3 years old, This agree with previous studies which was conducted by [6], [2]..

Causes

According to causes of burn 76% scald burn, 20 % of flam burn, less than 4% chemical burn. Same the various observations had reported that scald burns are the most common cause of burn injuries [13]. This can be given that pediatric especially infants and preschool children stay with their family at house, and would probably be left playing in home around the kitchen most scald burn due to hot water.

Depth

This study revealed that majority of burn injuries with first and second degree of burn. This result is nearly in agree with the other old research [15].

Burn coming to hospital after traditional therapy

According to study 52 % from patient coming with less than 7 days after appear signs of infection, and 48% coming after 7 days due to not improvement and signs of infection

Type of bacteria

According to type 57 % are gram negative, 43 % gram positive that accept with study of [9]. and[3].the prevalence is very high in our study with gram negative due to live or material use by traditional, and use proper and sterile way in dressing In our study MRSA, E. coli, Klebsiella sp.,Pseudomonas aeruginosa are the most common bacteria appear in wound swap culture.

Most patient use traditional therapy in our study appear mix bacteria more than one microorganism with percent 62 %.

In our study, MRSA, E. coli, Klebsiella sp.,Pseudomonas aeruginosa was the most common organism isolated from the burn wound use traditional therapy, which is in accordance with many published studies showing mostly sensitive to piperacillin+Tazobactum, Trimethoprim/ sulfamethoxpxazole and Gentamycin. [7]. [8].

Conclusion

Burn are common specially in developing countries due to prevent scar burn patient go to traditional therapy, due to policy of burn unite every patient admission to burn unite do swap culture to type of bacteria and give suitable antibiotic, gram negative bacteria most common and most common Pseudomonas aeruginosa , Staphylococcus aure, piperacillin+Tazobactum, Trimethoprim/ sulfamethoxpxazole and Gentamycin. showed the highest sensitivity, most of bacteria resistance Amoxicillin. early treatment of burn with medical team, prevent infection, and complication, need more awareness among people to avoid traditional treatment.

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